UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

DUKE MANUFACTURING CO.
Petitioner

v.

MARMON FOODSERVICE TECHNOLOGIES, INC.
Patent Owner

Case: IPR2026-00406
Patent No. 10,852,002

DECLARATION OF GLENN VALLEE

Duke Manufacturing Co. EX1003
U.S. Patent No. 10,852,002

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IV. GROUND 1: CLAIMS 1, 3-15, 17-19, 21, 23, AND 25-27 WOULD HAVE BEEN OBVIOUS OVER THE IRHS DOCUMENTS 86

A. Combination of the IRHS Documents 86

B. Independent Claim 1 97

1.P: a multi-zone food holding bin comprising 97
1.a: a chassis having a top panel, a first side panel, a second side panel, a bottom panel, a front face, and an opposing rear face 99

1.b.1: a first food holding compartment within the chassis, the first food holding compartment being defined by the first side panel, the second side panel, the top panel and a shelf..... 101
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1.c.2: the substantially planar surface extending completely to the first opening of the first food holding compartment 105
1.c.3: and the substantially planar surface comprising a thermally conductive material 106
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1.d.2: the first food holding zone having an independently controllable first heating element disposed at a top portion of the first food holding compartment, and an independently controllable second heating element disposed at a bottom portion of the first food holding compartment..... 109
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1.f.1: wherein the first food holding zone and the second food holding zone are adjacent one another across the substantially planar surface 134
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1.g: wherein a first bezel is set forward from the shelf by a space .. 144

C. Claim 3: the food holding bin of claim 1, wherein the first bezel comprises dedicated displays and the dedicated display displays a temperature setting for a corresponding food holding bay 149

D. Claim 4 155

4.a.1: 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 155
4.a.2: the substantially planar bottom surface is configured to allow food items to be placed on the substantially planar surface through the first opening and removed from the planar and bottom surface from the second opening 162

E. Claim 5: the food holding bin of claim 4, wherein the first bezel is located proximate the front face of the chassis, the food holding bin further comprising a second bezel located proximate the opposing rear face of the chassis.....167

F. Claim 6: the food holding bin of claim 1, wherein both the first and second independently controllable heating elements comprise a resistive wire.....171

G. Claim 7: the food holding bin of claim 1, wherein the substantially planar surface is substantially free of any dividing walls or other structure between the first, second, third, and fourth food holding bays 175

H. Claim 8: the food holding bin of claim 1, wherein the first independently controllable heating element comprises a radiant heating source and the second independently controllable heating element provides heat energy through conduction 176

I. Claim 9: the food holding bin of claim 1, wherein each food holding bay further comprises a dedicated lid holding shelf elevated above the substantially planar bottom surface in the first food holding compartment, the dedicated lid holding shelf being configured to receive and store a lid for a food holding tray 183

J. Claim 10: the food holding bin of claim 1, wherein the first independently controllable heating element is a radiant heating element 186

K. Claim 11: the food holding bin of claim 1, wherein the substantially planar surface comprises aluminum.....190

L. Claim 12: The food holding bin of claim 1, further comprising a food holding tray resting on the substantially planar surface.....191

M. Claim 13: The food holding bin of claim 1, the first food holding zone and the second food holding zone being heated to different temperatures. 192

N. Independent Claim 14 195

14.P-14.f.2 195
14.g: wherein the first independently controllable heating element is adapted to output more heat energy than the second heating element 196

O. Claim 15 198

15.a.1: the food holding bin of claim 14, wherein the first and second food holding compartments each have a second opening, uncovered and located at the rear face of the chassis 198
15.a.2: the substantially planar bottom surface is configured to allow food items to be placed on the substantially planar surface through the first opening and removed from the planar and bottom surface from the second opening 198

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R. Claim 19: the food holding bin of claim 14, wherein the first independently controllable heating element comprises a radiant heating source and the second independently controllable heating element provides heat energy through conduction 200

S. Independent Claim 21 201

21.P-21.f.2 201
21.g.1: further comprising a second food holding compartment disposed below the first food holding compartment within the chassis,

the second food holding compartment being defined by the first side panel, the second side panel, and the shelf..... 201
21.g.2: the second food holding compartment having a first opening, the first opening of the second food holding compartment being configured to allow food items to be placed into and removed from the food holding compartment 202
21.h: 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..... 205
21.i.1: wherein the shelf is located between the first and second food holding compartments, 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
21.i.2: the second and fourth heating elements are disposed in the shelf and in thermal communication with the first side 210
21.i.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..... 214
21.j.1: wherein the shelf comprises an upper thermally conductive plate, a lower thermally conductive plate, a fifth heating element, and a sixth heating element 218
21.j.2: the fifth and sixth heating elements being disposed between the upper thermally conductive plate and the lower thermally conductive plate 226
21.j.3: the second and fourth heating elements being in thermal communication with the upper thermally conductive plate and the fifth and sixth heating elements being in thermal communication with the lower thermally conductive plate 230
21.j.4: the fifth and sixth heating elements providing heat energy into the second food holding compartment 236

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23.a.1: The food holding bin of claim 21, wherein the first and second food holding compartments each have a second opening, uncovered and located at the rear face of the chassis 239
23.a.2: the substantially planar bottom surface is configured to allow food items to be placed on the substantially planar surface through the first opening and removed from the planar and bottom surface from the second opening. 240

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C. Claim 16: the food holding bin of claim 14, comprising a rotatable latch disposed adjacent the first opening 263

D. Claim 20: 267

20.a: the food holding bin of claim 14, wherein each food holding bay further comprises a dedicated lid holding shelf elevated above the substantially planar bottom surface in the first food holding compartment, the dedicated lid holding shelf being configured to receive and store a lid for a food holding tray 267

20.b.1: wherein a rotatable latch disposed adjacent the first opening is rotatable between a locked position in which the latch prevents a lid from being removed from the lid holding shelf, and an unlocked position in which the latch allows removal of a lid from the lid holding shelf, ... 268

20.b.2: the latch being biased to the locked position by gravity..... 271

E. Claim 24: the food holding bin of claim 21, comprising a rotatable latch disposed adjacent the first opening 275

F. Claim 28: 275

28.a: the food holding bin of claim 21, wherein each food holding bay further comprises a dedicated lid holding shelf elevated above the substantially planar bottom surface in the first food holding compartment, the dedicated lid holding shelf being configured to receive and store a lid for a food holding tray 275
28.b.1: wherein a rotatable latch disposed adjacent the first opening is rotatable between a locked position in which the latch prevents a lid from being removed from the lid holding shelf, and an unlocked position in which the latch allows removal of a lid from the lid holding shelf 276
28.b.2: the latch being biased to the locked position by gravity..... 276

G. Claim 29: 277

29.a: the food holding bin of claim 21, further comprising: a first bezel is set forward from the shelf by a space 277
29.b: a rotatable latch disposed adjacent the first opening 277
29.c: wherein each food holding bay further comprises a dedicated lid holding shelf elevated above the substantially planar bottom surface in the first food holding compartment, the dedicated lid holding shelf being configured to receive and store a lid for a food holding tray. 277
29.d: wherein the first independently controllable heating element is adapted to output more heat energy than the second heating element 278

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A. Modifications of Fortmann'748 347

1. 2x4 Configuration 347
2. Multiple Temperature Zones per Compartment 353
3. Independently Controllable Top and Bottom Heaters per Zone 374
4. Modified Controls 382
5. Temperature Control 391
6. Timer Bar/Bezel 399
7. Discrete Lids for Each Pan Holding Location 416
8. Latches 430
9. Insulation 437

B. Independent Claim 1 445

1.P: A multi-zone food holding bin comprising: 445
1.a: a chassis having a top panel, a first side panel, a second side panel, a bottom panel, a front face, and an opposing rear face 447
1.b.1: a first food holding compartment within the chassis, the first food holding compartment being defined by the first side panel, the second side panel, the top panel and a shelf..... 450

1.b.2: the first food holding compartment having a first opening, the first opening of the first food holding compartment being configured to allow food items to be placed into and removed from the first food holding compartment..... 452
1.c.1: a substantially planar surface forming a top surface of the shelf and thus a bottom surface of the first food holding compartment ... 455
1.c.2: the substantially planar surface extending completely to the first opening of the first food holding compartment 458
1.c.3: and the substantially planar surface comprising a thermally conductive material; 459
1.d.1: a first food holding zone formed in the first food holding compartment..... 461
1.d.2: the first food holding zone having an independently controllable first heating element disposed at a top portion of the first food holding compartment, and an independently controllable second heating element disposed at a bottom portion of the first food holding compartment..... 463
1.d.3: the first food holding zone including a first food holding bay and a second food holding bay, each of the first and second food holding bays being configured to receive a food holding tray..... 466
1.e.1: a second food holding zone formed in the first food holding compartment..... 469
1.e.2: the second food holding zone having an independently controllable third heating element disposed at the top portion of the first food holding compartment and an independently controllable fourth heating element disposed at the bottom portion of the first food holding compartment..... 470
1.e.3: the second food holding zone including a third food holding bay and a fourth food holding bay, each of the third and fourth food holding bays being configured to receive a food holding tray..... 473
1.f.1: wherein the first food holding zone and the second food holding zone are adjacent one another across the substantially planar surface 477
1.f.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..... 479
1.g: wherein a first bezel is set forward from the shelf by a space .. 487

C. Claim 2: the food holding bin of claim 1, wherein the space is configured to allow a latch to rotate from a locked position to an unlocked position to release lids held on lid holding ledges elevated above the substantially planar surface.....493

D. Claim 3: the food holding bin of claim 1, wherein the first bezel comprises dedicated displays and the dedicated display displays a temperature setting for a corresponding food holding bay 509

E. Claim 4 511

4.a.1: 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 511
4.a.2: the substantially planar bottom surface is configured to allow food items to be placed on the substantially planar surface through the first opening and removed from the planar and bottom surface from the second opening 514

F. Claim 5: the food holding bin of claim 4, wherein the first bezel is located proximate the front face of the chassis, the food holding bin further comprising a second bezel located proximate the opposing rear face of the chassis.....519

G. Claim 7: the food holding bin of claim 1, wherein the substantially planar surface is substantially free of any dividing walls or other structure between the first, second, third, and fourth food holding bays 521

H. Claim 8: the food holding bin of claim 1, wherein the first independently controllable heating element comprises a radiant heating source and the second independently controllable heating element provides heat energy through conduction 525

I. Claim 9: the food holding bin of claim 1, wherein each food holding bay further comprises a dedicated lid holding shelf elevated above the substantially planar bottom surface in the first food holding compartment, the dedicated lid holding shelf being configured to receive and store a lid for a food holding tray 527

J. Claim 10: the food holding bin of claim 1, wherein the first independently controllable heating element is a radiant heating element 534

K. Claim 12: the food holding bin of claim 1, further comprising a food holding tray resting on the substantially planar surface.....535

L. Claim 13: the food holding bin of claim 1, the first food holding zone and the second food holding zone being heated to different temperatures 538

M. Independent Claim 21 543

21.P-21.f.2 543
21.g.1: further comprising a second food holding compartment disposed below the first food holding compartment within the chassis, the second food holding compartment being defined by the first side panel, the second side panel, and the shelf..... 543
21.g.2: the second food holding compartment having a first opening, the first opening of the second food holding compartment being configured to allow food items to be placed into and removed from the food holding compartment 546
21.h: 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..... 548
21.i.1: wherein the shelf is located between the first and second food holding compartments, 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 550
21.i.2: the second and fourth heating elements are disposed in the shelf and in thermal communication with the first side 553
21.i.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..... 556
21.j.1: wherein the shelf comprises an upper thermally conductive plate, a lower thermally conductive plate, a fifth heating element, and a sixth heating element 558
21.j.2: the fifth and sixth heating elements being disposed between the upper thermally conductive plate and the lower thermally conductive plate 560
21.j.3: the second and fourth heating elements being in thermal communication with the upper thermally conductive plate and the fifth and sixth heating elements being in thermal communication with the lower thermally conductive plate 561

21.j.4: the fifth and sixth heating elements providing heat energy into the second food holding compartment 564

N. Claim 22: The food holding bin of claim 21, wherein an insulative material is provided between the second and the fifth heating elements 566

O. Claim 23: 573

23.a.1: The food holding bin of claim 21, wherein the first and second food holding compartments each have a second opening, uncovered and located at the rear face of the chassis 573
23.a.2: the substantially planar bottom surface is configured to allow food items to be placed on the substantially planar surface through the first opening and removed from the planar and bottom surface from the second opening 573

P. Claim 24: the food holding bin of claim 21, comprising a rotatable latch disposed adjacent the first opening 574

Q. Claim 26: the food holding bin of claim 21, wherein the substantially planar surface is substantially free of any dividing walls or other structure between the first, second, third, and fourth food holding bays 577

W. Claim 27: the food holding bin of claim 21, wherein the first independently controllable heating element comprises a radiant heating source and the second independently controllable heating element provides heat energy through conduction 577

S. Claim 28: 578

28.a: the food holding bin of claim 21, wherein each food holding bay further comprises a dedicated lid holding shelf elevated above the substantially planar bottom surface in the first food holding compartment, the dedicated lid holding shelf being configured to receive and store a lid for a food holding tray 578
28.b.1: wherein a rotatable latch disposed adjacent the first opening is rotatable between a locked position in which the latch prevents a lid from being removed from the lid holding shelf, and an unlocked position in which the latch allows removal of a lid from the lid holding shelf 579
28.b.2: the latch being biased to the locked position by gravity..... 583

XIII. GROUND 10: Claims 6, 11, and 25 Would Have Been Obvious Over Fortmann'748 in view of the IRHS Documents, Jones, Fortmann'197, Fortmann'967, McMillan, Vaseloff, Hartfelder, Shei'099, Veltrop, and/or Shei'155 587

A. Claim 6: the food holding bin of claim 1, wherein both the first and second independently controllable heating elements comprise a resistive wire.....587

B. Claim 11: the food holding bin of claim 1, wherein at least one substantially planar surface comprises aluminum 591

C. Claim 25: the food holding bin of claim 21, wherein both the first and second independently controllable heating elements comprise a resistive wire.....599

XIV. GROUND 11: Claims 14-16, 18-20, and 29 Would Have Been Obvious Over Fortmann'748 in view of IRHS Documents, Jones, Fortmann'197, Fortmann'967, McMillan, Vaseloff, Hartfelder, Shei'099, and/or Prince Castle 600

A. Independent Claim 14 600

14.P-14.f.2 600
14.g: wherein the first independently controllable heating element is adapted to output more heat energy than the second heating element 601

B. Claim 15 608

15.a.1: The food holding bin of claim 14, wherein the first and second food holding compartments each have a second opening, uncovered and located at the rear face of the chassis 608
15.a.2: the substantially planar bottom surface is configured to allow food items to be placed on the substantially planar surface through the first opening and removed from the planar and bottom surface from the second opening 608

C. Claim 16: The food holding bin of claim 14, comprising a rotatable latch disposed adjacent the first opening. 609

D. Claim 18: the food holding bin of claim 14, wherein the substantially planar surface is substantially free of any dividing walls or other structure between the first, second, third, and fourth food holding bay 610

E. Claim 19: The food holding bin of claim 14, wherein the first independently controllable heating element comprises a radiant heating source and the second independently controllable heating element provides heat energy through conduction 610

F. Claim 20: 611

20.a: the food holding bin of claim 14, wherein each food holding bay further comprises a dedicated lid holding shelf elevated above the substantially planar bottom surface in the first food holding compartment, the dedicated lid holding shelf being configured to receive and store a lid for a food holding tray 611
20.b.1: wherein a rotatable latch disposed adjacent the first opening is rotatable between a locked position in which the latch prevents a lid from being removed from the lid holding shelf, and an unlocked position in which the latch allows removal of a lid from the lid holding shelf 612
20.b.2: the latch being biased to the locked position by gravity..... 613

G. Claim 29: 613

29.a: the food holding bin of claim 21, further comprising: a first bezel is set forward from the shelf by a space 613
29.b: a rotatable latch disposed adjacent the first opening; 614
29.c: wherein each food holding bay further comprises a dedicated lid holding shelf elevated above the substantially planar bottom surface in the first food holding compartment, the dedicated lid holding shelf being configured to receive and store a lid for a food holding tray. 614
29.d: wherein the first independently controllable heating element is adapted to output more heat energy than the second heating element 615

XV. GROUND 12: Claim 17 Would Have Been Obvious Over Fortmann'748 in view of IRHS Documents, Jones, Fortmann'197, Fortmann'967, McMillan, Vaseloff, Hartfelder, Shei'099, Veltrop, Shei'155, and/or Prince Castle ...616

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XVI. Fortmann'197 is Supported by its Provisional Application 616

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 polymetric 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. 10,852,002 ("the '002 Patent").

5. I am an inventor on nine patents, including an electrical power strip, a water purification system, 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 grills.

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 grills, 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, and I was 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. Appendix A to this declaration 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 ‘002 Patent and the file history of the ‘002 Patent. I have also reviewed the following documents:

Exhibit No.	Description
1001	U.S. Patent No. 10,852,002 (“the ’002 Patent”)
1002	Prosecution History of the ’002 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”)
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”)

Exhibit No.	Description
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”)
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 1-12 assert that the claims of the '002 Patent should be found unpatentable 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 at the time of the invention 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 in 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 '002 Patent as they would have been understood by those of ordinary skill in the art as of the filing date of the '002 Patent in view of the claim language itself, the specification and figures of the '002 Patent, the prosecution history of the '002 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 '002 Patent, *i.e.*, shortly prior to April 20, 2016.

29. The person having ordinary skill in the art ("POSA") would have an engineering degree and/or 4 years of 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.

A. Prosecution History of the ‘002 Patent

31. I understand that the application that turned into the ’002 Patent was filed on May 3, 2019. EX1002: 163. The Examiner issued an Office Action on June 27, 2019. EX1002: 106-113. The Patent Owner responded to the first Office Action on September 27, 2019. EX1002: 77-105. Subsequently, the Examiner issued a final Office Action on April 13, 2020, rejecting certain claims while indicating other claims to be directed to allowable subject matter. EX1002: 41-48. In a response dated July 13, 2020, certain claims were canceled, certain claims were amended, and further dependent claim were added. EX1002: 28-40. A Notice of Allowance was issued on July 28, 2020. EX1002: 8-14.

II. BACKGROUND OF THE ’002 PATENT

32. The ’002 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, 1:64-65.

33. As shown in Figures 1 and 2 below, the food holding bin (10) has two food holding compartments (50), with each food holding compartment having two or more food holding zones (57a-57b). EX1001: 1:64-2:4. Each food holding zone (57a-57b) in turn may include two food holding bays (51a-51b and 51c-d), respectively. EX1001: 2:4-2:9. Each of these food holding bays (51a-51d) is capable of receiving a food tray (27) containing food. EX1001: 4:52-54.

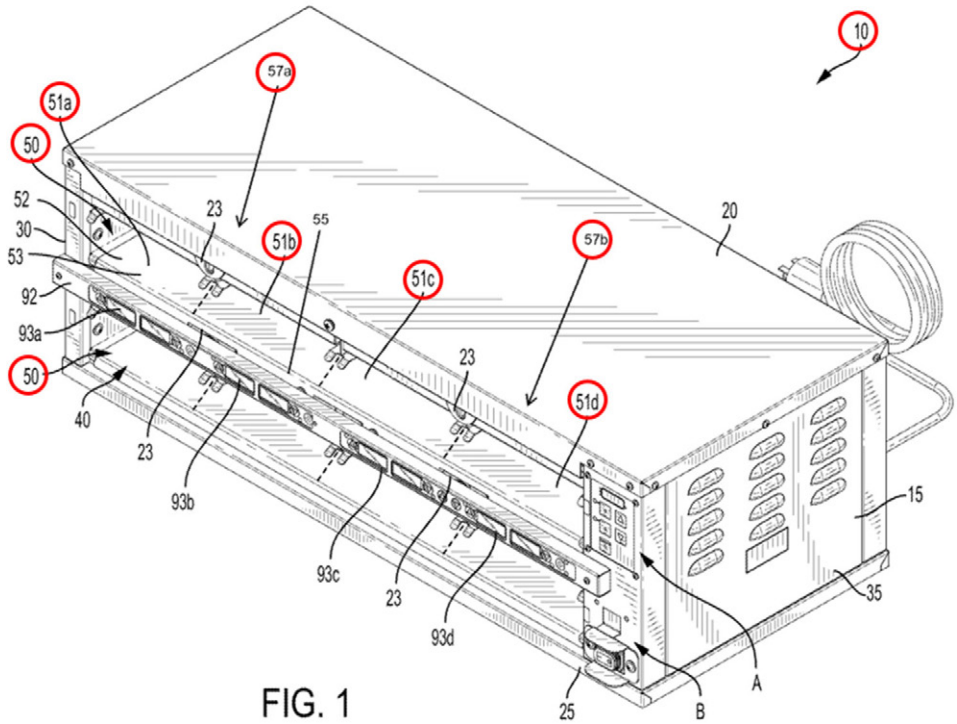


FIG. 1

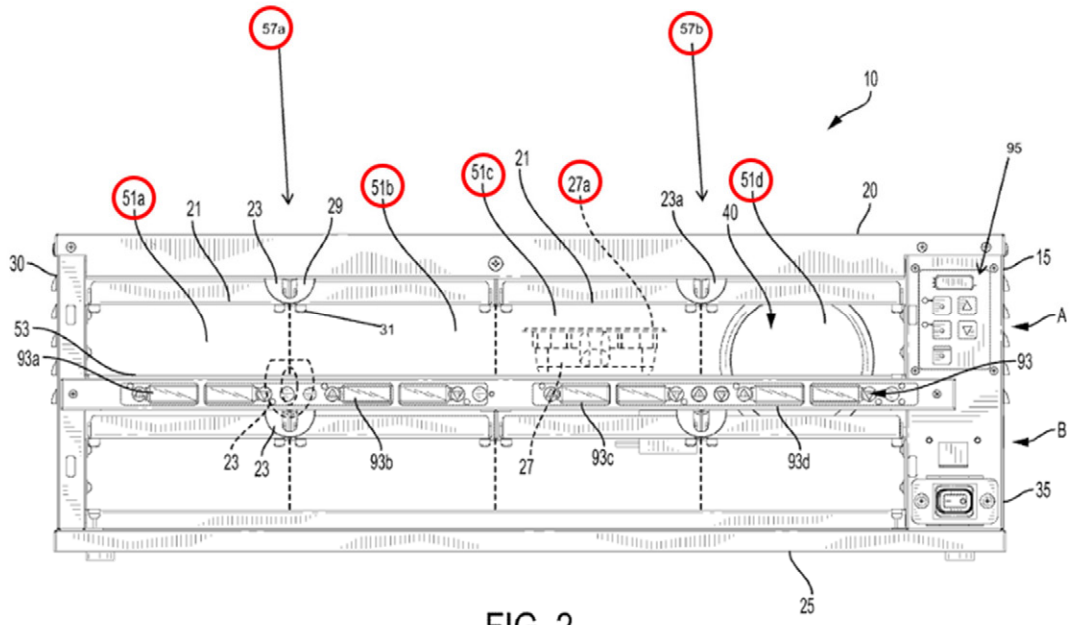


FIG. 2

EX1001: Figs. 1 and 2 (annotated).

34. Each of the food holding zones (57a-57b) can independently be set at different temperatures. EX1001: 2:17-19. To this end, the food holding bin (10) includes dedicated independently controllable heating elements (65, 67) for each food holding zone (57a-57b). EX1001: 7:34-53. 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: 7:34-51.

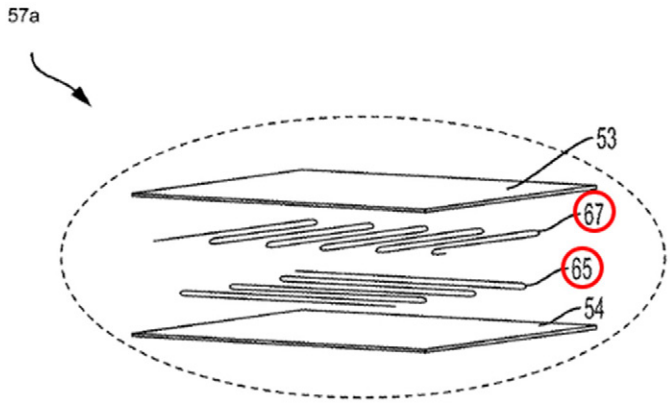


FIG. 4B

EX1001: Fig. 4B (annotated).

35. Other features recited by the claims of the ’002 Patent include first and second bezels (92) that have dedicated displays (93) for each food holding bay (51a-d), shelves (31) for supporting lids (21) that cover the food tray (27) in the food holding bay, and latches (23) for retaining the lids on the shelves. EX1001: 3:53-54, 3:65-67, 4:52-60, 5:27-32.

36. In general and in my opinion, the claims of the ‘002 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 bays, location and configuration of heating elements, location and configuration of the controls, inclusion of shelves and latches to hold and secure lids, and independent temperature control of the food holding bays). These features are combined according to their established functions and yield predictable results.

III. BACKGROUND OF THE ART

37. 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 ’002 Patent were previously available in the art.

38. 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 ’002 Patent. EX1001: 1:64-2:24; EX1005: 1; EX1006: 1; EX1007: 8, 21-22, 26; EX1008: 1; EX1009: 7, 19, 36; EX1010: ¶[0002]; EX1011: ¶[0002]; EX1012: ¶[0003]; EX1013: ¶[0002]; EX1014: 1:13-21; EX1016: ¶[0002]; EX1017: 1:13-15; EX1018: 1:5-7; EX1019: 1:9-14; EX1022: ¶[0010]; EX1025: 1:25-26; EX1026: 1:5-7; EX1027: ¶[0001].

39. 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.

40. 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 ’002 Patent.

1. IRHS Documents

41. 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.

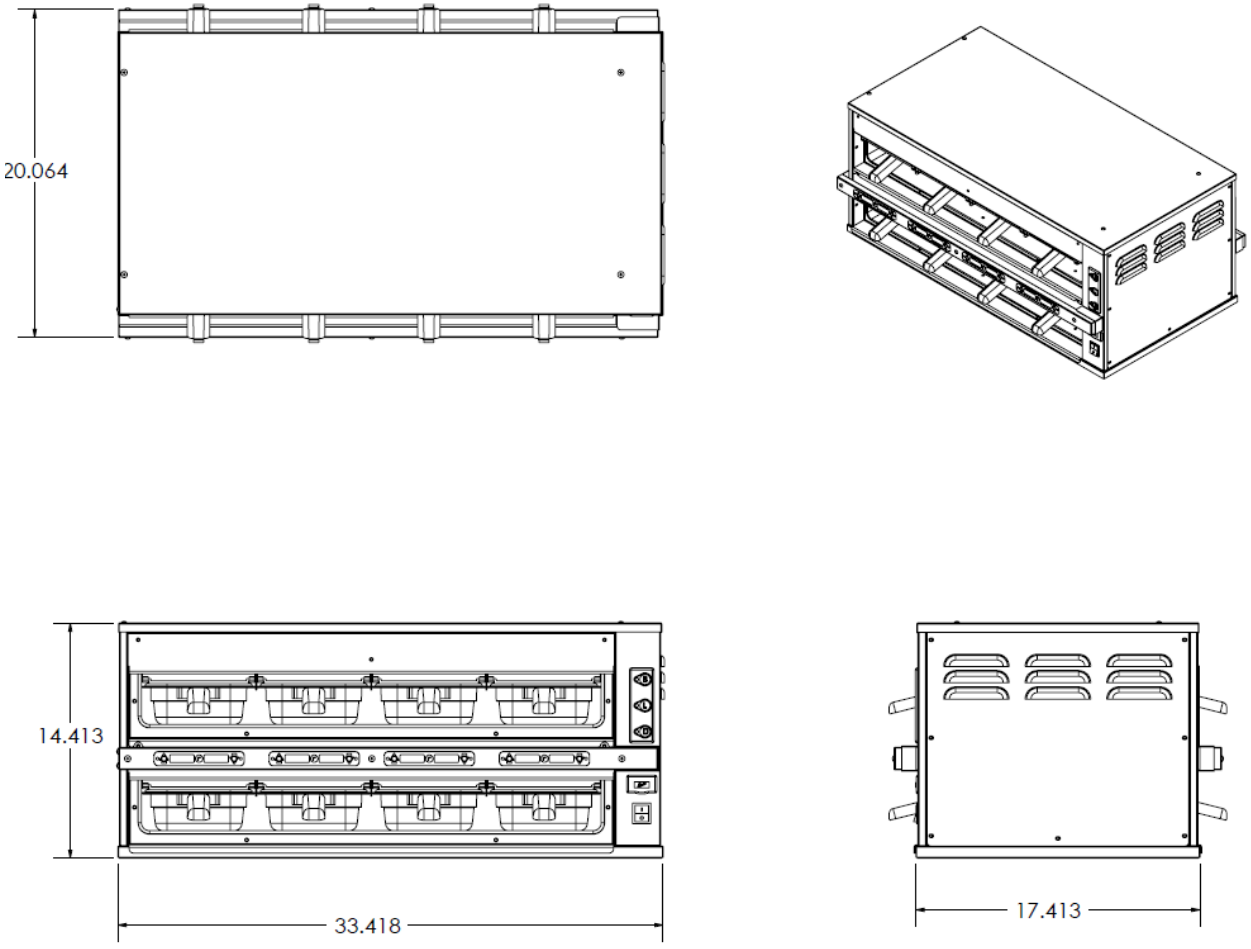
42. I understand that the IRHS Holding Unit was a commercial product that was introduced by Duke to the market in 2013, with sale beginning in 2014. I understand that the IRHS was originally developed for Burger King and was widely purchased by Burger King franchisees, but that the IRHS was not exclusive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

i. IRHS Manual (EX1005)

43. 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 earlier and later revisions, as well as versions of the IRHS Manual that were not tailored to Burger King.

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



EX1005: 8.

45. 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.

46. 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.

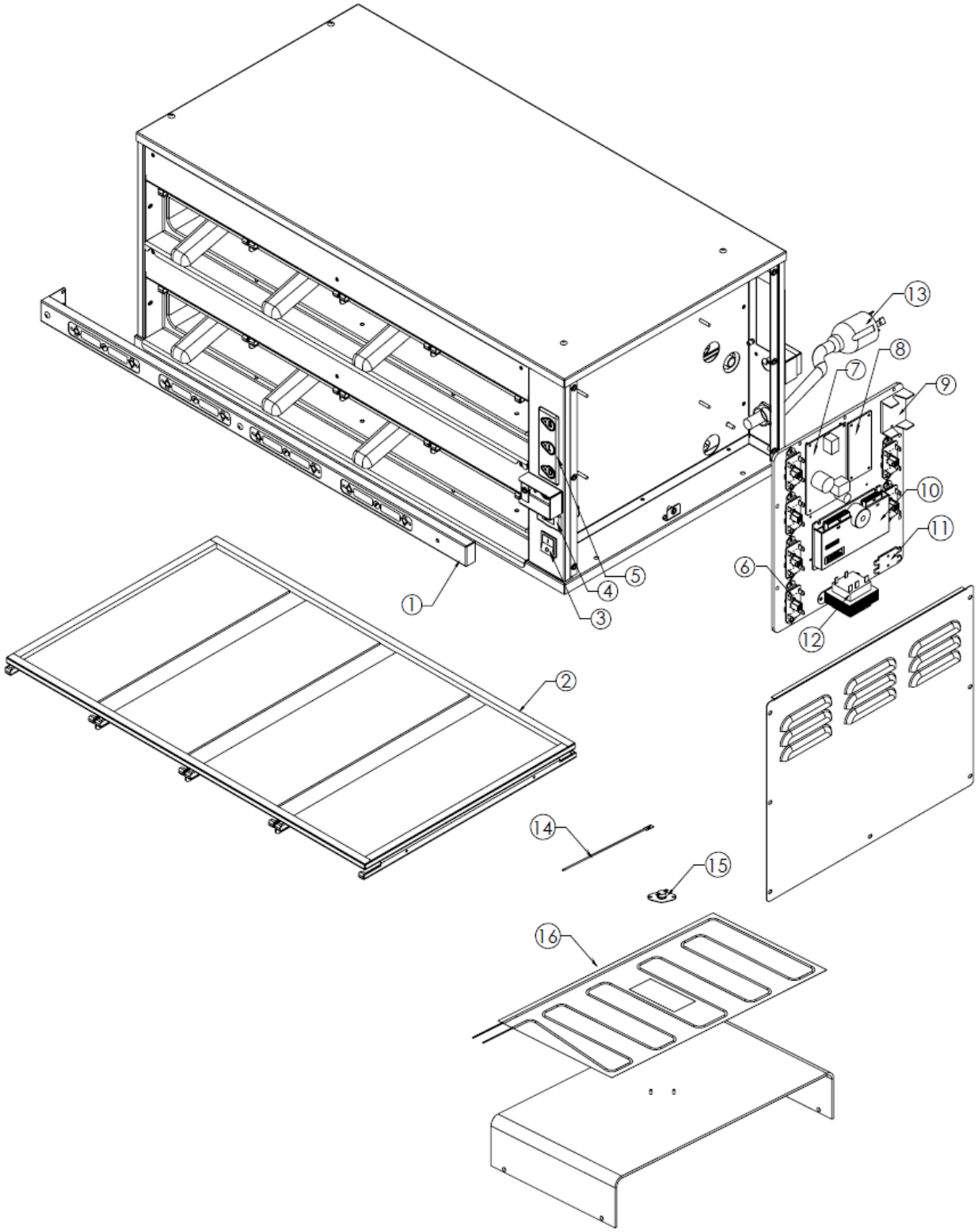
47. The IRHS Manual further states:

> "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.

48. 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.

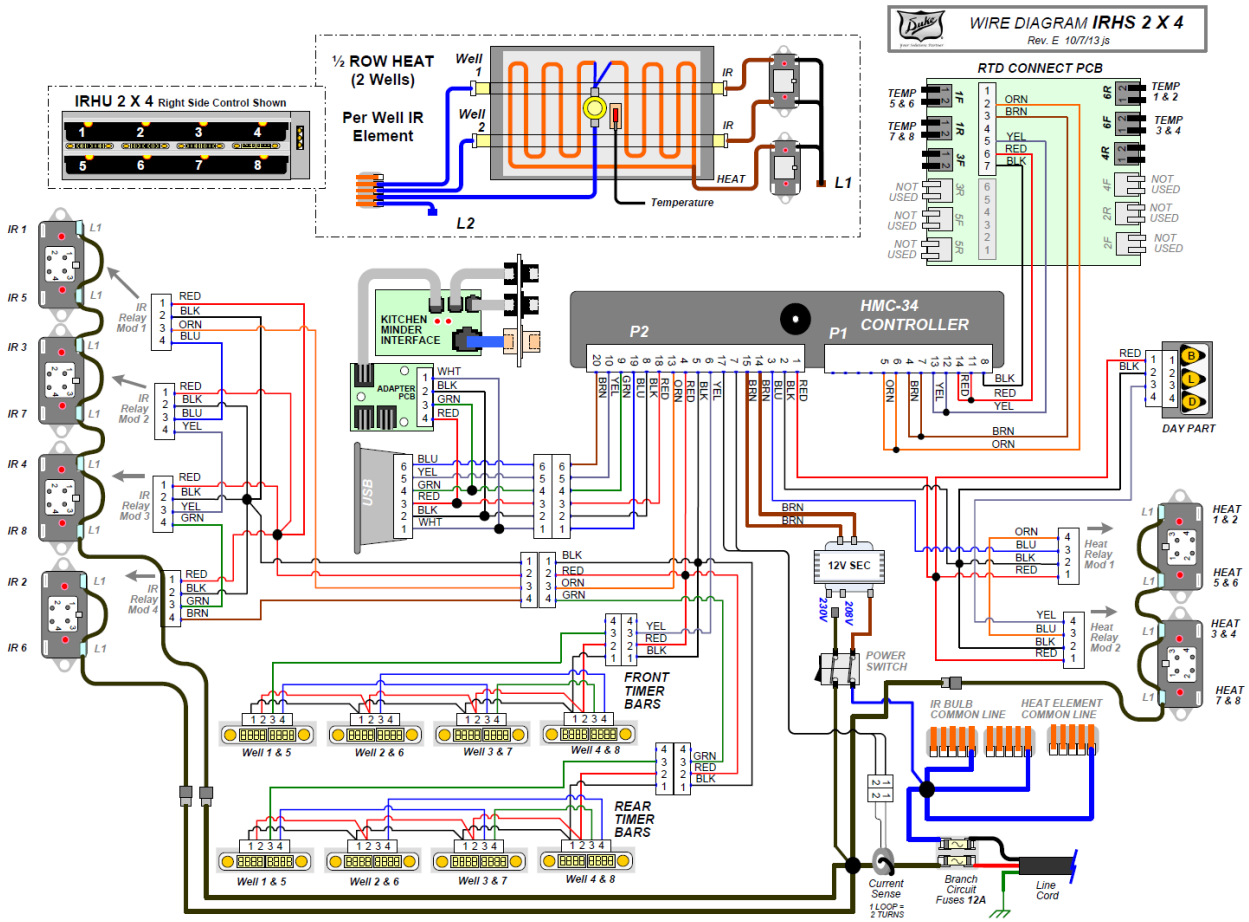
49. The IRHS Manual also provides an exploded view of the 2x4 IRHS Holding Unit and a parts list. EX1005: 19-20.

PARTS LISTS AND ILLUSTRATIONS



EX1005: 19.

50. 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:

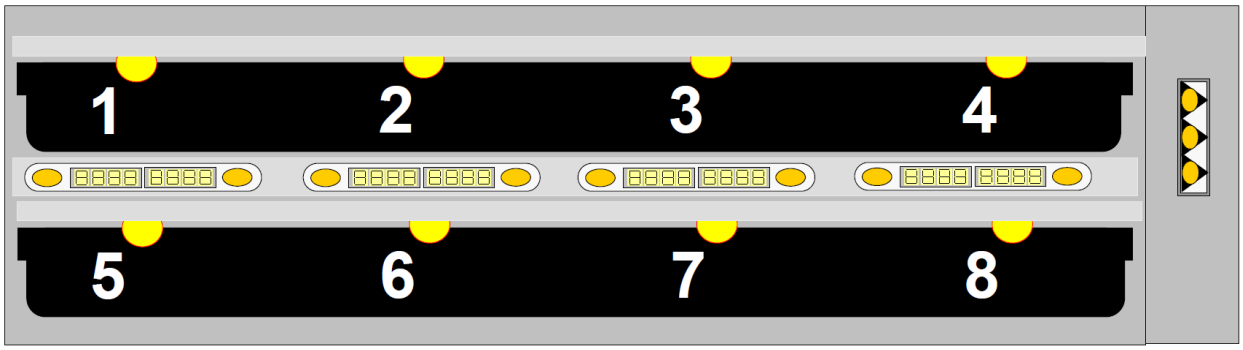


EX1005: 25.

51. 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

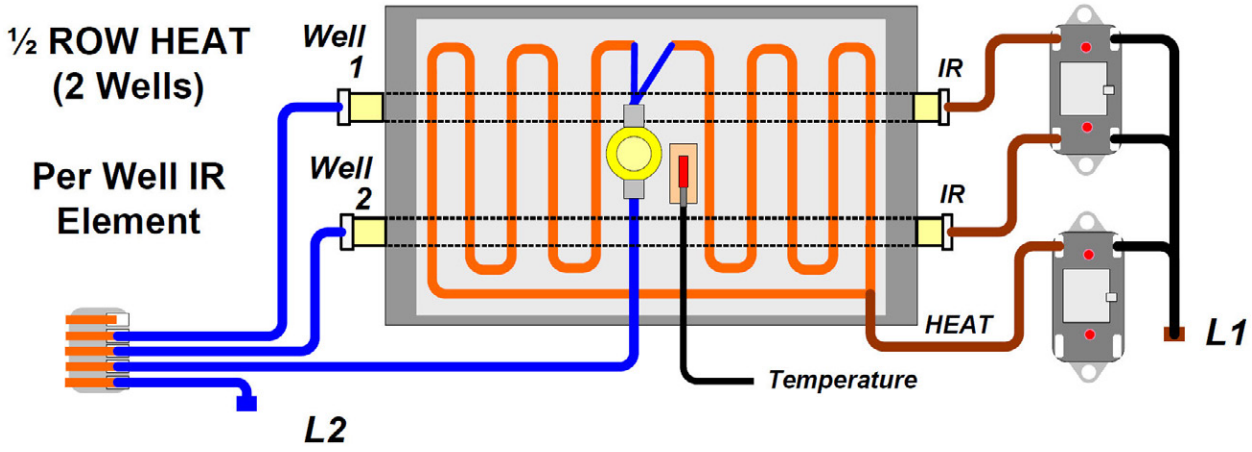
demonstrates that the controller is in communication with the displays and buttons of the timer bars for transmitting and receiving signals therebetween. EX1005: 25.

52. 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.

53. 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 (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.

54. 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)

55. 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 disclose 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);
- "Anodized 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 heat 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.

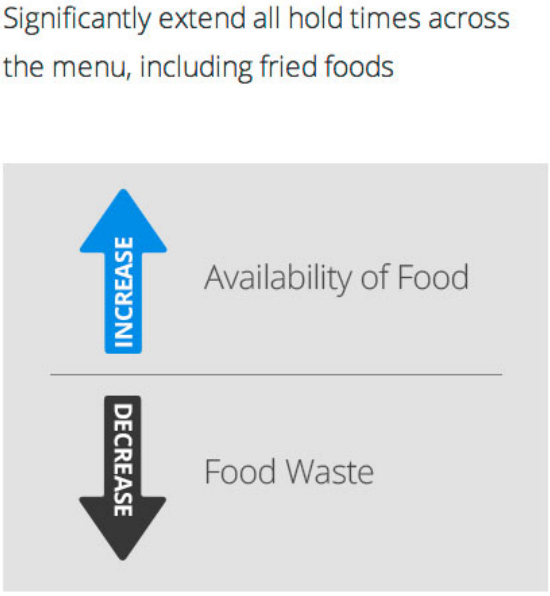
iii. Duke Website (EX1007)

56. 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 includes details about the IRHS Holding Unit (EX1007: 26-73).

57. 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



EX1007: 9.



EX1007: 10.

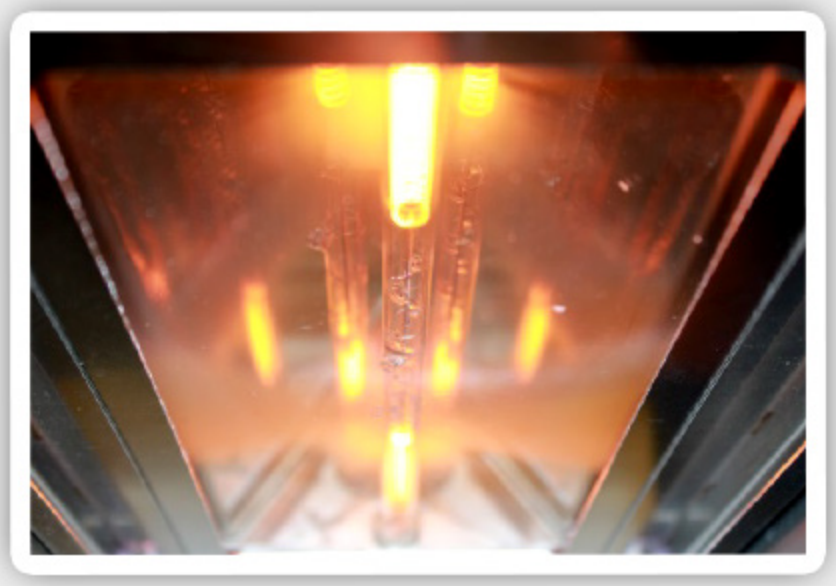


More Product Information at Each Well

(Product, Hold Time Remaining, Temperature)

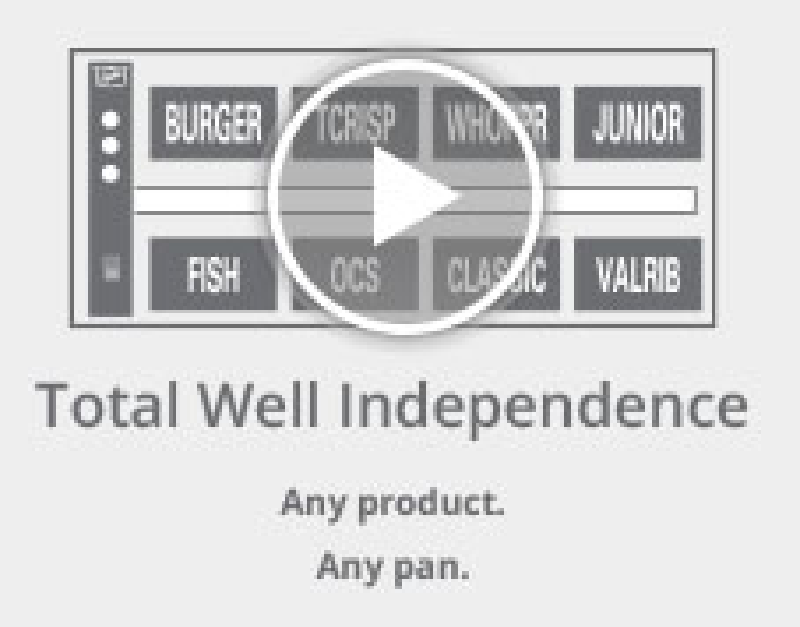
EX1007: 10.

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.

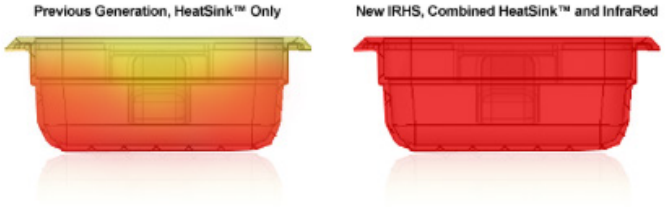
58. The Expedite Webpage likewise includes additional illustrations, details and information about the IRHS:

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

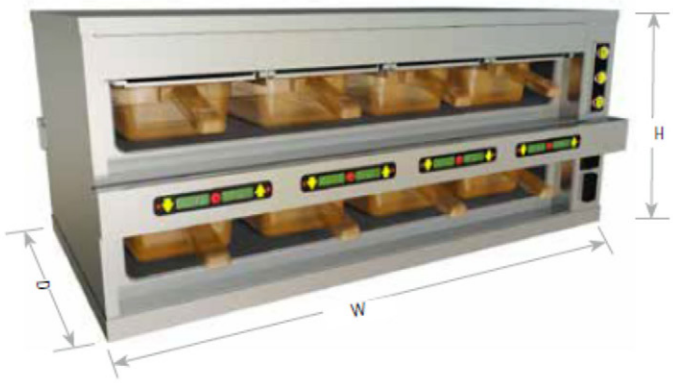
Learn more about the InfraRed HeatSink™ Holding Unit





EX1007: 21-22.

59. 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

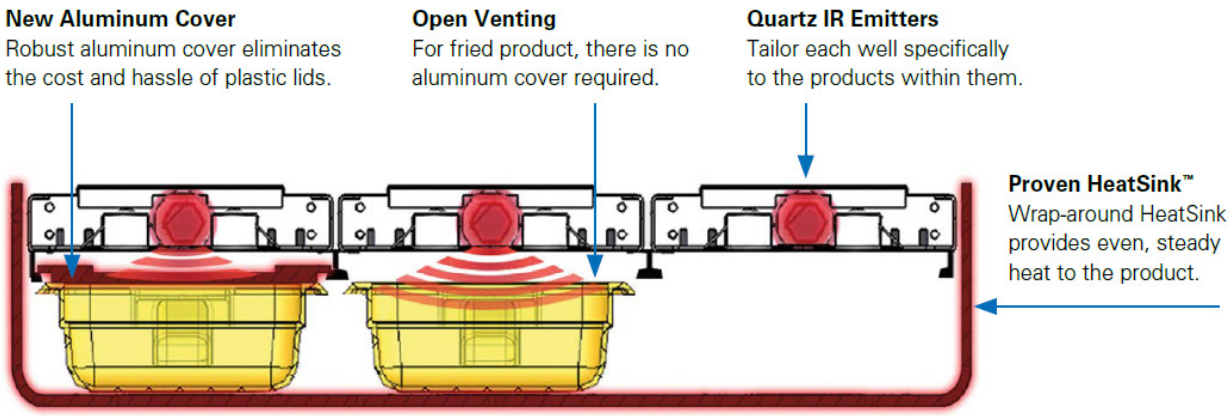
Part #'s	Controls	Stand-Alone/ Master/Satellite	Electrical Requirements			
			Voltage	Hz	Amps	NEMA
IRHS24-XXX4T1R	Single	Stand-Alone	208 / 230 / 240	50/60	12	6-15P (208V/240V)
IRHS24-XXX4T2R	Double	Stand-Alone	208 / 230 / 240	50/60	12	6-15P (208V/240V)
IRHS24-XXX4T1S	Single	Satellite	208 / 230 / 240	50/60	12	6-15P (208V/240V)
IRHS24-XXX4T1M	Single	Master	208 / 230 / 240	50/60	12	6-15P (208V/240V)
IRHS24-XXX4T2S	Double	Satellite	208 / 230 / 240	50/60	12	6-15P (208V/240V)
IRHS24-XXX4T2M	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 VISIOnabled IRHS – no timer bar unit

EX1007: 56.

60. The IRHS Catalog explains 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.

61. 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 programming updates for your [] IRHS holding unit[]" (EX1007: 58).

iv. IRHS Service Manual (EX1008)

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

Unit. EX1008. 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)

63. 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. 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.

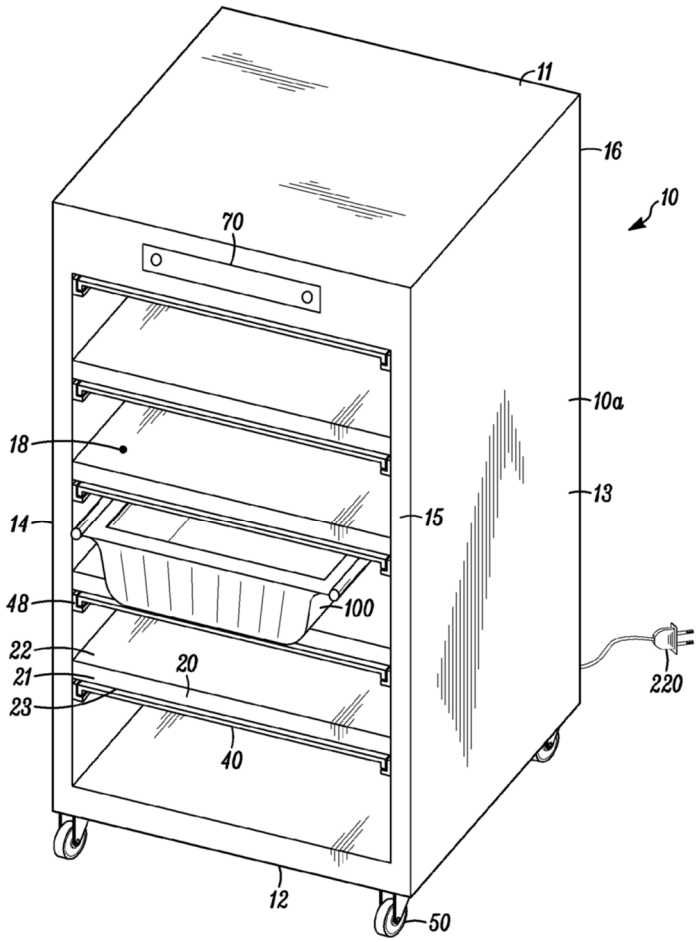


FIG. 1

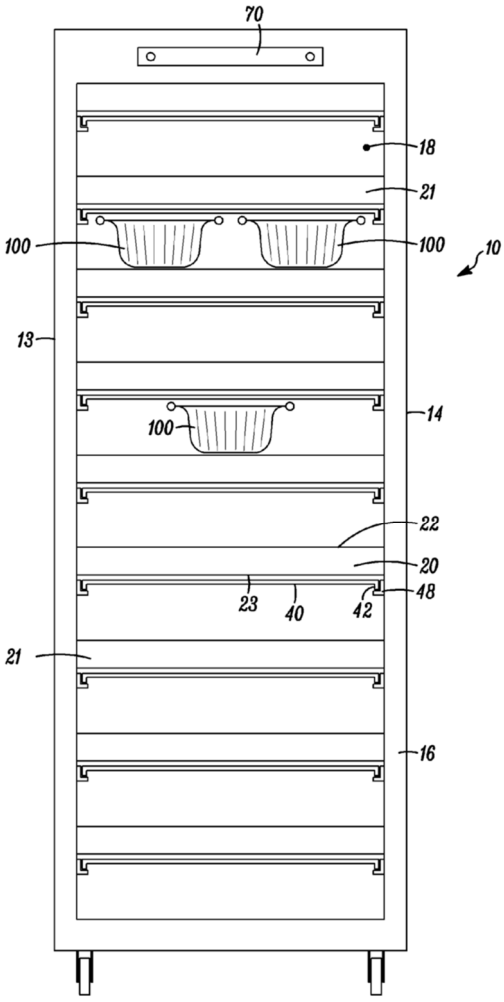


FIG. 6

EX1010: Figs. 1 and 6.

64. 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].

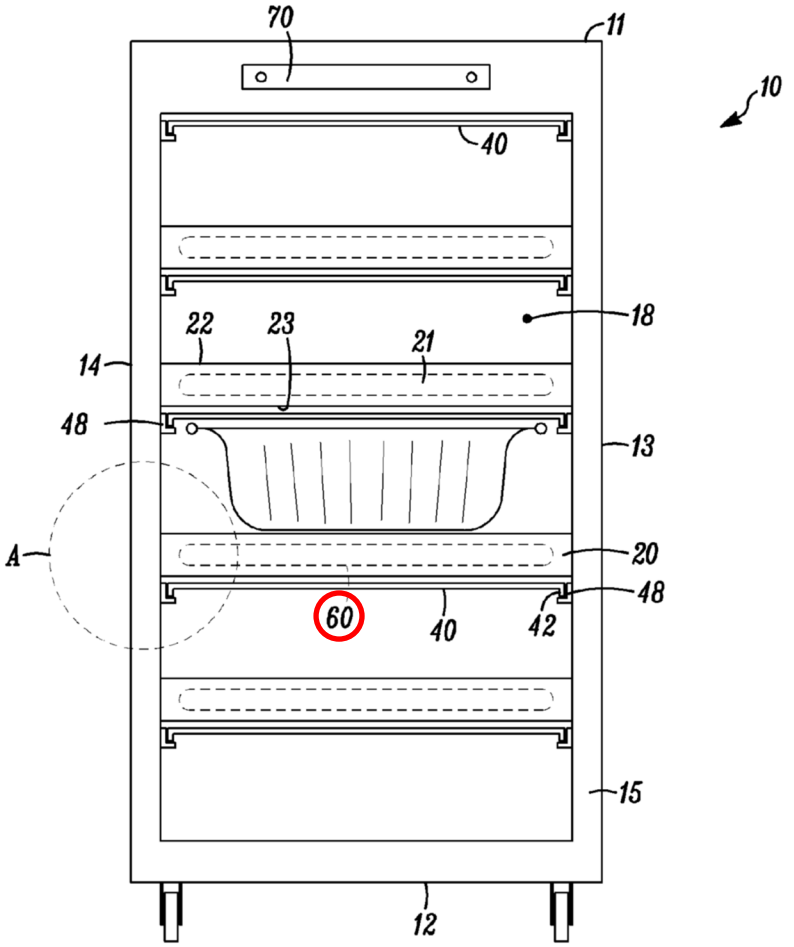


FIG. 2

EX1010: Fig. 2 (annotated).

65. 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.

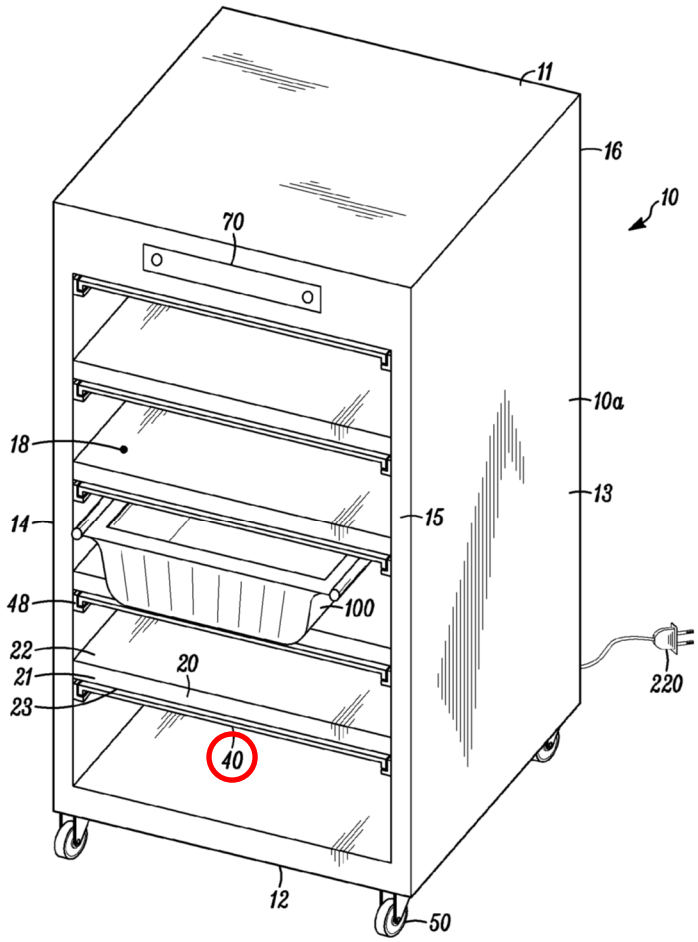


FIG. 1

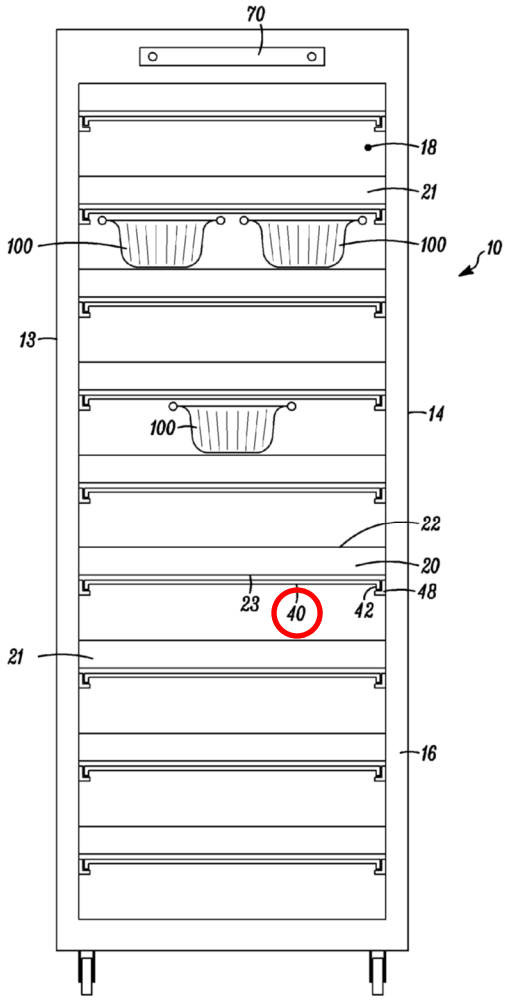


FIG. 6

EX1010: Figs. 1 and 6 (annotated).

66. 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)

67. 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.

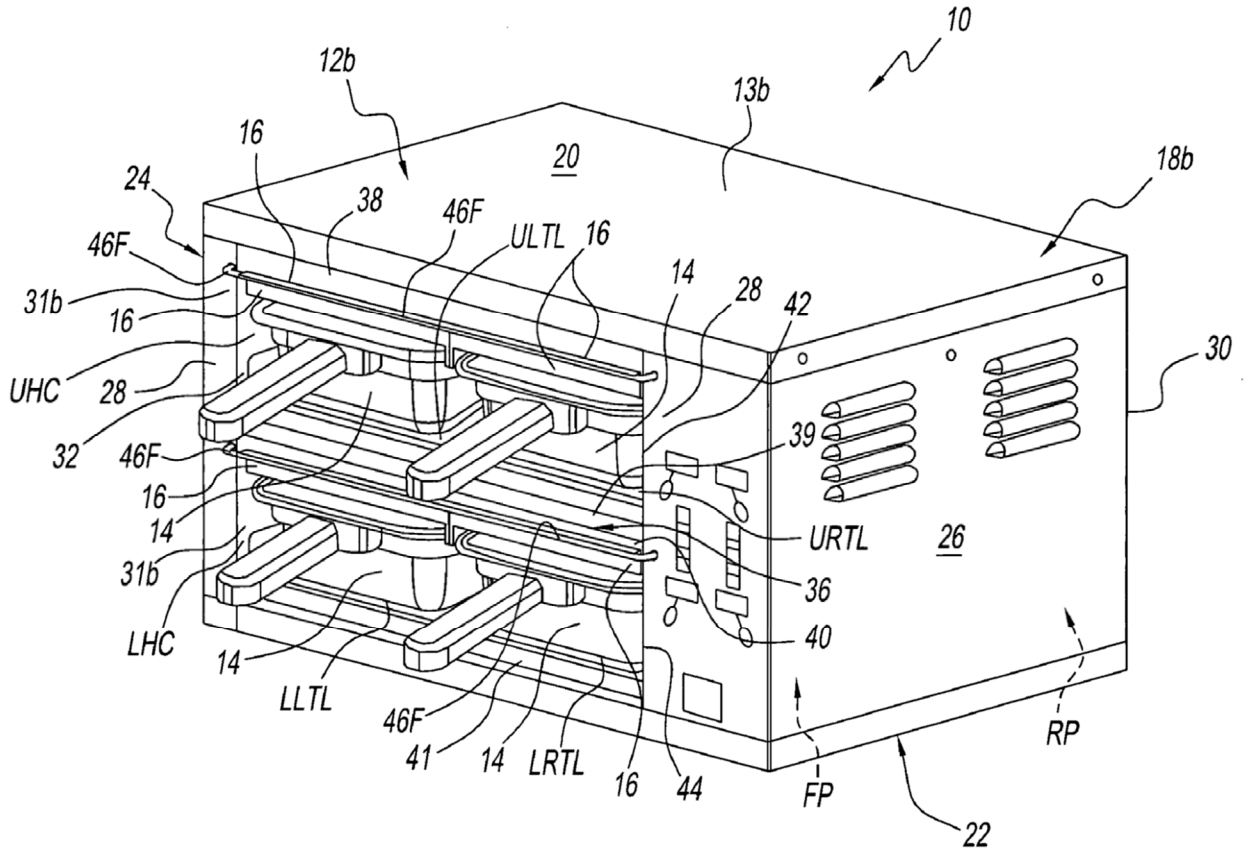


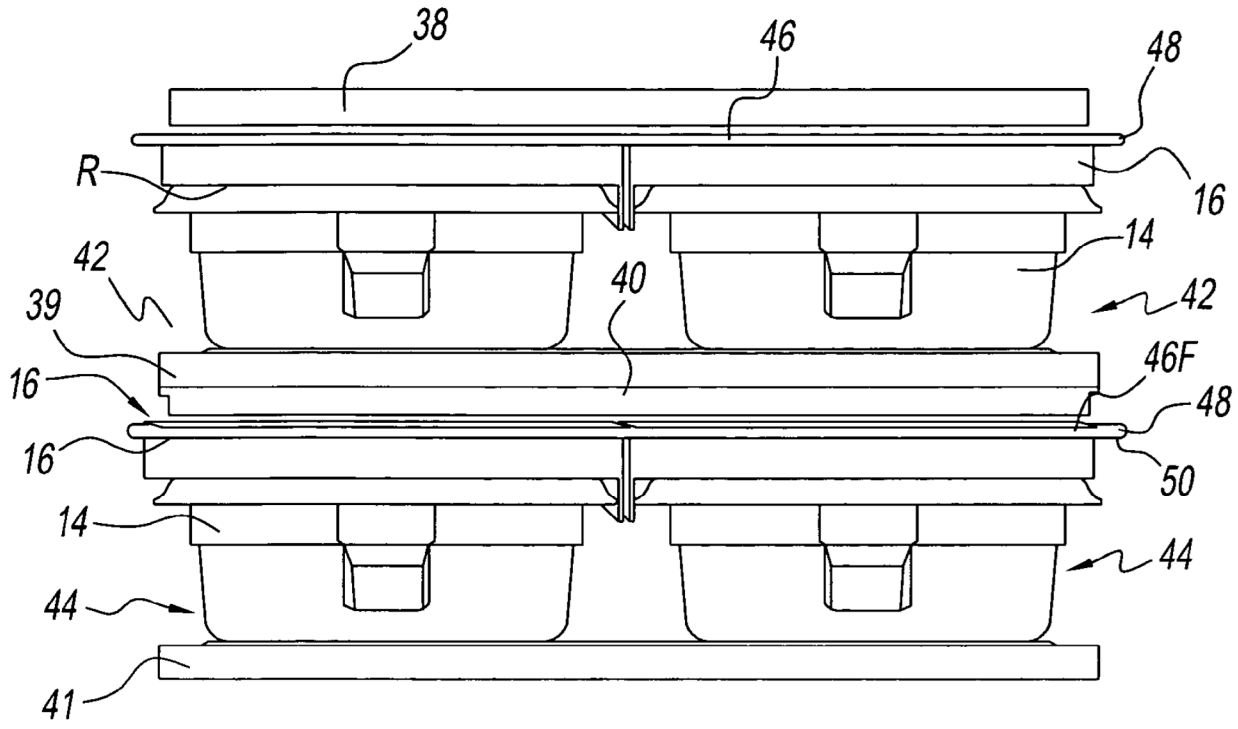
Fig. 1B

EX1012: Fig. 1B.

68. 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.

69. 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.

70. 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] (emphasis added).

71. 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].

72. 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.

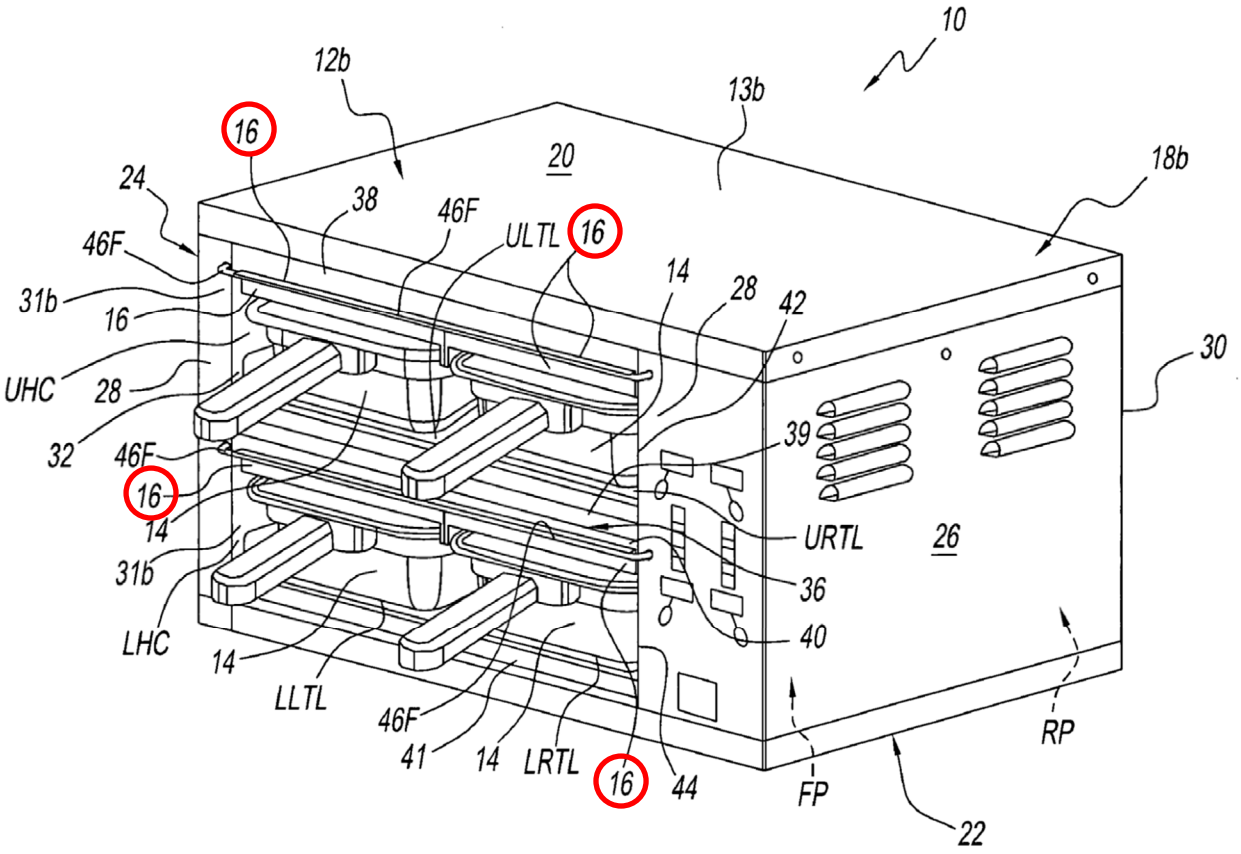


Fig. 1B

EX1012: Fig. 1B (annotated).

4. Fortmann'197 (EX1014)

73. 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.

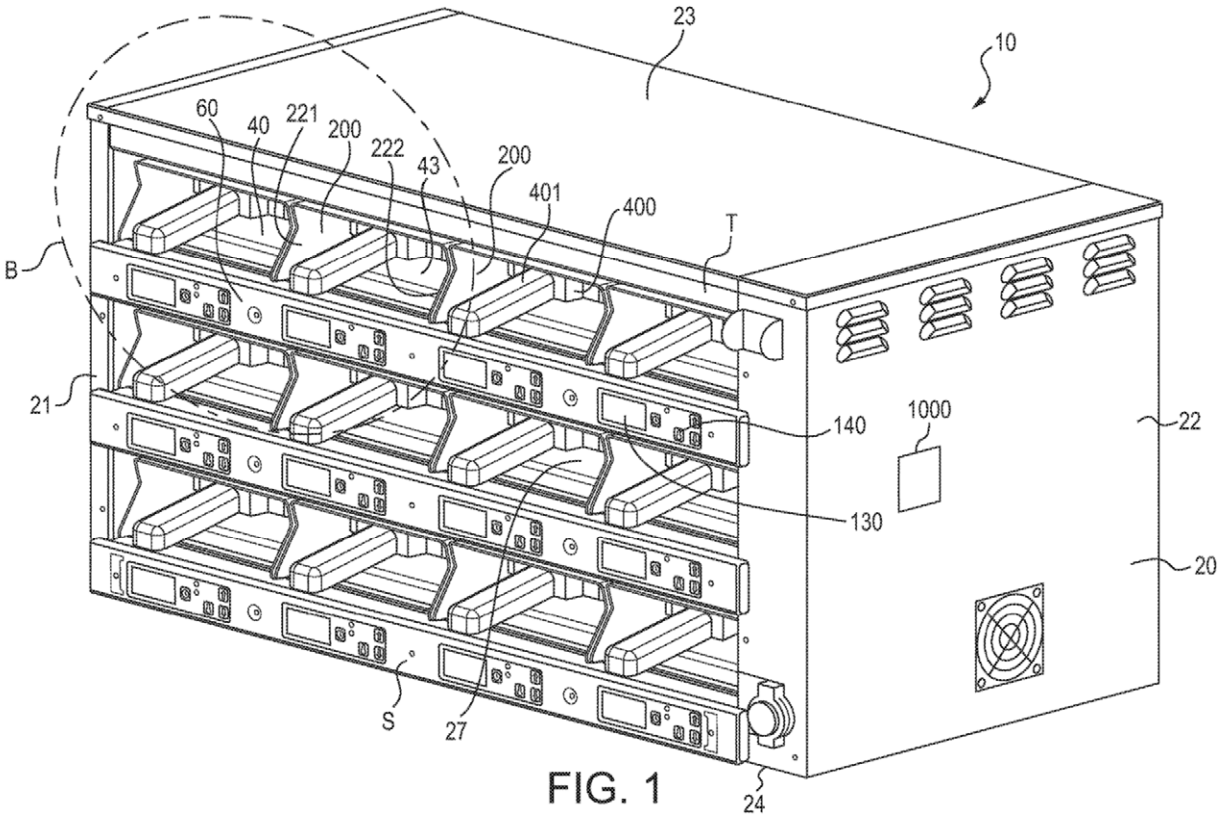


FIG. 1

EX1014: Fig. 1.

74. 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.

75. 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.

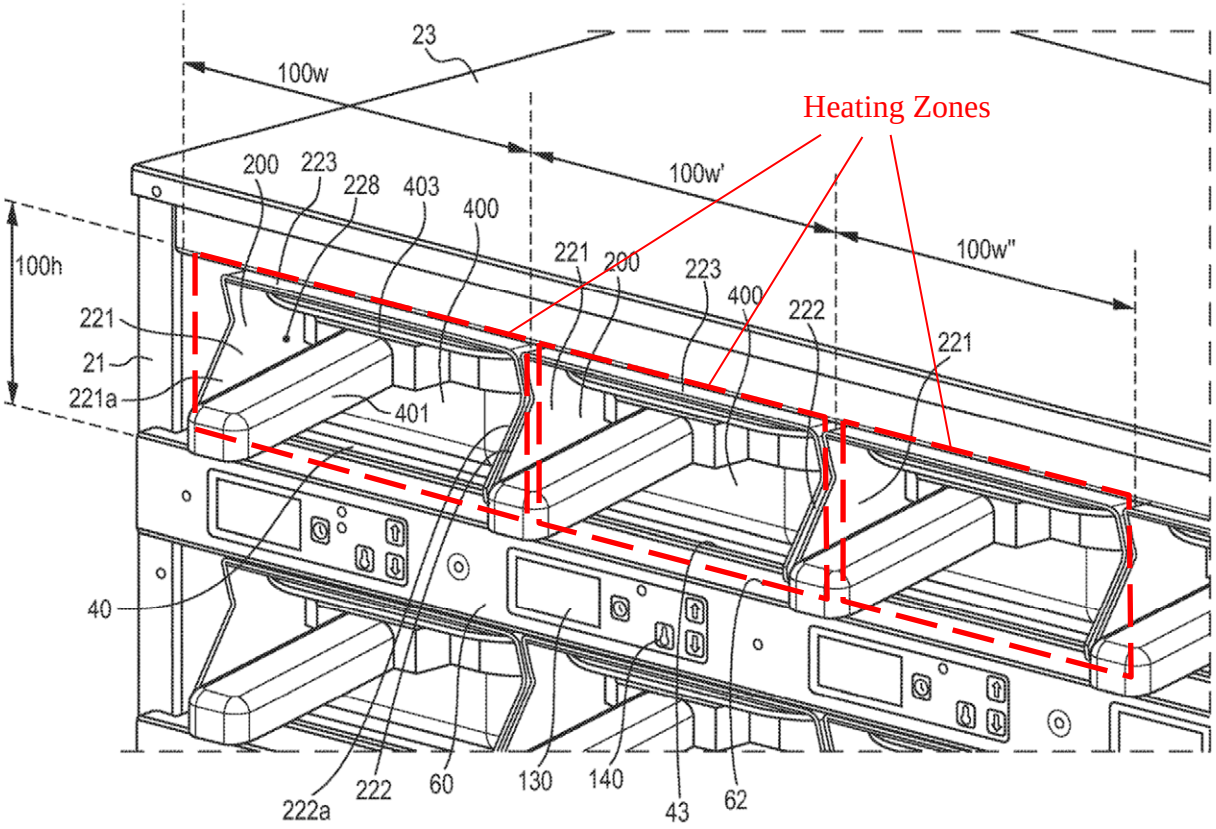

Heating Zones
23
100w
100w'
100w"
100h
200
223
228
403
400
221
200
223
400
222
221
21
221a
401
40
222a
222
60
130
140
43
62

FIG. 2

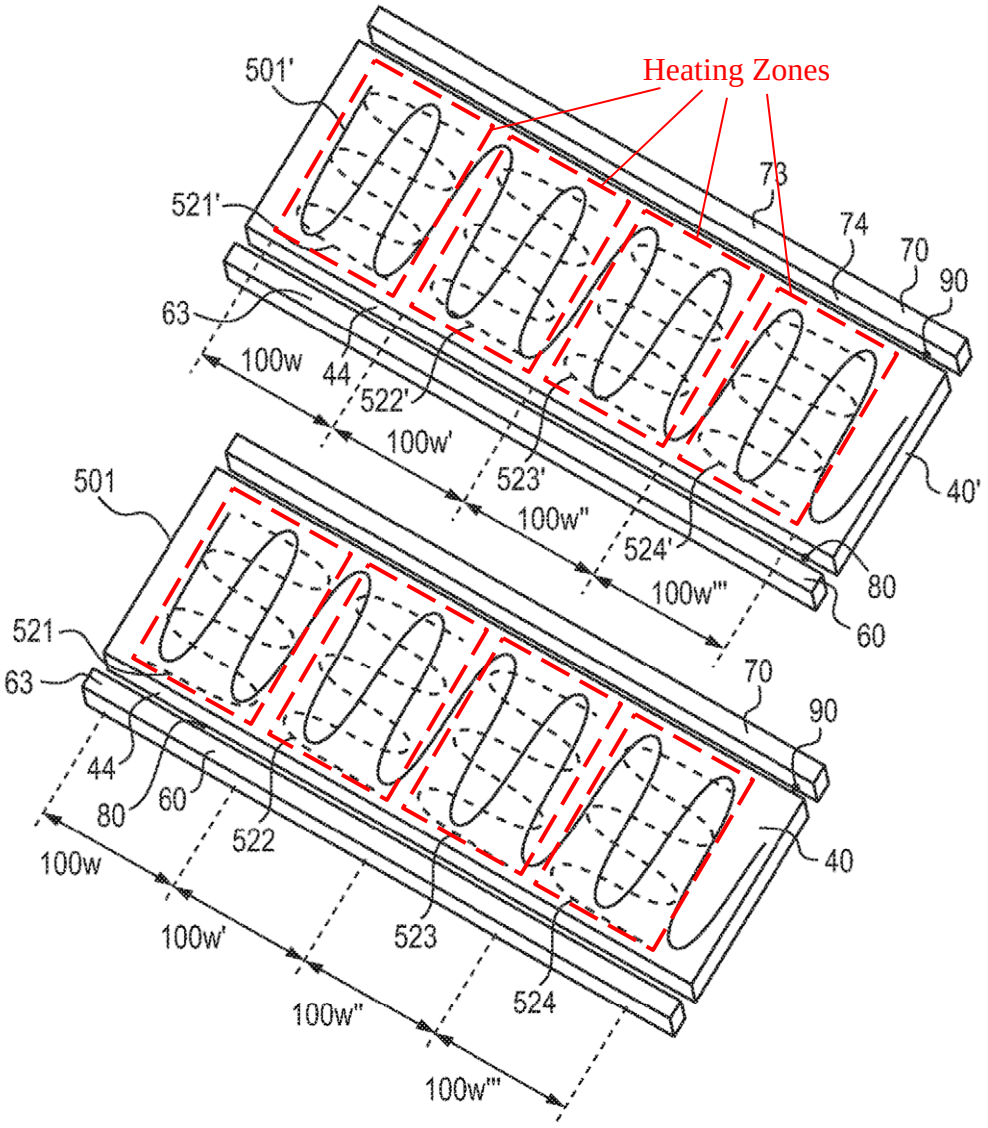


FIG. 10

EX1014: Figs. 2 and 10 (annotated).

76. 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.

77. 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)").

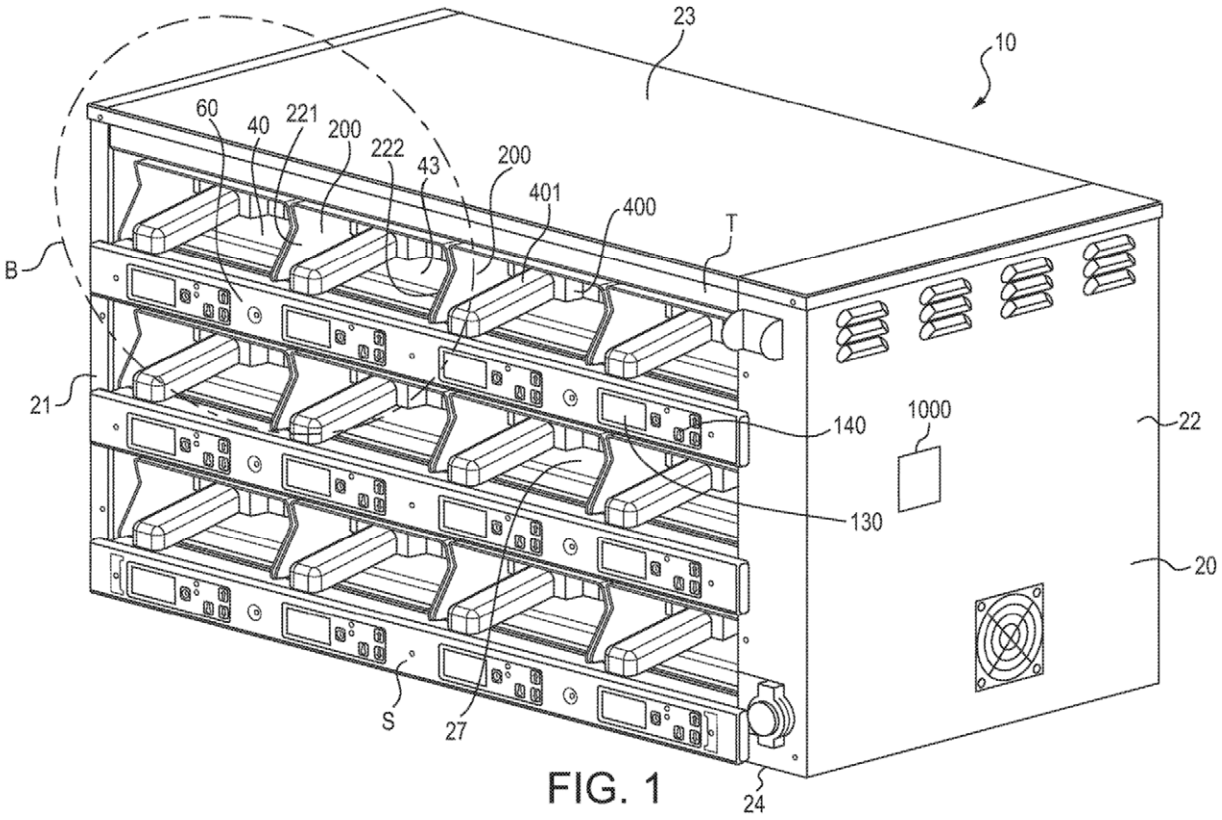


FIG. 1

EX1014: Fig. 1.

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

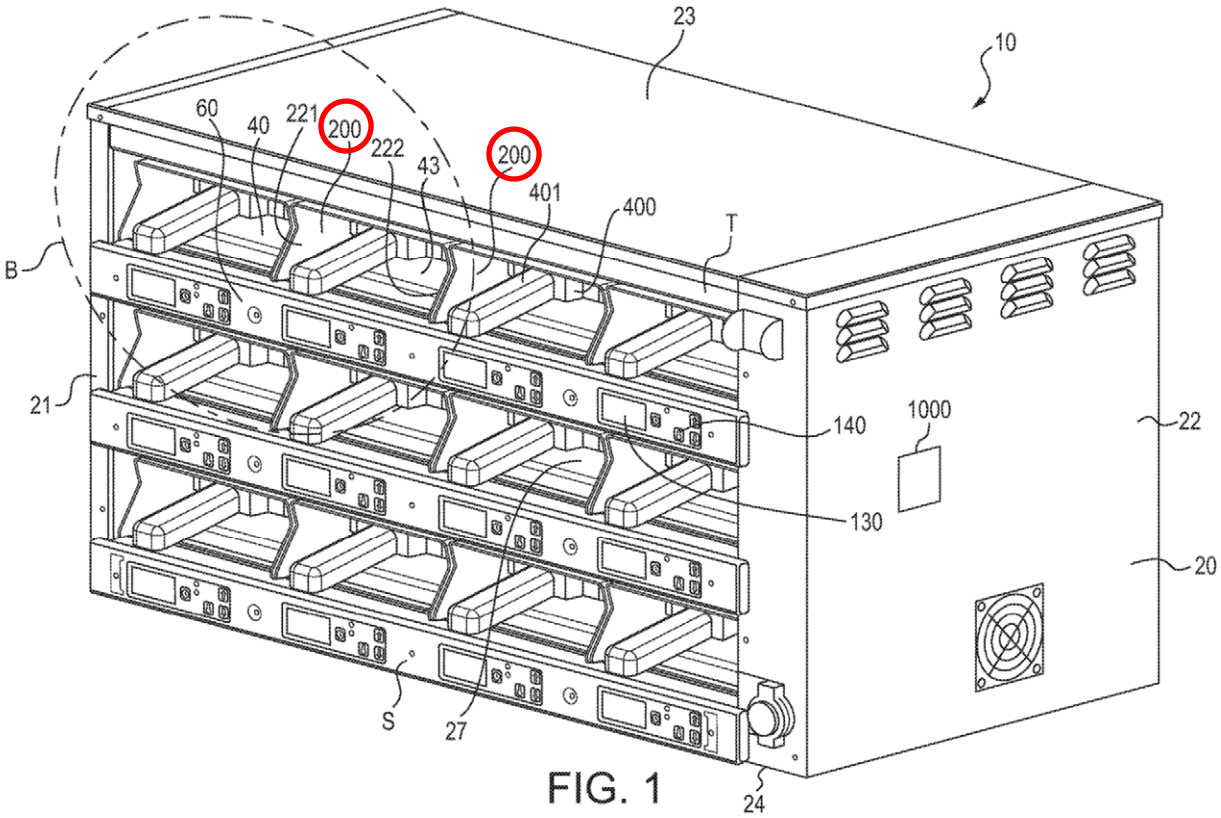


FIG. 1

EX1014: Fig. 1 (annotated).

79. 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 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.

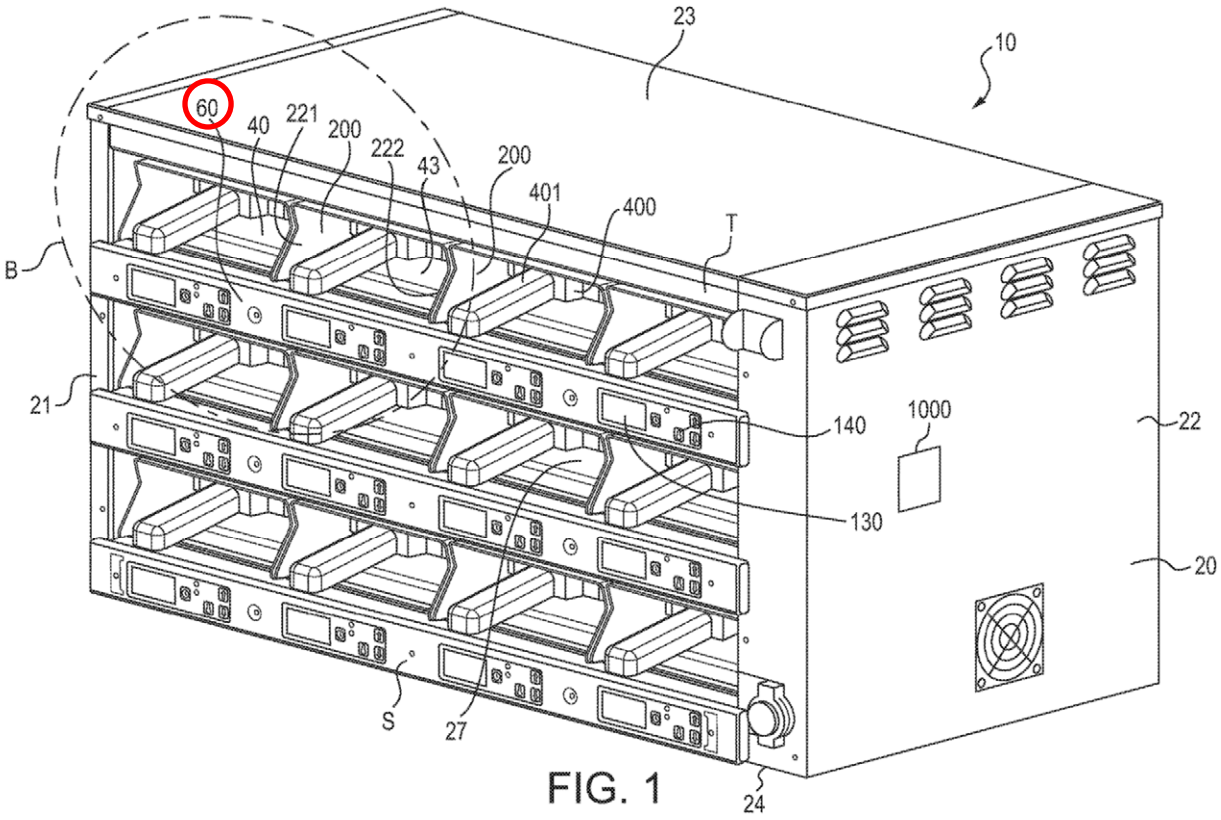

23
10
60
40
221
200
222
43
200
401
400
T
B
21
140
1000
22
130
20
S
27
24

FIG. 1

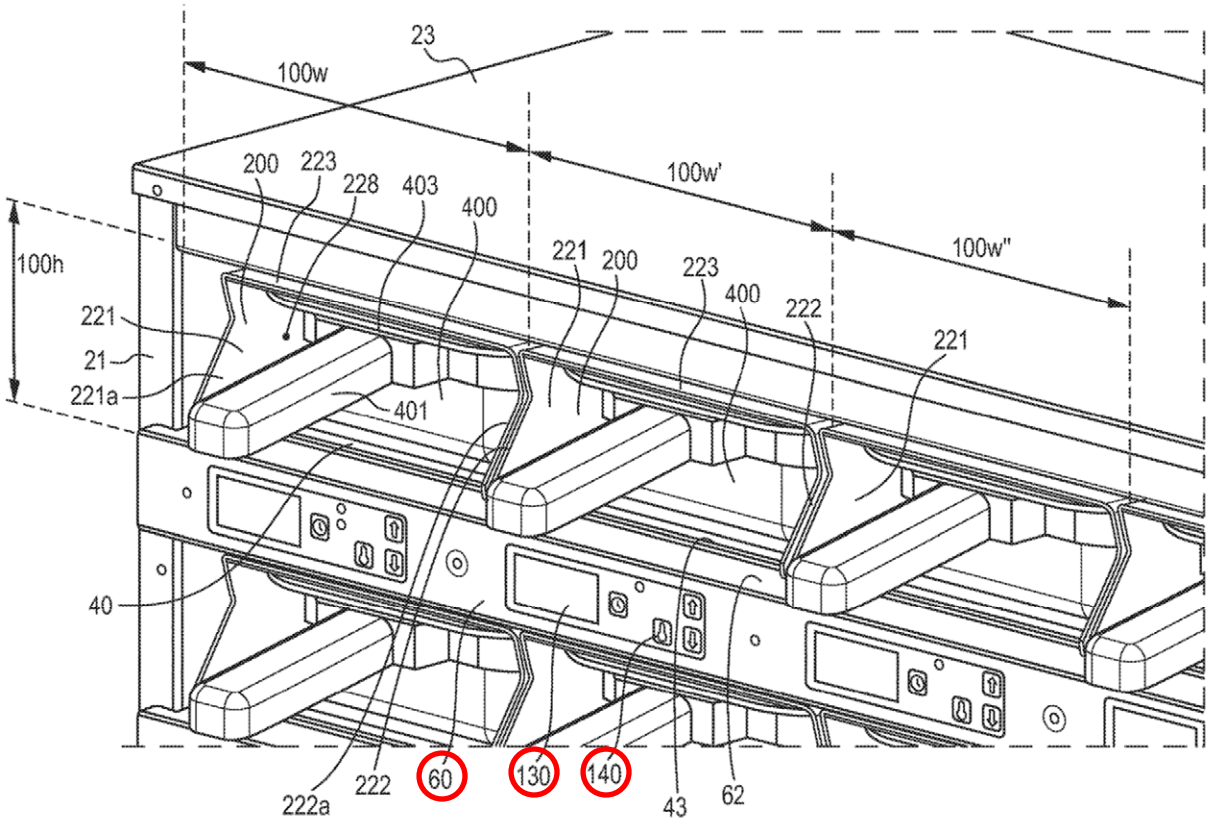

23
100w
100w'
100w"
100h
200
223
228
403
400
221
200
223
400
222
221
221
21
221a
401
40
222a
222
60
130
140
43
62

FIG. 2

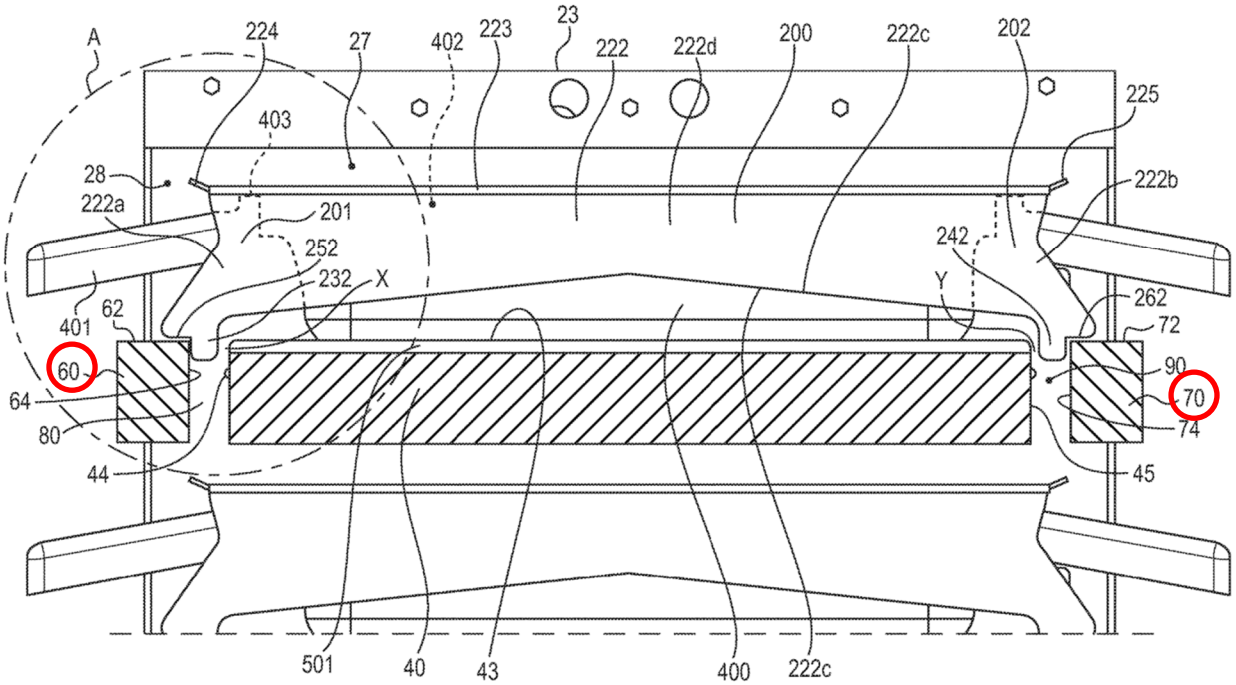

A
224
27
402
223
23
222
222d
200
222c
202
225
403
28
222a
201
252
232
X
222b
242
Y
262
72
401
62
60
64
80
44
90
70
74
45
501
40
43
400
222c

FIG. 5

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

80. 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. Fortmann'967 (EX1018)

81. U.S. Patent No. 5,852,967 ("Fortmann'967") teaches a food holding system or cabinet (10) for keeping food warm. EX1018: 1:5-7 ("[t]his invention relates to a system that defines a conditioned environment, as for treating and/or maintaining the treated state of food items"), 4:19-26, Fig. 1.

82. The system (10) has a plurality of vertically stacked food treatment spaces (16, 18, 20, 22) that receive a receptacle or tray (32) of food. EX1018: 3:64-65, 4:4-11, Fig. 2.

83. Each food treatment space (16, 18, 20, 22) has two heaters (44, 48) which heat the top and bottoms of the receptacle (32). EX1018: 4:22-26 ("a heater 44, which conducts heat through a heat sink 46 to the bottom wall 24, and a separate heater 48 which conducts heat through a heat sink 50 to the top wall 26"), Fig. 2.

Fig. 1

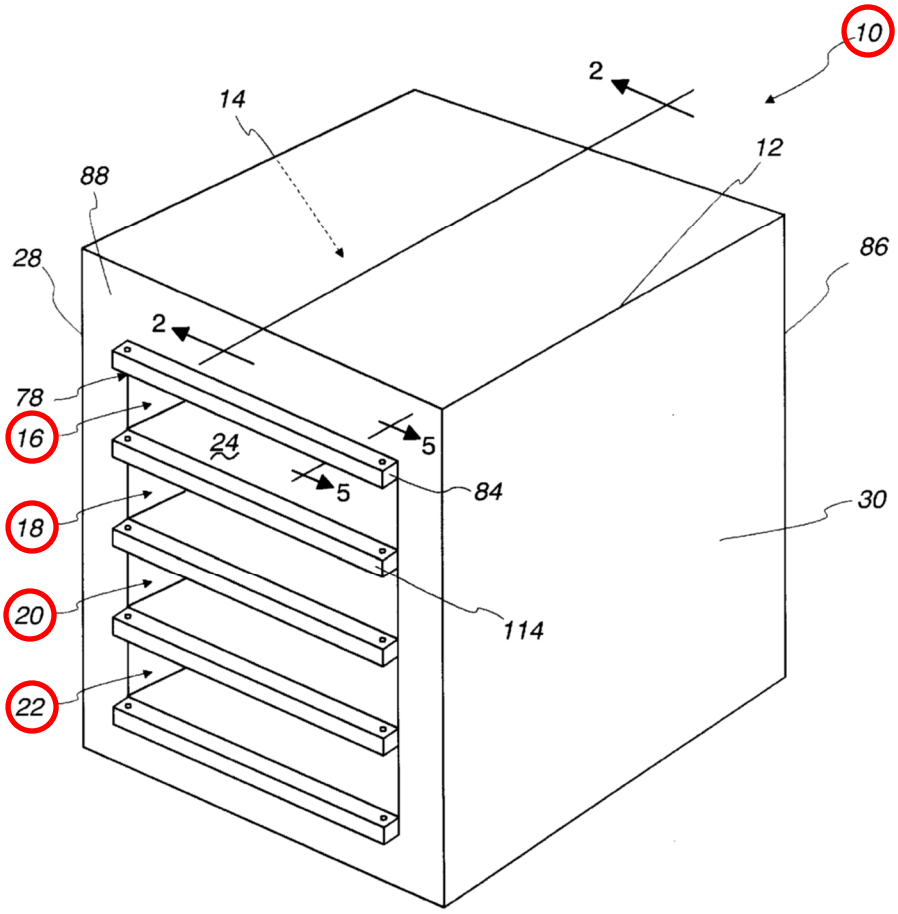
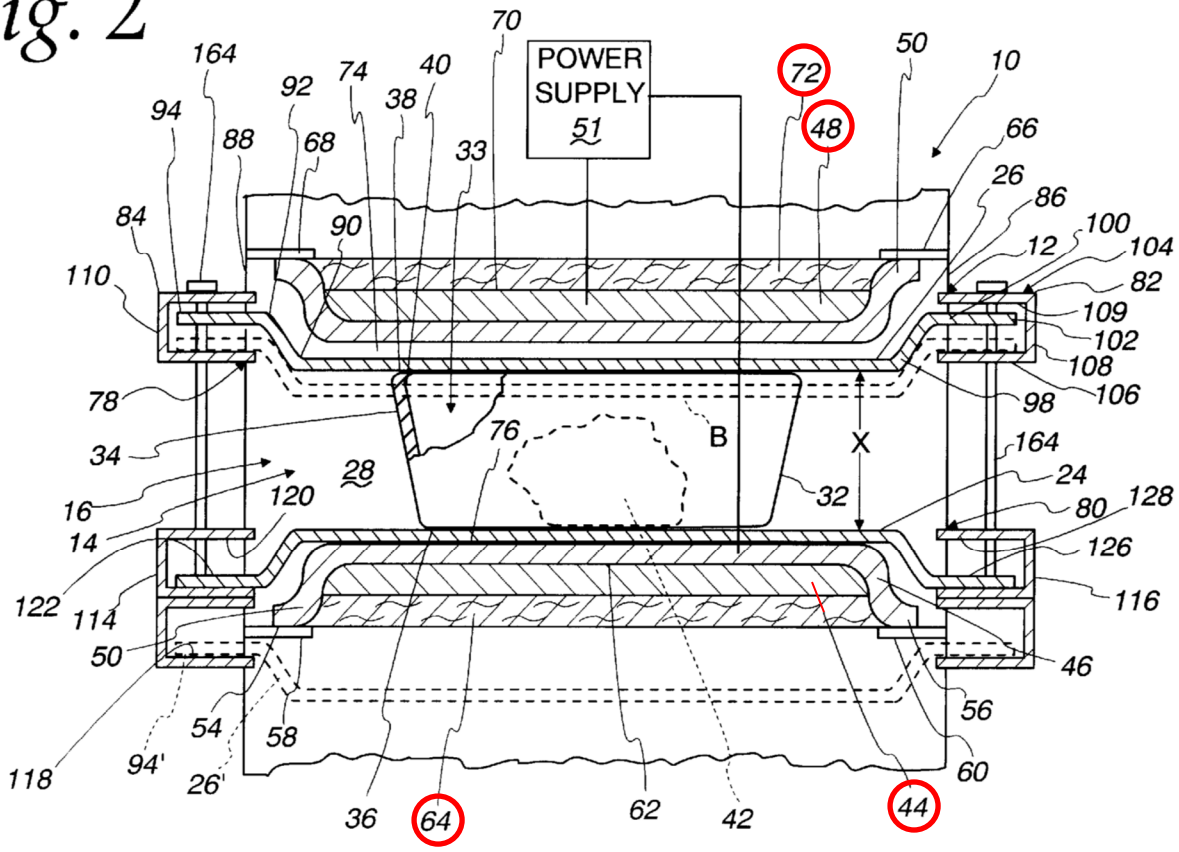


Fig. 2



EX1018: Figs. 1 and 2 (annotated).

84. Each heater (44, 48) is backed by insulation (64, 72), which directs the heat from the heaters into the food treatment space (16, 18, 20, 22). EX1018: 4:33-38 ("An insulation layer 64 fills the space 62 beneath the heater 44.… The heater 48 is nested in a space 70 defined by the heat sink 50 and covered by an insulation layer 72."), Fig. 2.

6. Hartfelder (EX1013)

85. 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.").

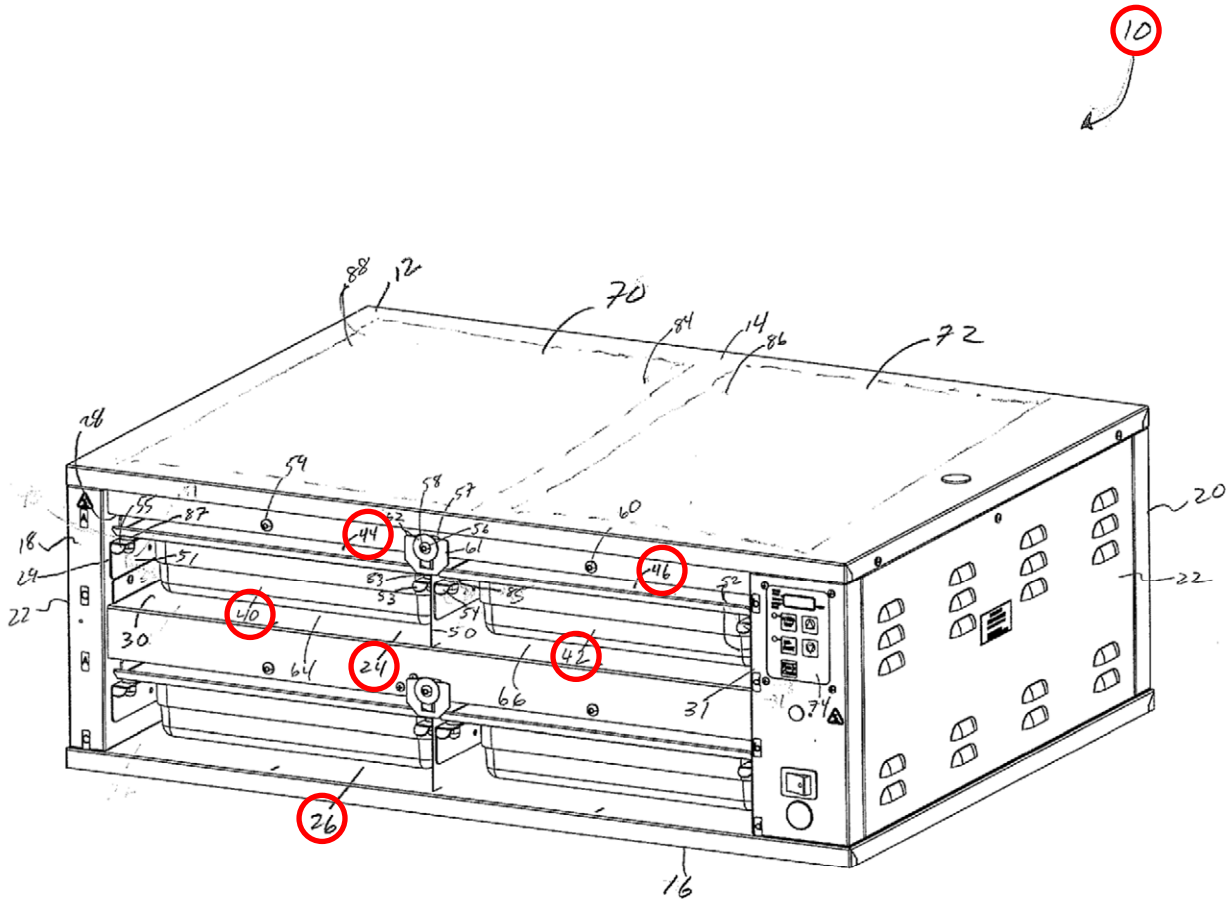


FIGURE 1

EX1013: Fig. 1 (annotated).

86. 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 44, 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.

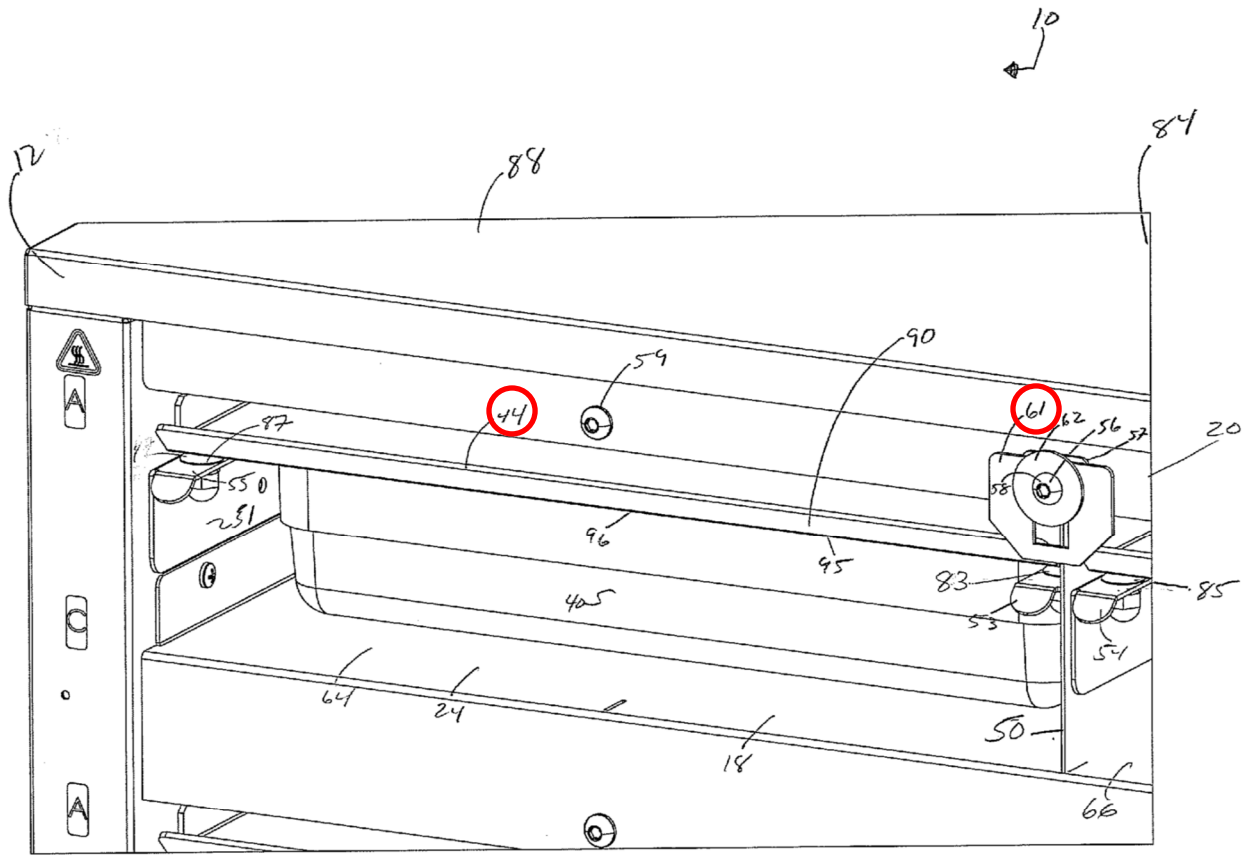


FIGURE 9

EX1013: Fig. 9 (annotated).

7. Veltrop (EX1022)

87. 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.

88. 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.

89. 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.").

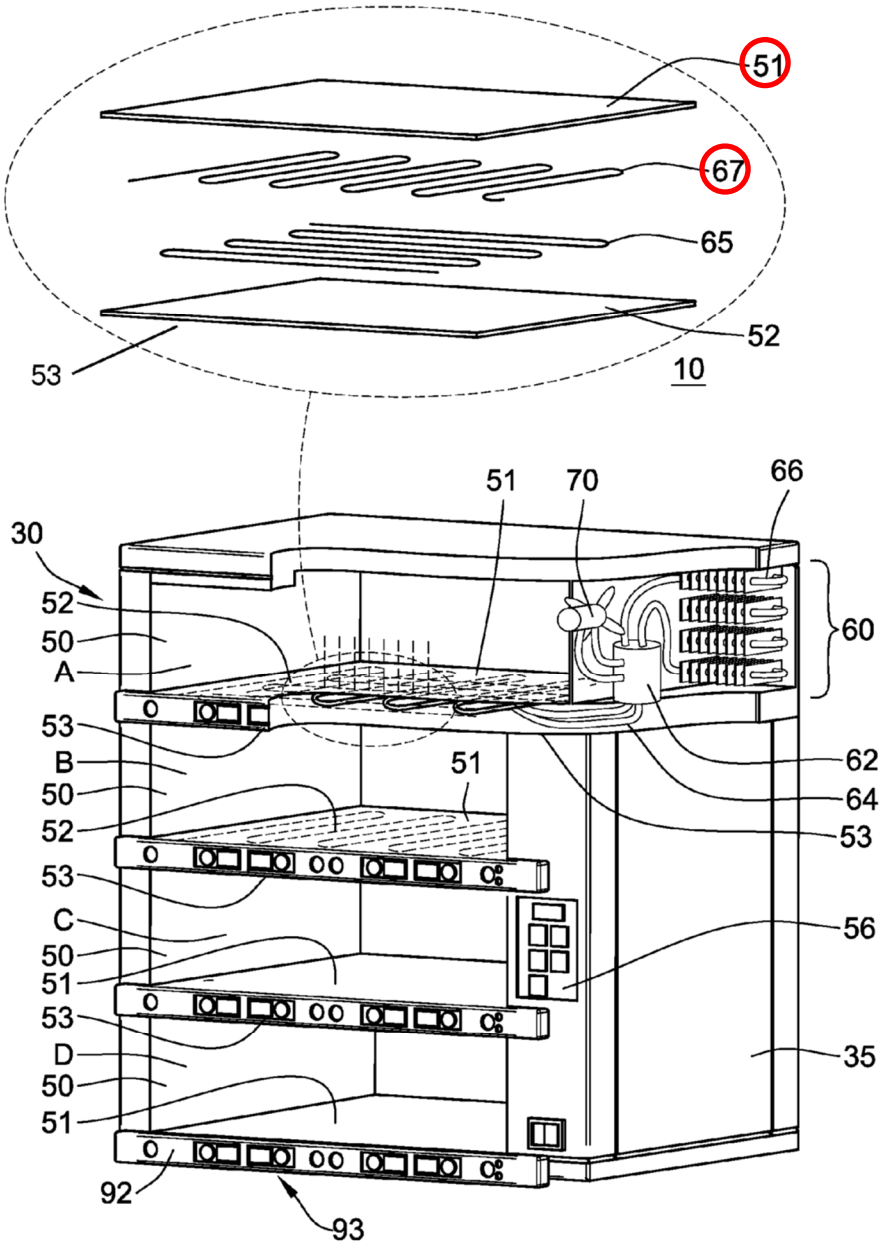


FIG. 2

EX1022: Fig. 2 (annotated).

8. Shei'821 (EX1011)

90. U.S. Patent Publication No. 2016/0073821 ("Shei'821") teaches a pan storage apparatus (10) with lid supports (36A) for supporting lids (18) made out of sheet metal. EX1011: ¶¶[0024], [0035], [0039] ("the cover supports 36A and the cover retainers 36B, including the keepers 36E, are formed as one piece of metal").

91. The lid supports (36A) are shown as thin bent sheets of material, and Shei'821 discloses the material as being metal. EX1011: ¶[0039], Figs. 1, 7, and 8.

FIG. 1

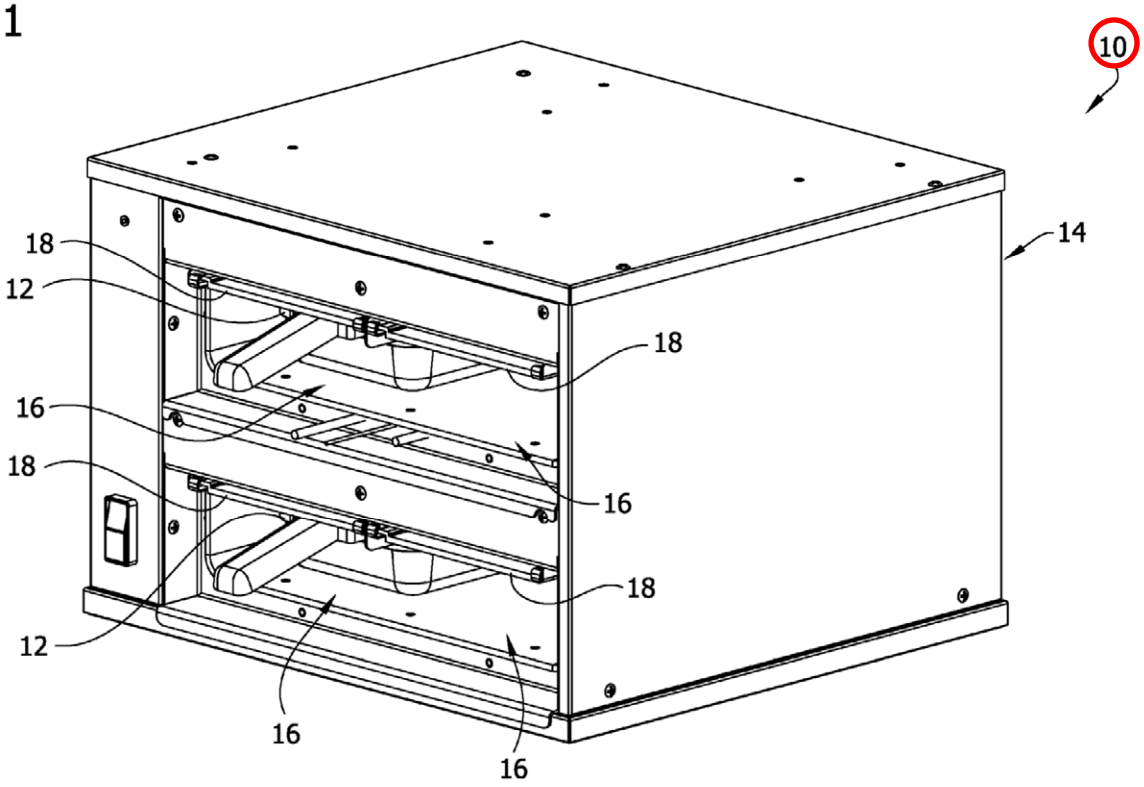


FIG. 7

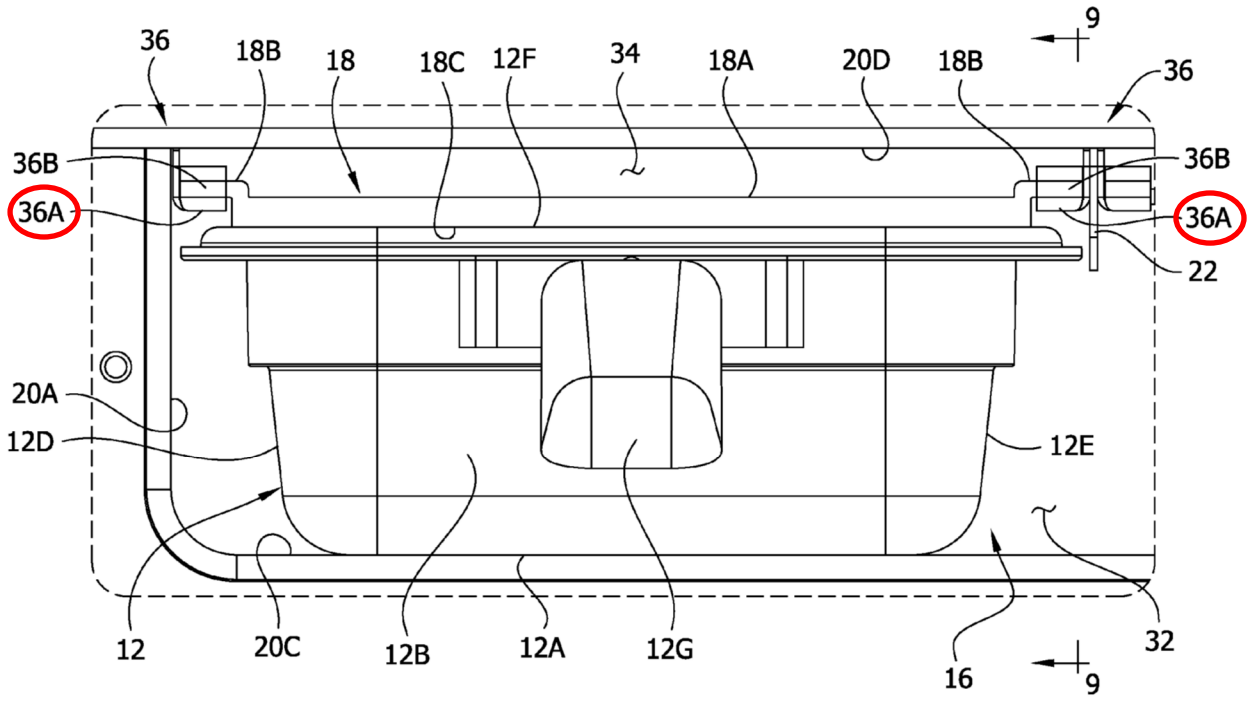
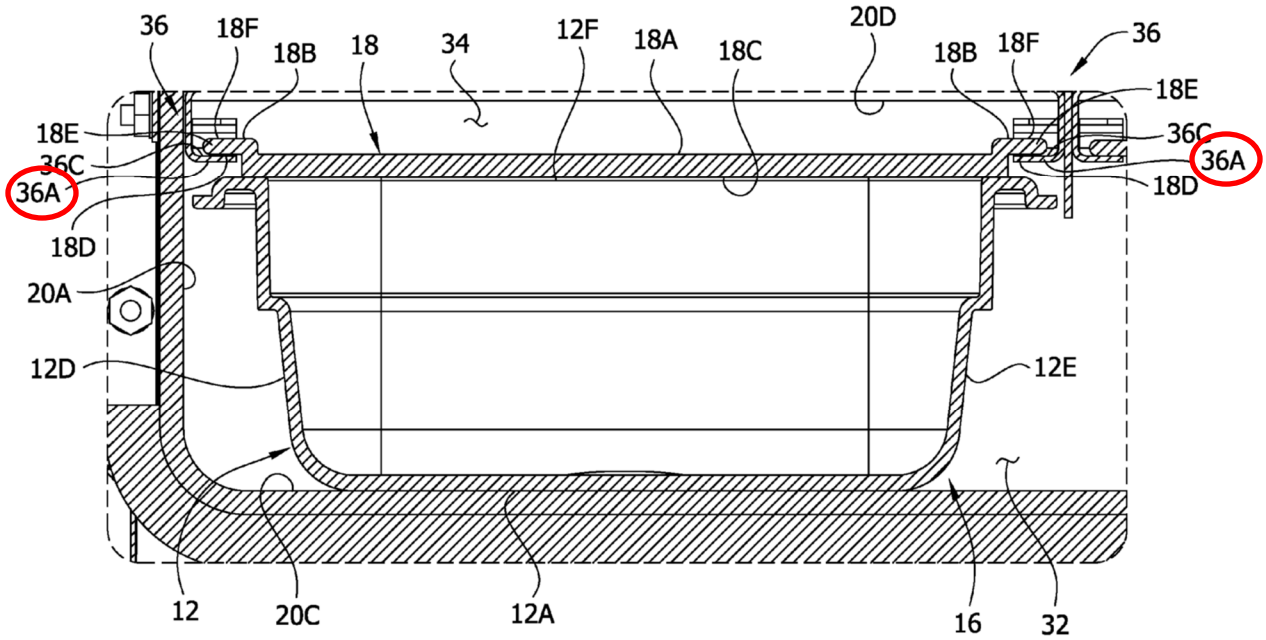


FIG. 8



EX1011: Figs. 1 (annotated).

9. Shei'155 (EX1016)

92. 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").

93. 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").

94. 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

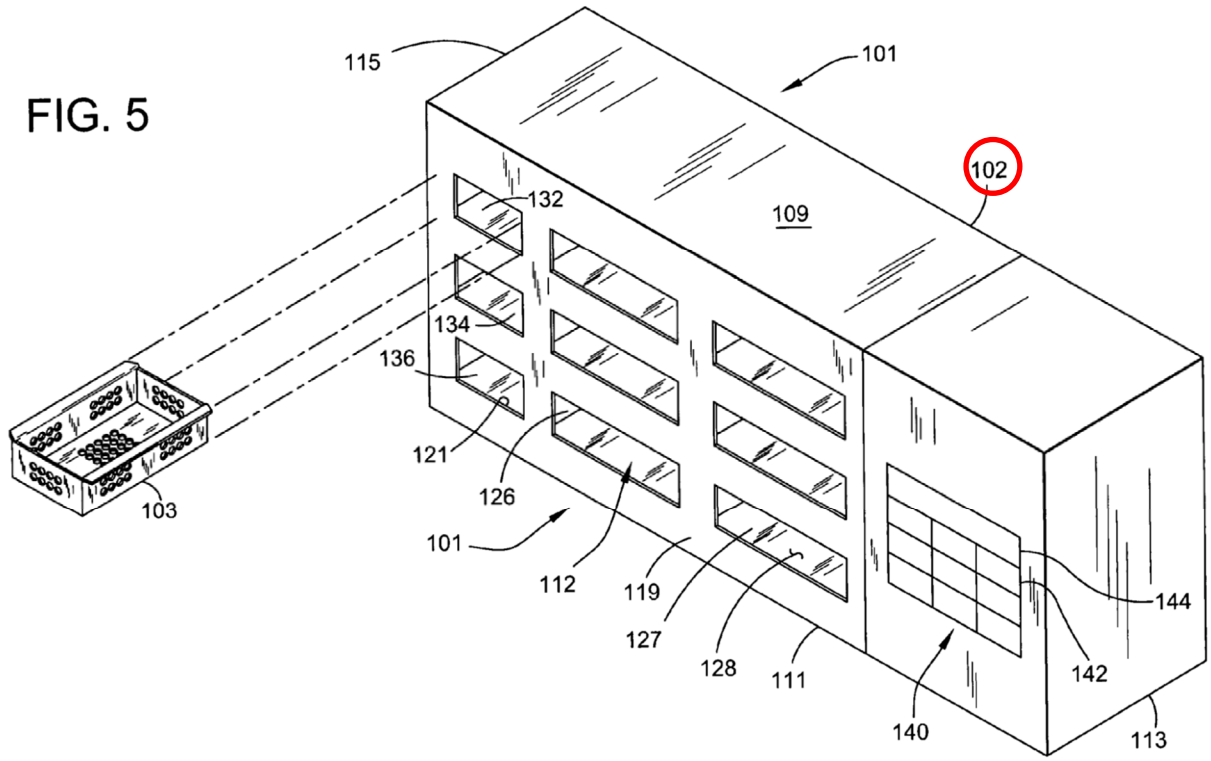
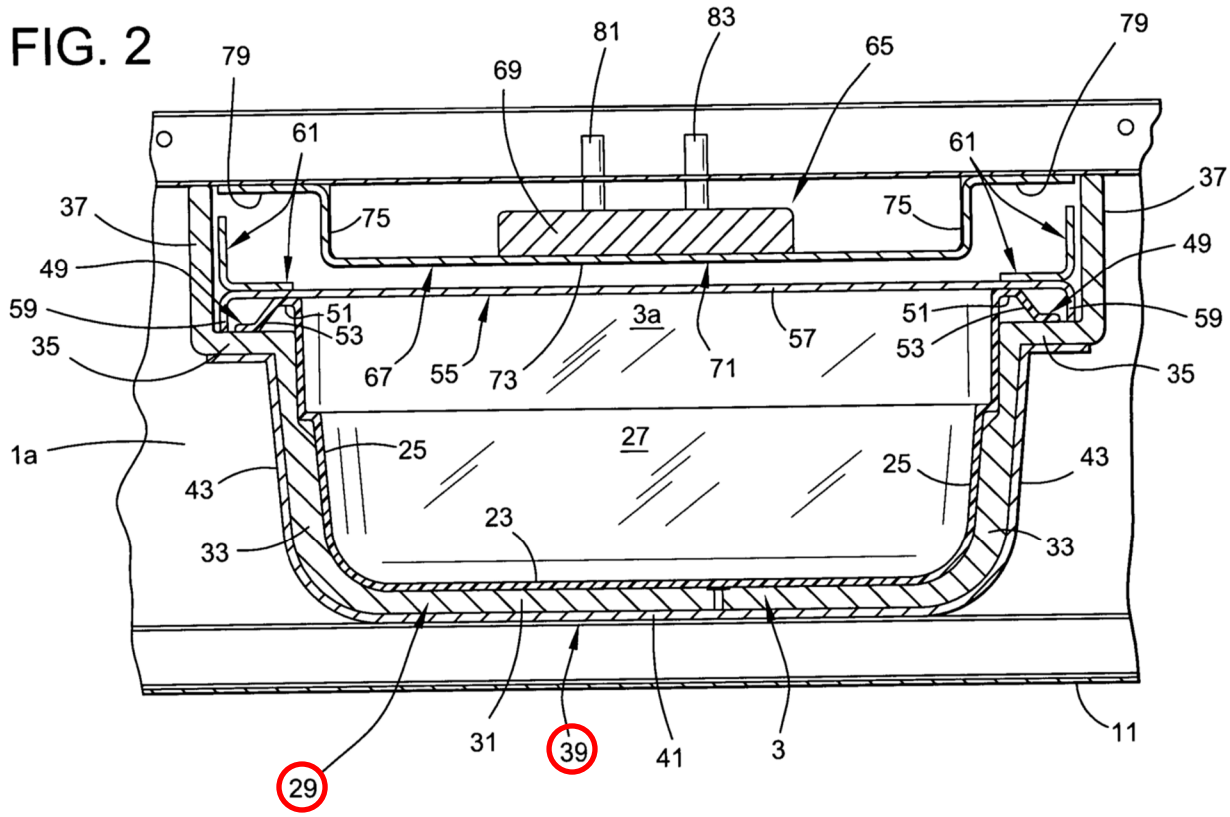


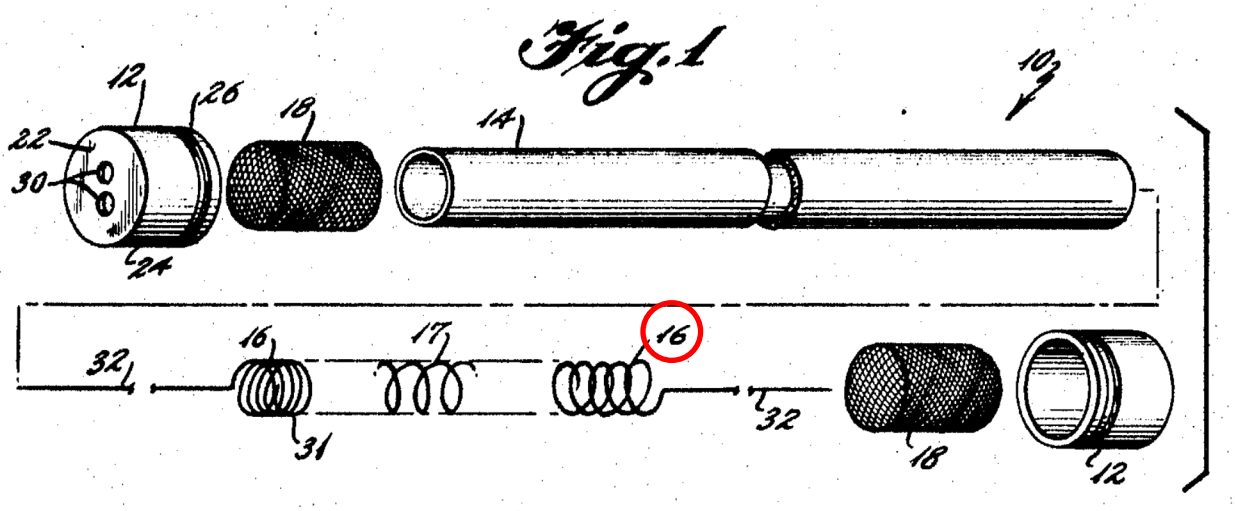
FIG. 2



EX1016: Figs. 2 and 5 (annotated).

10. Poole (EX1025)

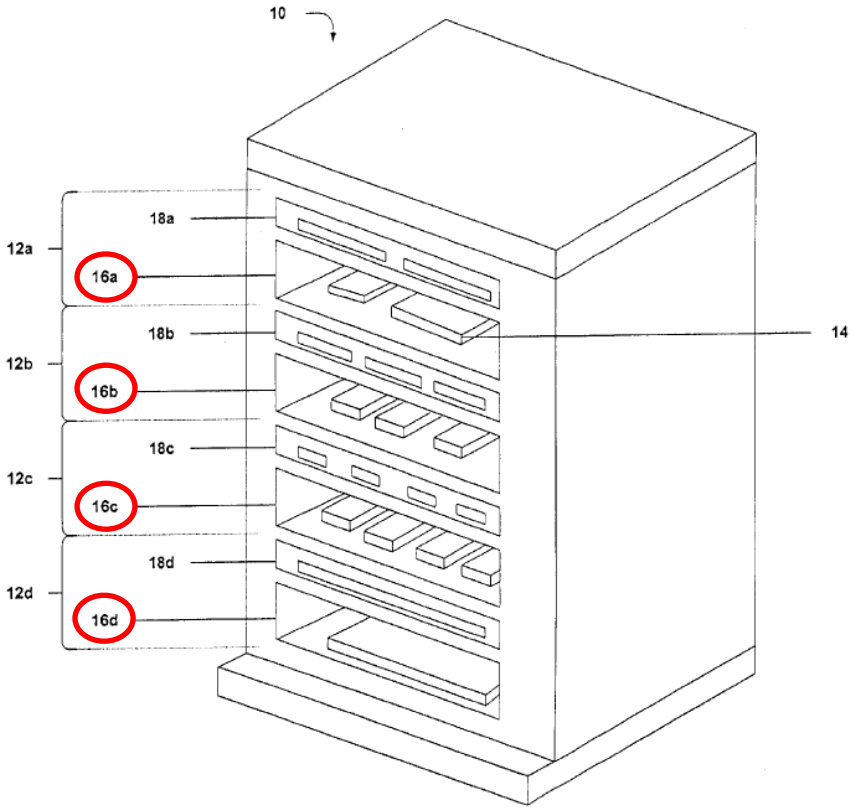
95. U.S. Patent No. 3,461,275 ("Poole") discloses an "infrared quartz heater" with a resistance wire (16) for generating heat. EX1025: Title ("Infrared Quartz Heater"), 1:29-30 ("[t]he usual quartz infrared heater consists essentially of a resistance wire heating element"), 2:6-7 ("a heater element 16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



EX1025: Fig. 1 (annotated).

11. McMillan (EX1019)

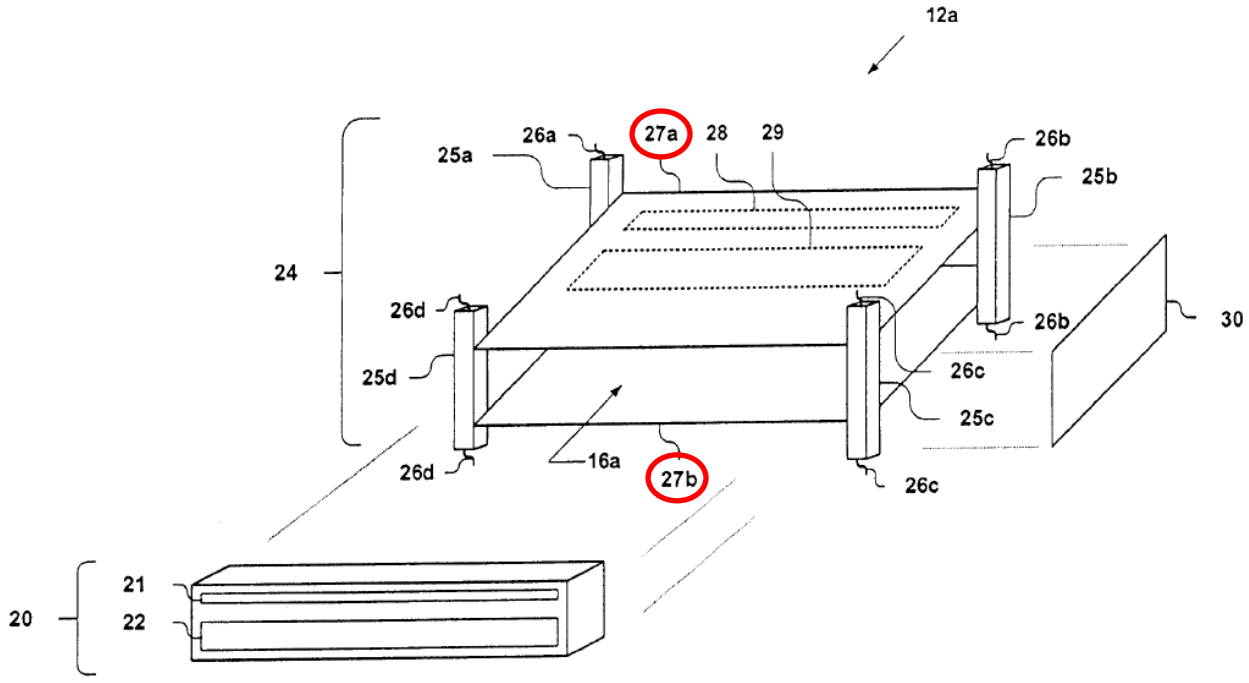
96. U.S. Patent No. 6,658,994 ("McMillan") teaches a food holding cabinet (10) including several food passageways (16a-16d). EX1019: 2:49-52, 2:65-67.



EX1019: Fig. 1 (annotated).

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

EX1019: 4:36-52.



EX1019: Fig. 2 (annotated).

98. 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.

99. 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.").

100. 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.").

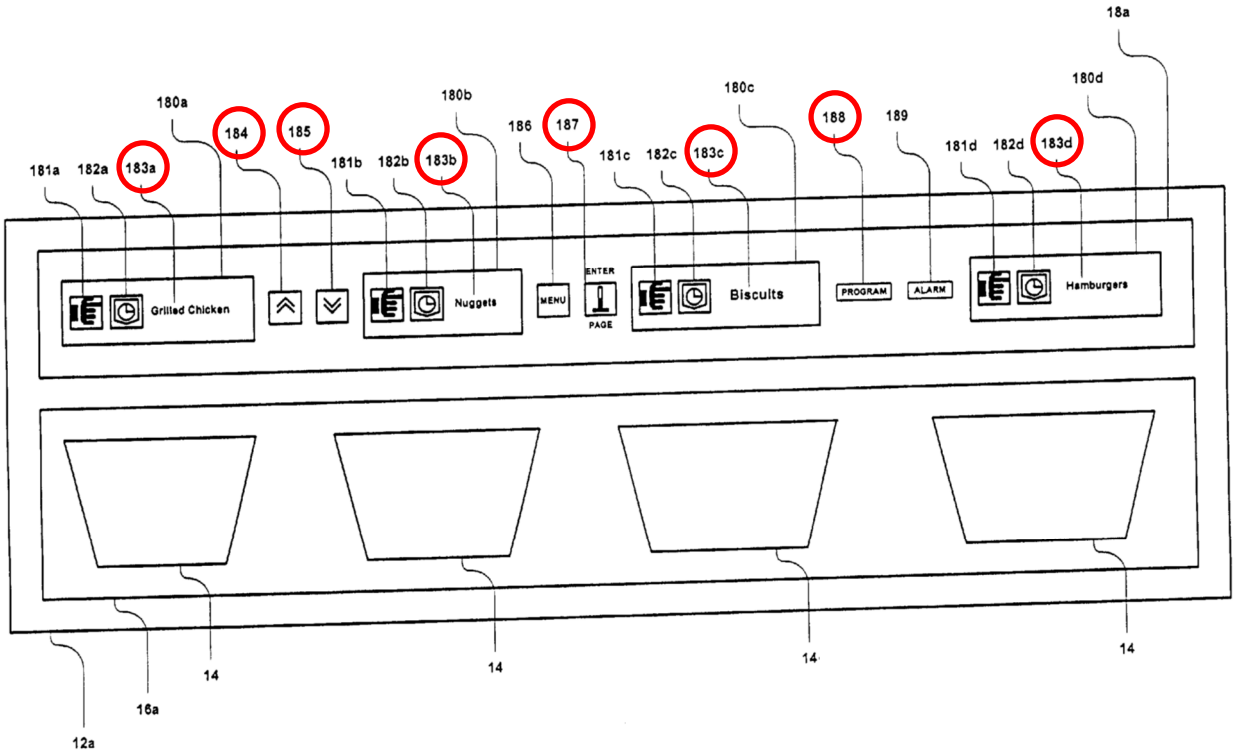


Fig. 5a

EX1019: Fig. 5a (annotated).

12. Shei'099 (EX1017)

101. 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.

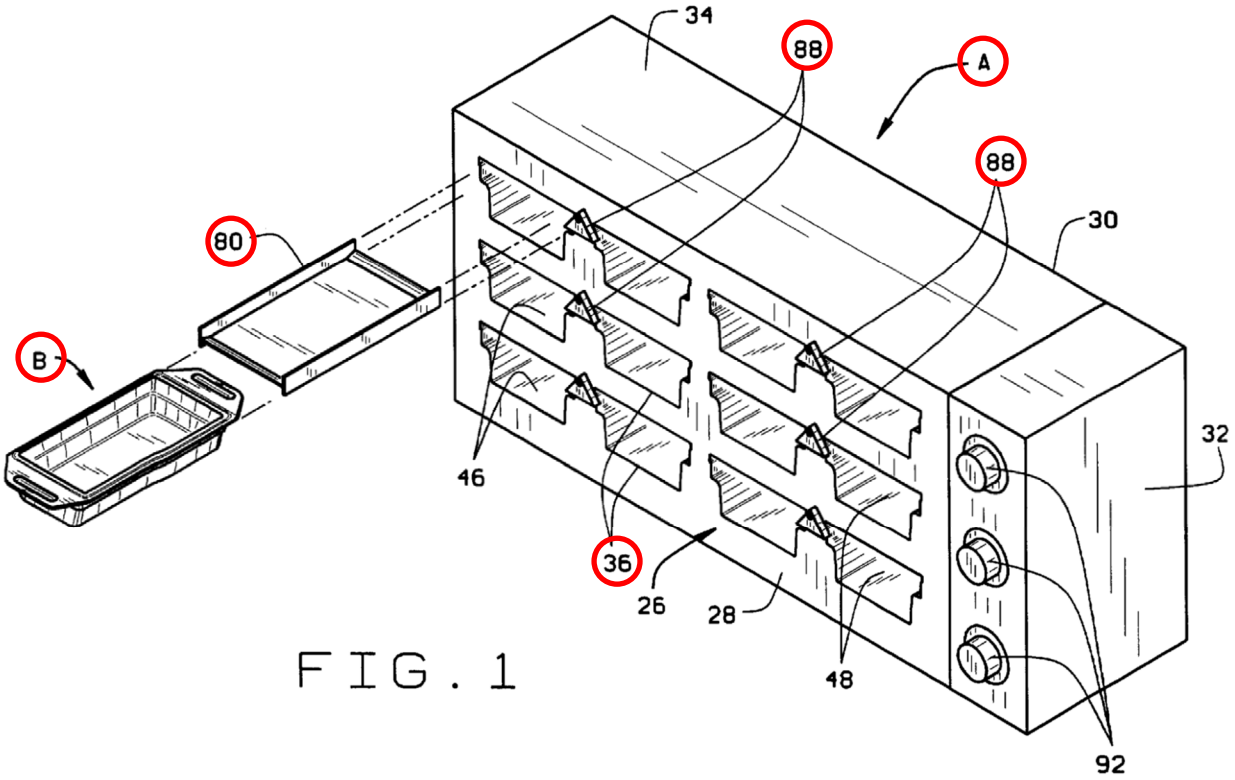


FIG. 1

EX1017: Fig. 1 (annotated).

102. 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”).

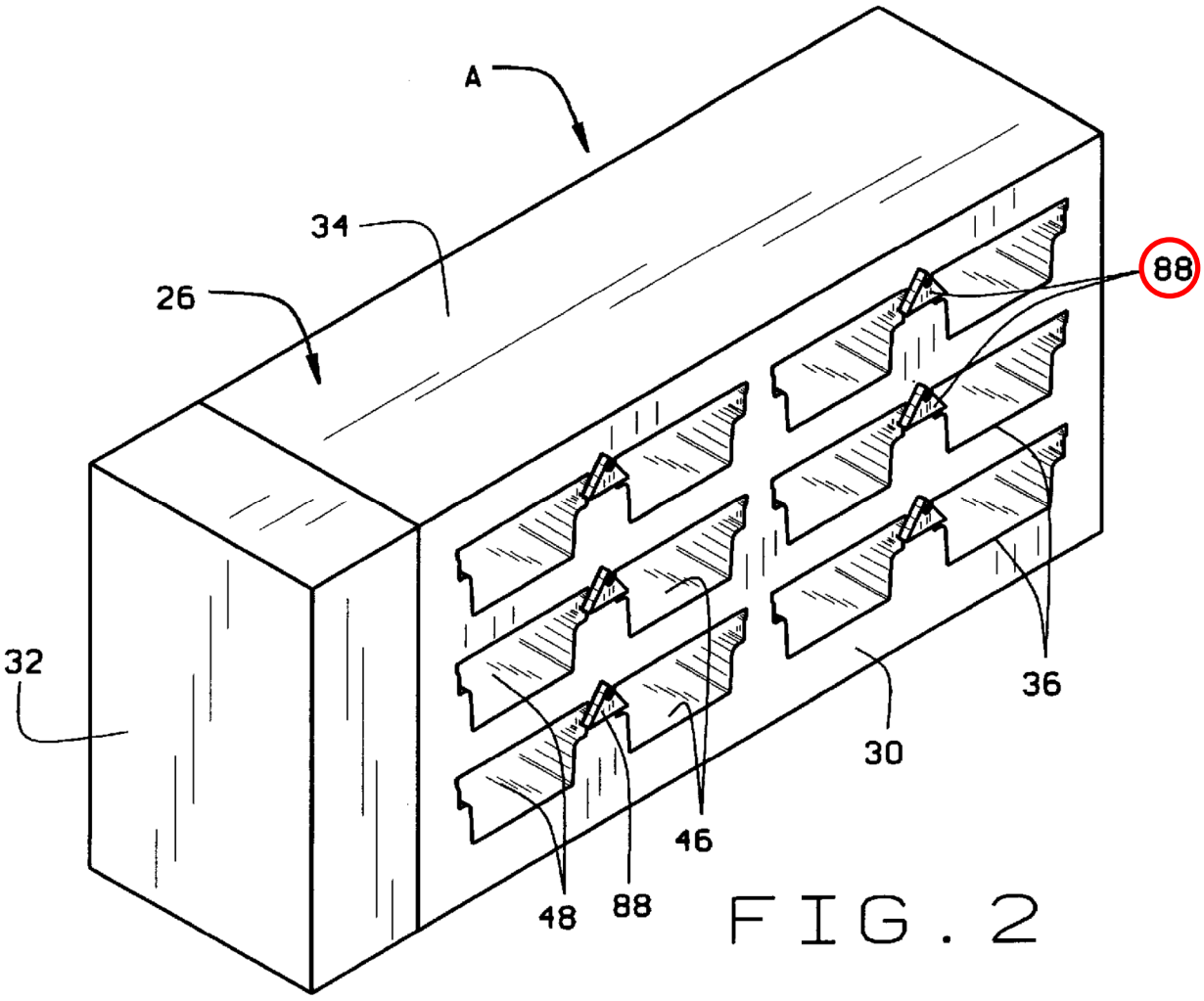


FIG. 2

EX1017: Fig. 2 (annotated).

13. Vaseloff (EX1026)

103. U.S. Patent No. 7,258,064 ("Vaseloff") teaches a food holding device (30) having a timer module (32). EX1026: 2:60-63, 3:48-49, Figs. 3, 4, 10.

104. The food holding device (30) includes upper and lower rows each having two temperature-controlled pan locations (34). EX1026: 2:60-63.

105. The timer module (32) includes display devices (60), timer status indicators (62), and timer buttons (64). EX1026: 3:48-51. Each display device

(60) is grouped with a corresponding timer status indicator (62) and timer button (64), and these are positioned near and associated with a particular pan location (34) as confirmed by a visual indicator arrow (66) that points up or down to the pan location. EX1026: 4:5-6, 4:20-22, 4:26-33, 4:48-49, 6:51-52.

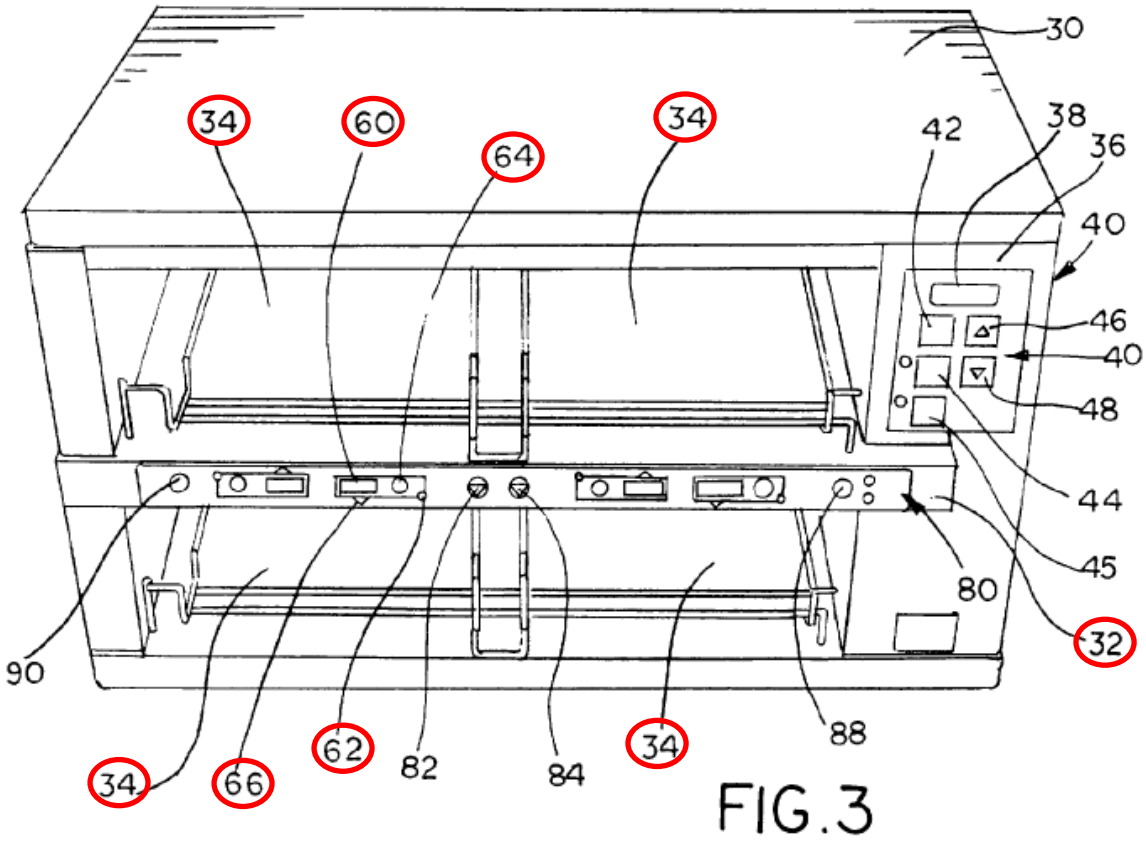


FIG. 3

EX1026: FIG. 3 (annotated).

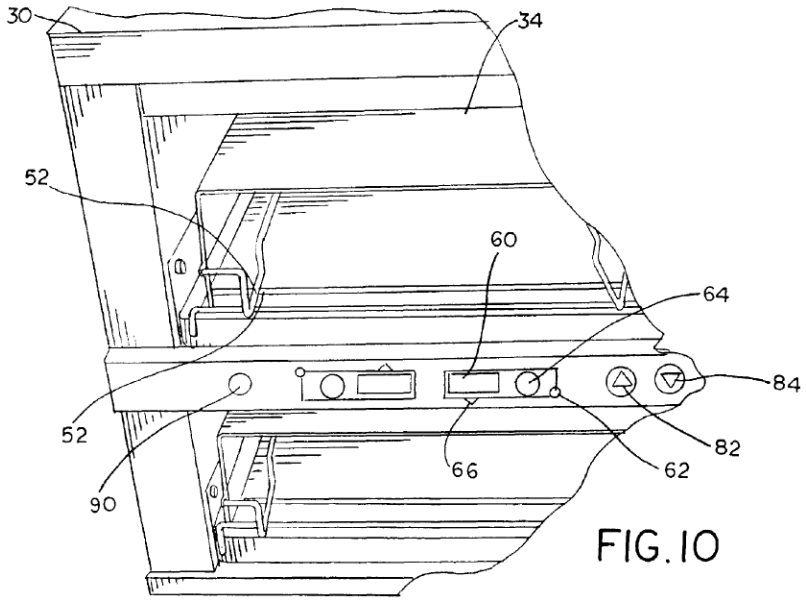


FIG. 10

EX1026: Fig. 10.

106. The display device (60) displays the identity of the food (*e.g.*, "EGGS") held at each pan location (34) and "can display or indicate a variety of information about the food." EX1026: 4:5-15.

107. The timer button (64) activates/deactivates a hold timer, and the timer status indicator (62) includes an LED capable of flashing and emitting any color for indicating statuses such as "standby", "food product has expired", "timing in progress", and "near expiration and oldest food product of its kind". EX1026: 6:51-52, 4:50-59; 6:1-25.

108. A transfer button (90) facilitates a transfer process in which a user transfers a food pan from one pan location (34) to another and the timer module (32) transfers information associated with the food pan (*e.g.*, hold time,

temperature settings) to the new pan location for updating the temperature settings and displayed information. EX1026: 6:51-7:20, 9:27-64; 10:26-33.

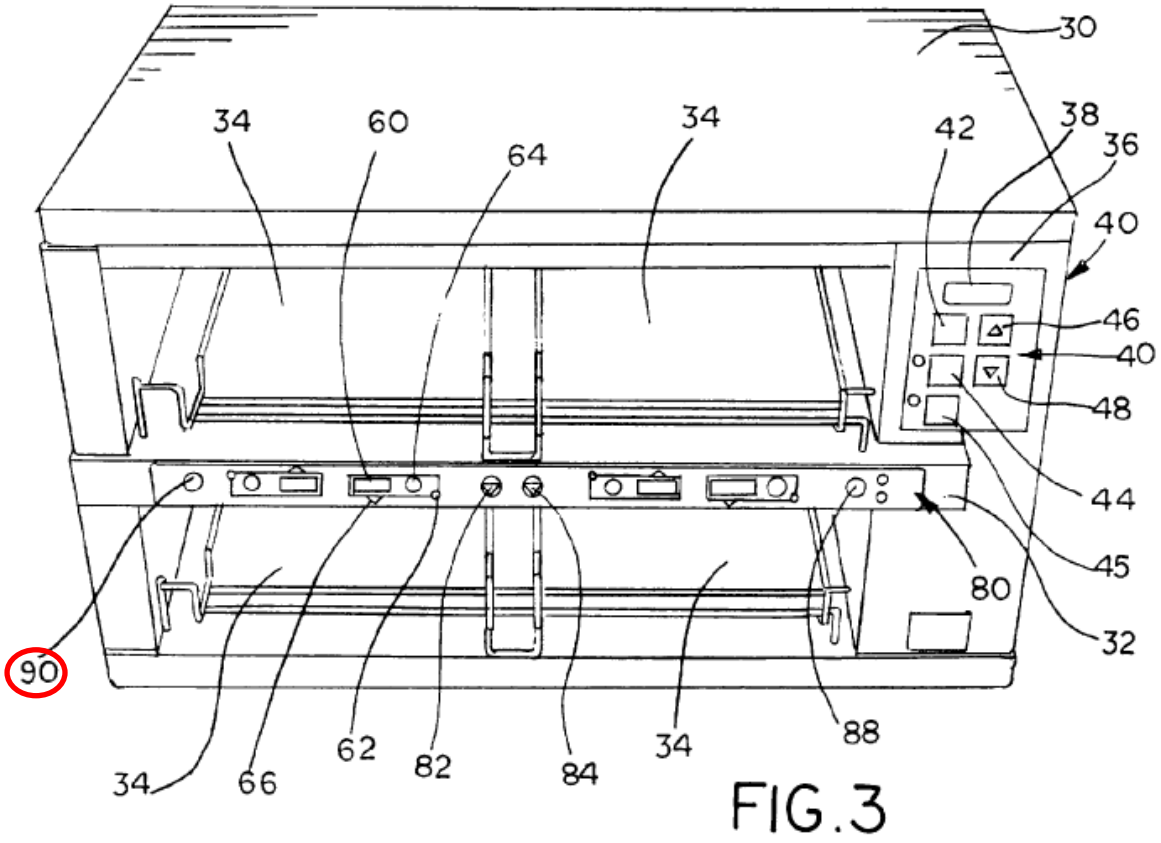


FIG.3

EX1026: FIG. 3 (annotated).

109. Each timer module (32) includes a programming system including an input system (80). EX1026: 7:21-25.

110. The programming system may use the display devices (60) for the pan locations. EX1026: 7:26-28. The input system (80) includes up-arrow and down-arrow buttons (82, 84) "for increasing and decreasing the value of a parameter, or scrolling up and down through a list of parameters." EX1026: 7:29-32. The programming system likewise permits the selection of a pre-programmed "activity

menu" (*e.g.*, breakfast) via use of an activity button (88) to assign an arrangement of food types to the plurality of pan locations. EX1026: 7:46-8:50.

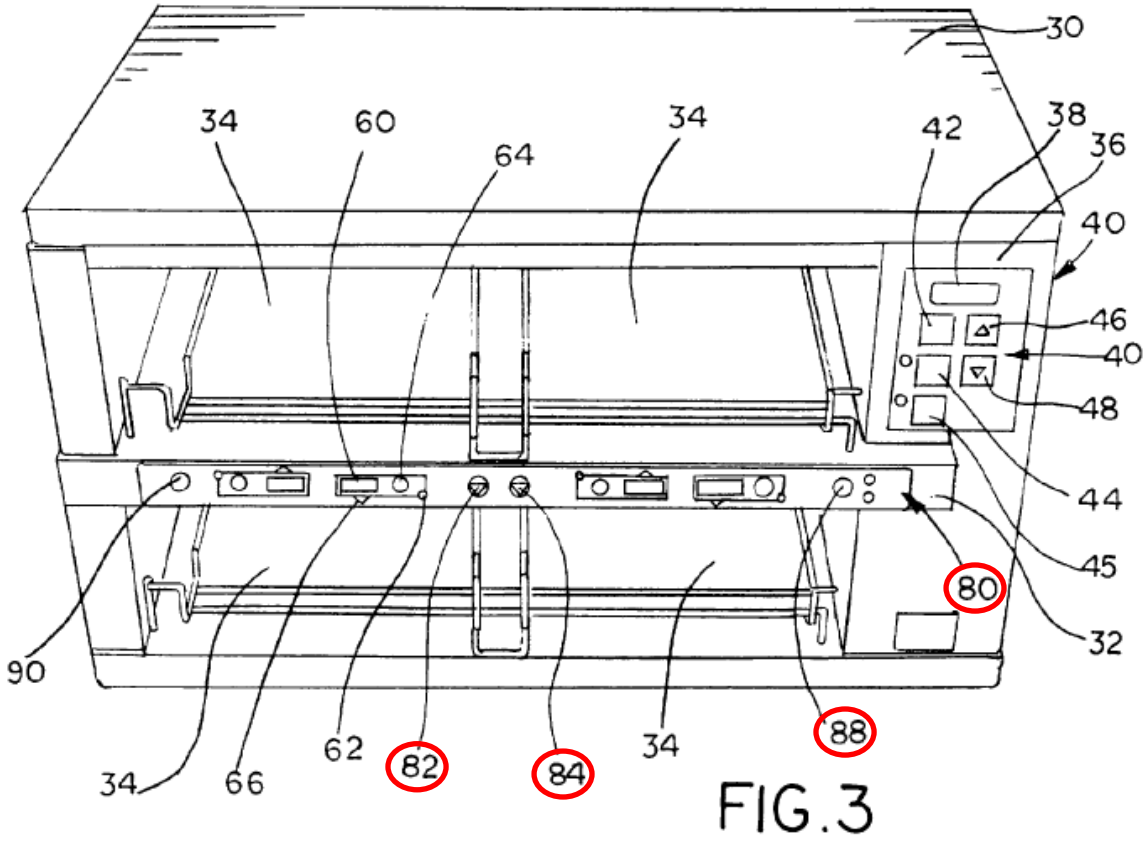


FIG.3

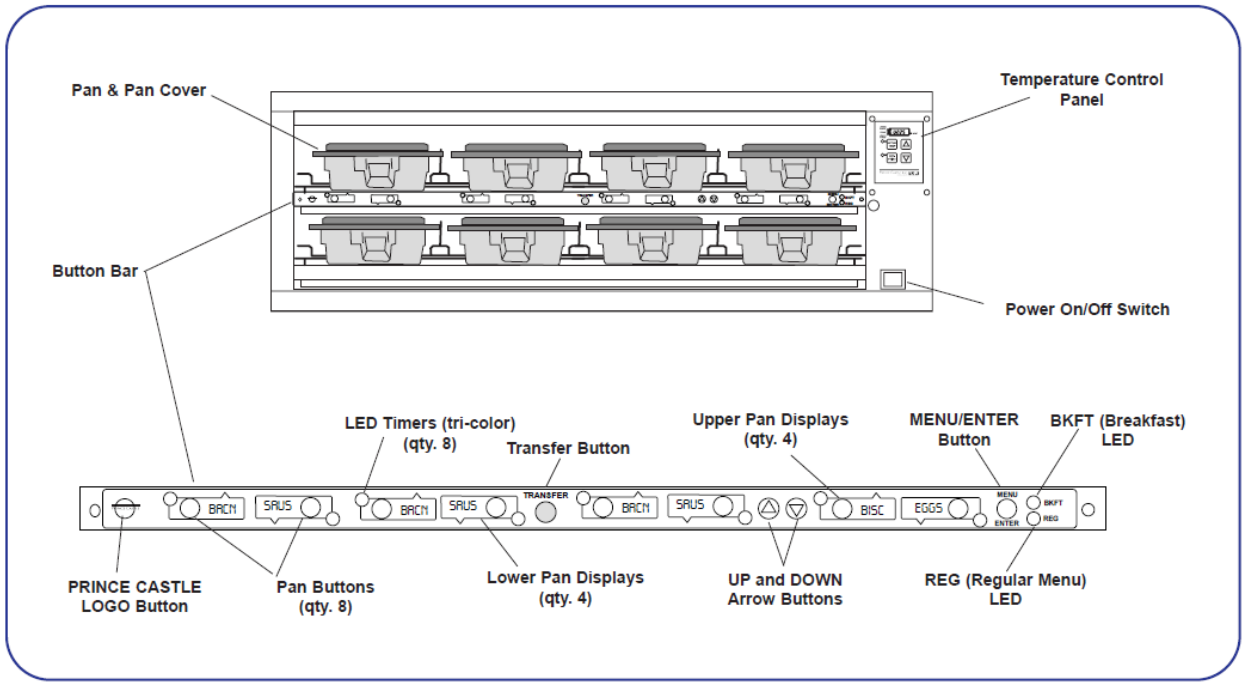
EX1026: FIG. 3 (annotated).

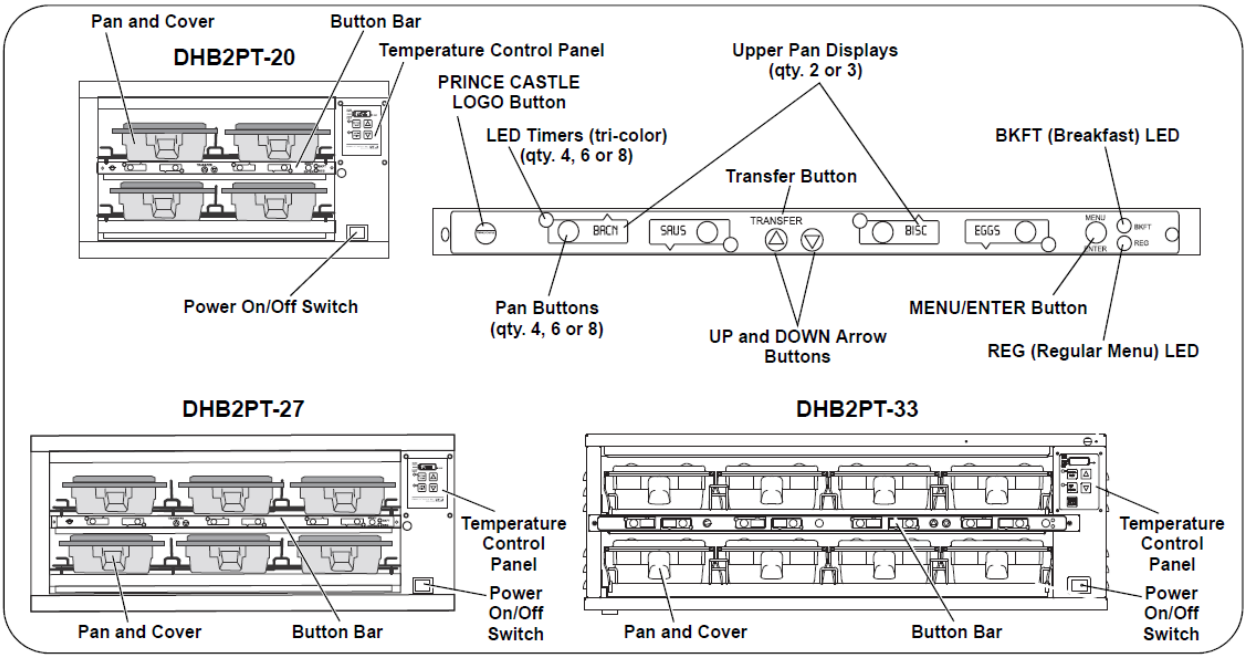
14. Prince Castle (EX1009)

111. 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 public website that was operated by Petitioner Marmon to advertise its commercial kitchen equipment, including Product Holding Bins (also called Holding Bins or Dedicated Holding Bins).

112. 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).

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



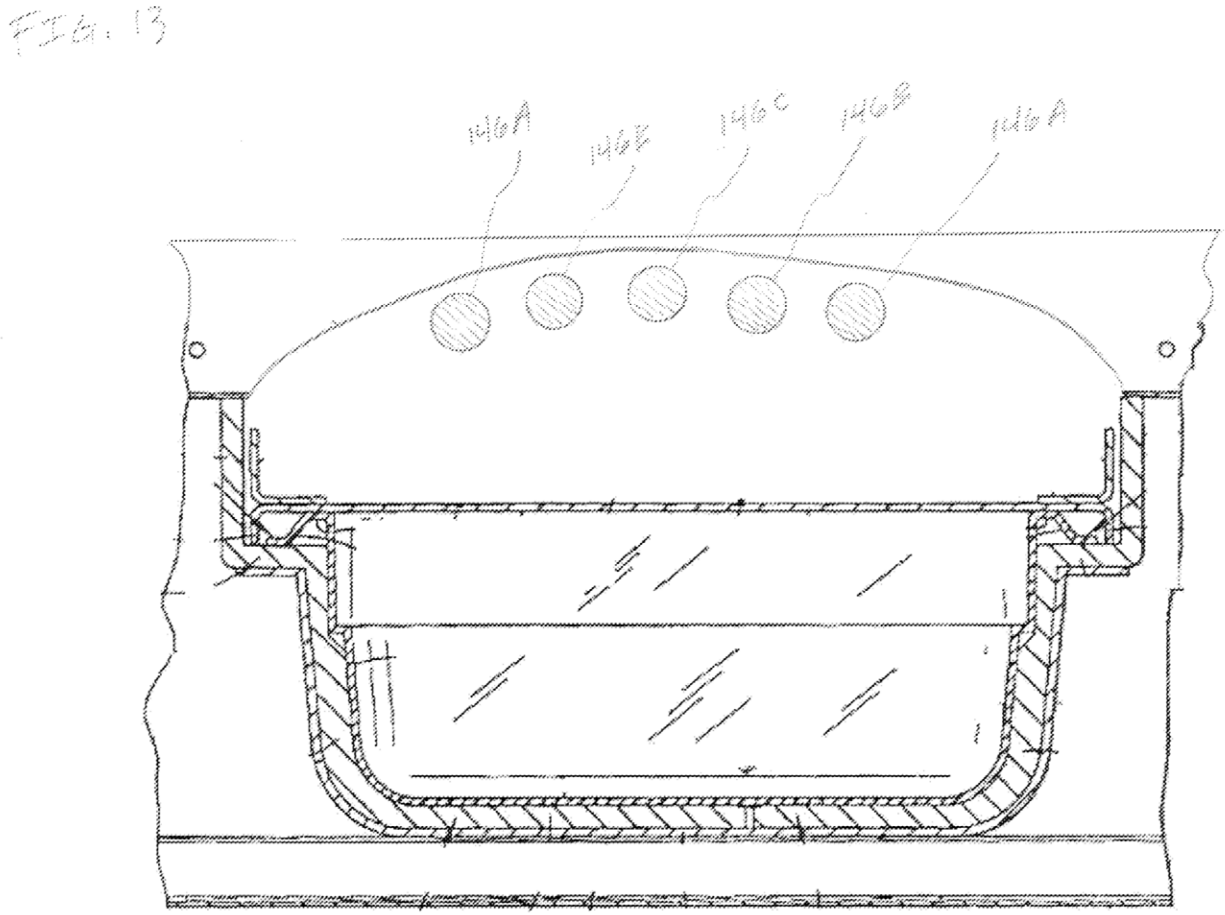


EX1009: 19, 36.

114. 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.

15. Reese (EX1027)

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



EX1027: Fig. 13.

116. 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, 3-15, 17-19, 21, 23, AND 25-27 WOULD HAVE BEEN OBVIOUS OVER THE IRHS DOCUMENTS

A. Combination of the IRHS Documents

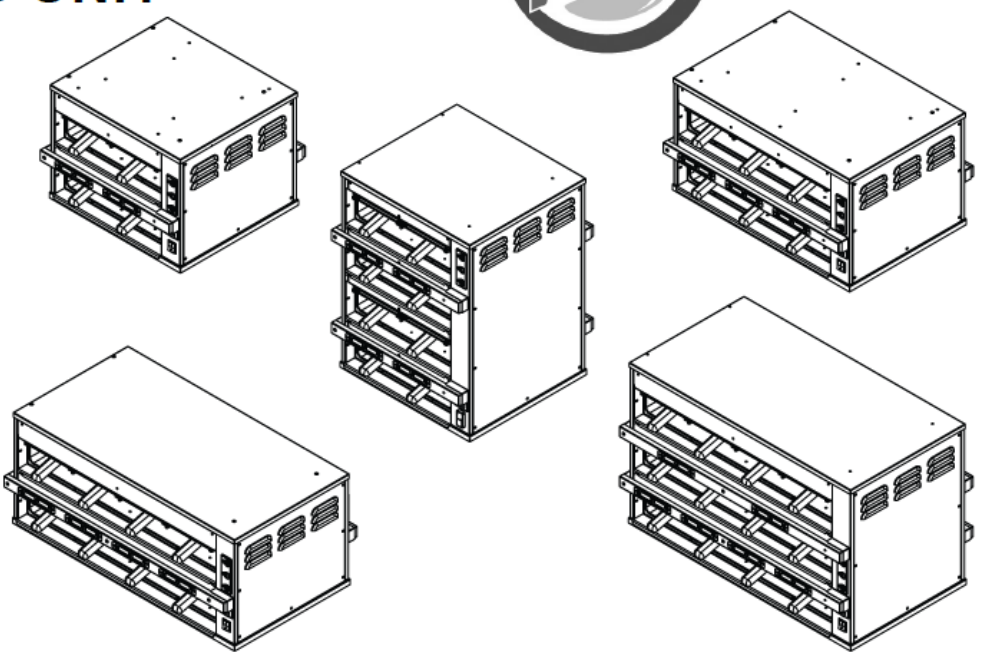
117. While I understand that for the purposes of this IPR proceeding, each of the IRHS Documents must be treated as a separate prior art reference, it would have been obvious to the POSA to combine the teachings and disclosures of the IRHS Documents as it would have been apparent that each of the IRHS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

118. As described in Paragraphs 41-62 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.

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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

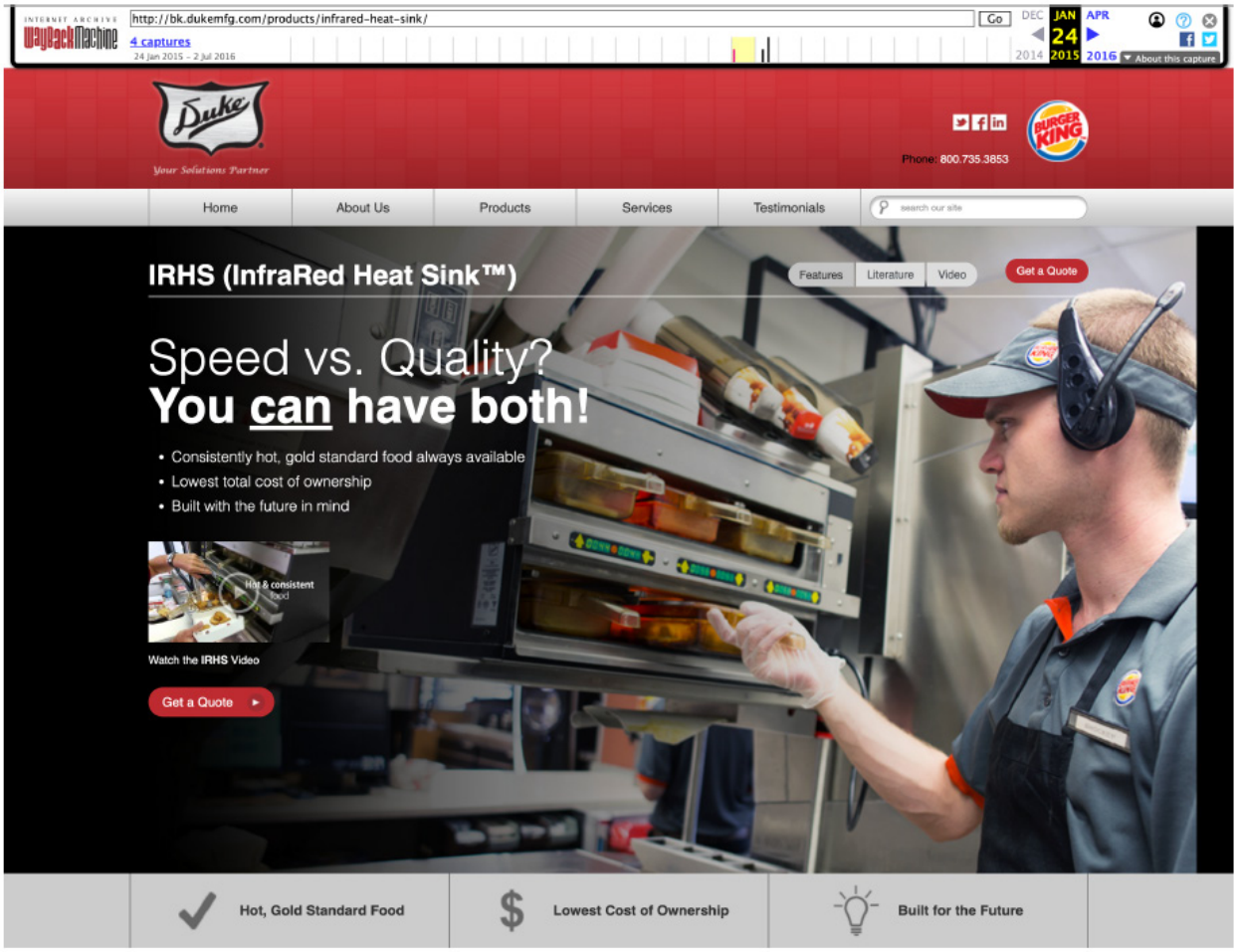
- Automatic pan linking to ensure FIFO
- Custom heat settings for food product
- Each compartment individually controlled
- Alphanumeric displays to indicate product description, temp and hold time remaining
- Web based programming via USB
- Day part switch for global recipe changes (B, L, D)
- Firmwave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

PRODUCT HOLDING UNIT - IRHS

EX1006: 1.


http://bk.dukemfg.com/products/infrared-heat-sink/
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.

Your Solutions Partner

Service Manual

INFRARED HEATSINK™ HOLDING UNIT

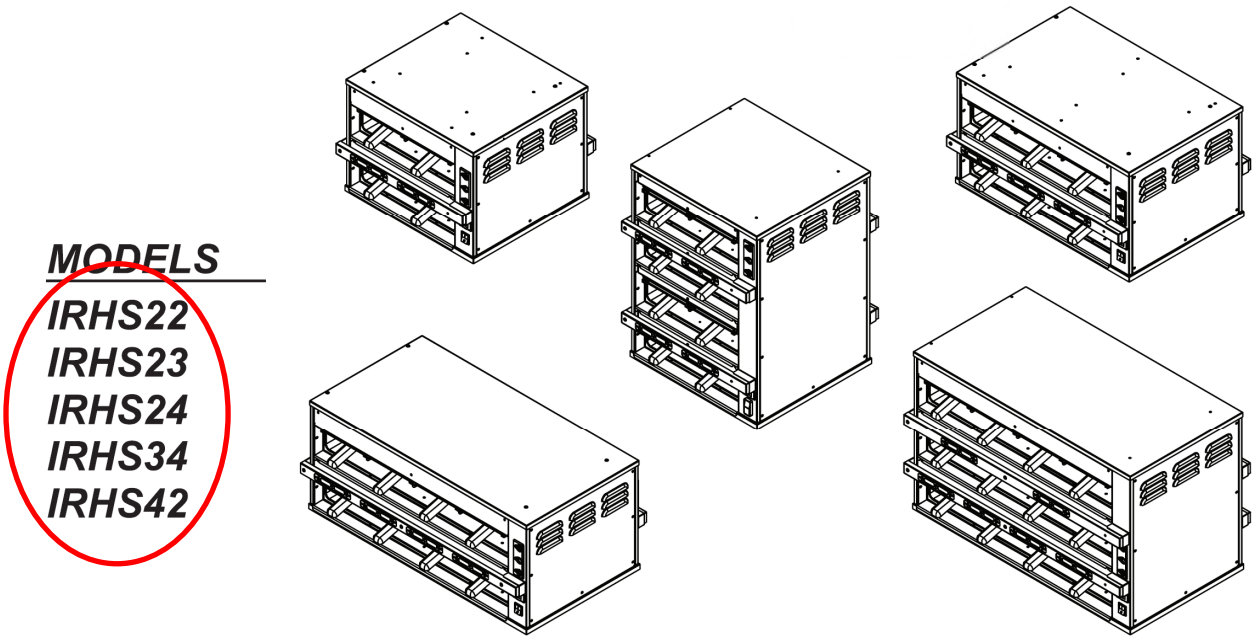
Includes Standalone, Kitchen Minder and VISOR models

MODELS
IRHS22
IRHS23
IRHS24
IRHS34
IRHS42



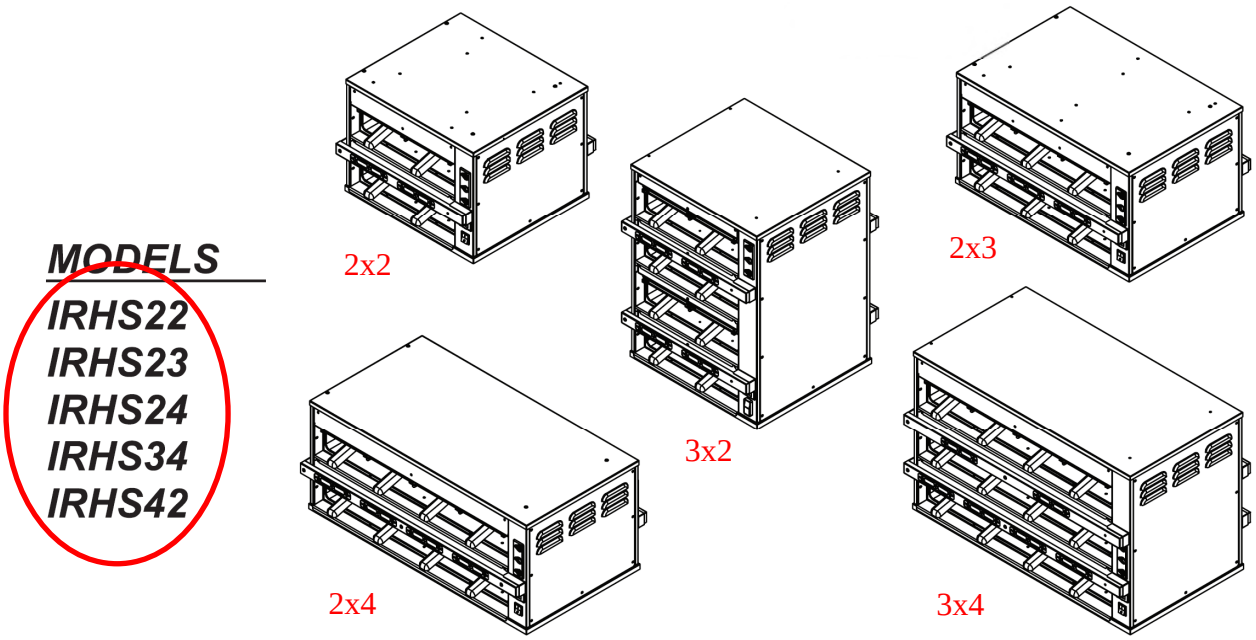
EX1008: 1.

119. Beyond being directed to the same family of food holding units, 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).

120. 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-XXX4T1	Single	Stand-Alone	208 / 230 / 240	50/60	12	6-15P (208V/240V)
IRHS24-XXX4T2R	Double	Stand-Alone	208 / 230 / 240	50/60	12	6-15P (208V/240V)
IRHS24-XXX4T1S	Single	Satellite	208 / 230 / 240	50/60	12	6-15P (208V/240V)
IRHS24-XXX4T1M	Single	Master	208 / 230 / 240	50/60	12	6-15P (208V/240V)
IRHS24-XXX4T2S	Double	Satellite	208 / 230 / 240	50/60	12	6-15P (208V/240V)
IRHS24-XXX4T2M	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).

121. 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.

122. 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.

123. 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 had an understanding of 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.

124. The POSA would recognize that the differences in content between the IRHS Documents are attributable to the different purposes the IRHS Documents serve. For example, the IRHS Manual is produced for users of the IRHS products and includes safety information, installation information, cleaning information, operating information, and troubleshooting. EX1005: 5, 11, 13, 16,

19. The IRHS Specifications is a quick reference guide for marketing and summarizes the IRHS product line in only two pages. EX1006. The Duke Website are tailored to Burger King restauranteurs and describes various Duke equipment and supplies that could be ordered and used in Burger King restaurants, including models of the IRHS products. EX1007: 26, 51-57. The IRHS Service Manual is produced for technicians servicing and repairing the IRHS products and includes instructions for removing and replacing parts of the units. EX1008: 10-41.

125. 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 and complete understanding of the IRHS products as having all the capabilities and features the IRHS Documents collectively 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").

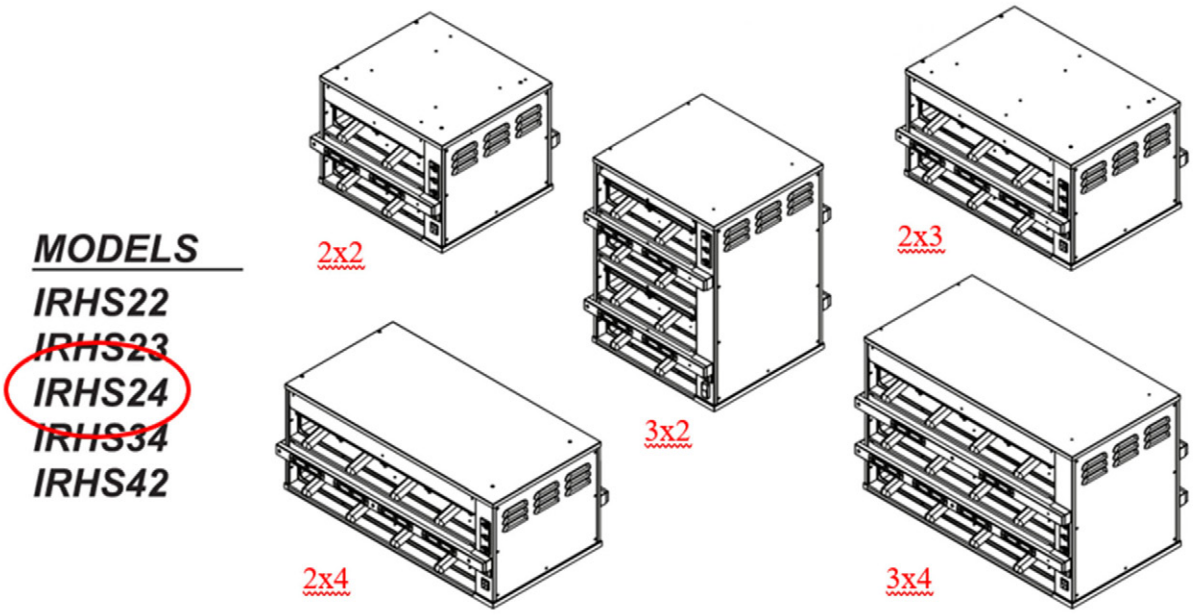
126. Because the POSA would have viewed the IRHS Documents together as describing capabilities and features of Duke's IRHS products, the POSA would have readily applied or supplemented any capability or feature of the IRHS products taught by one IRHS Document into the IRHS products taught by another IRHS Document. For example, if one IRHS Document is silent, ambiguous, or lacks details as to a feature or capability of the IRHS products, the POSA would look to another IRHS Document to supplement his or her understanding of the IRHS products.

127. 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.

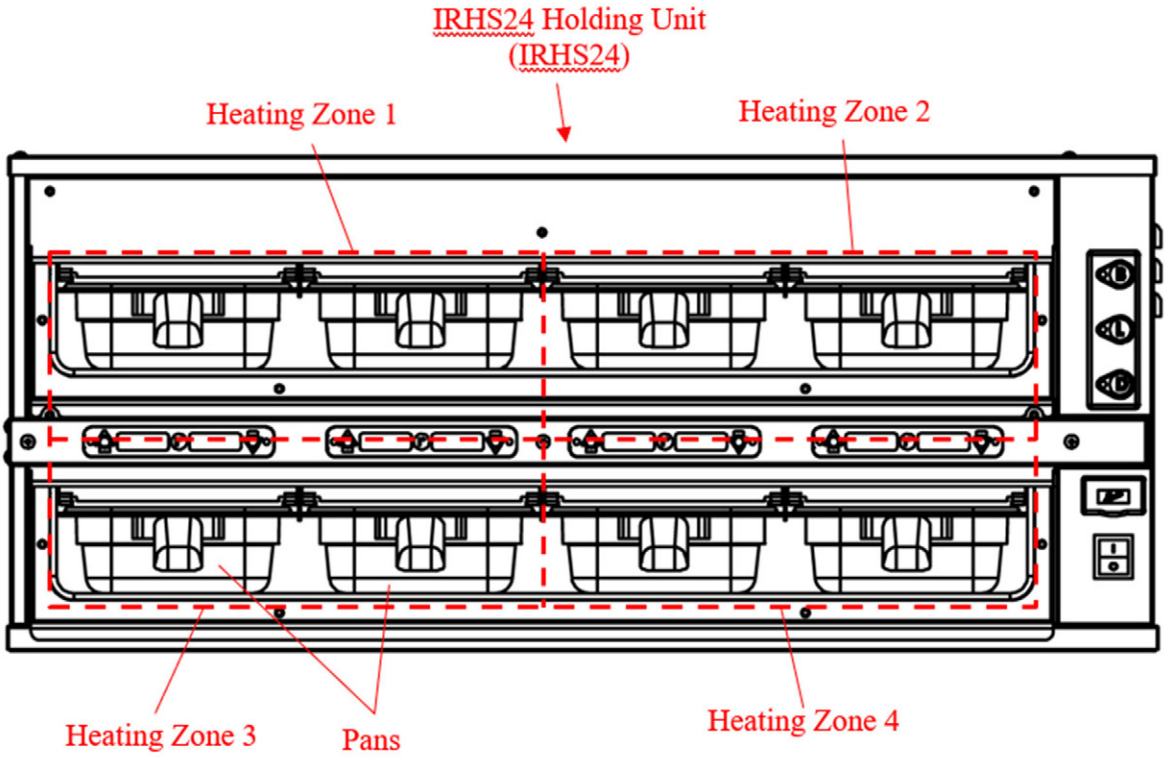
B. Independent Claim 1

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

128. The IRHS Documents disclose a multi-zone food holding bin. With respect to the claim limitations below, I will primarily focus on the 2x4 configuration of the IRHS Holding Unit, model number IRHS24, (the "IRHS24 Holding Unit" or "IRHS24") which has multiple zones for receiving and heating a plurality of food pans. EX1005: 4, 8; EX1006: 1; EX1007: 51, 56; EX1008: 1. As used herein, "IRHS" and "IRHS24" refer to IRHS Documents' disclosure not a commercial IRHS product itself.



EX1005: 1 (annotated).



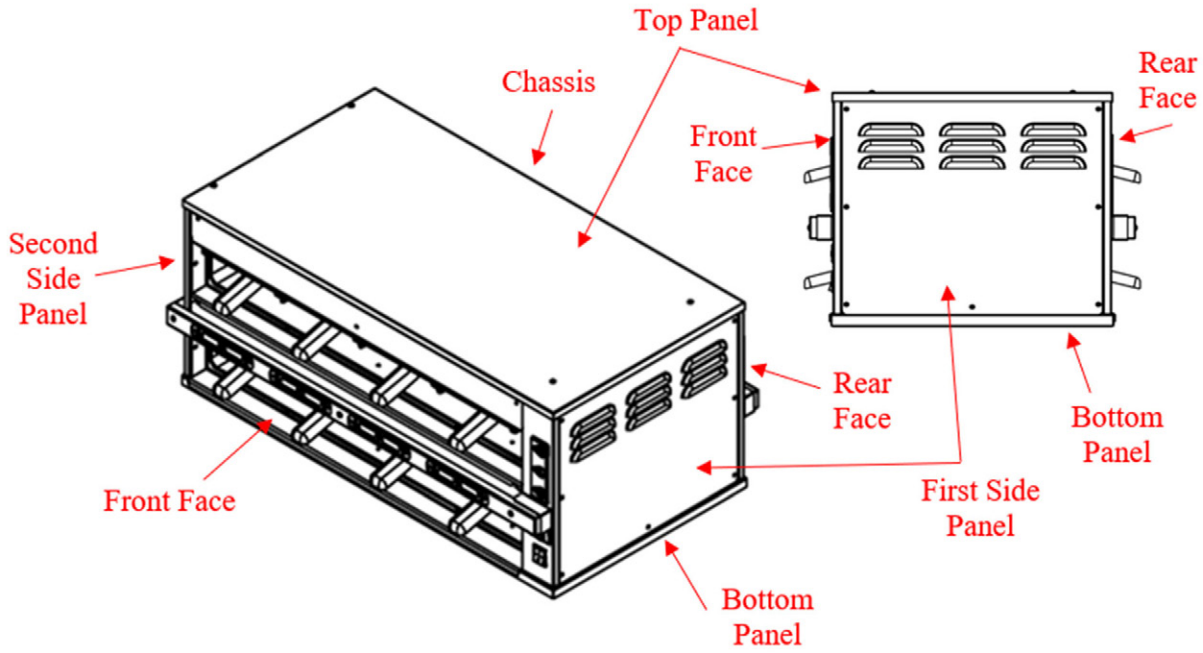
EX1005: 8 (annotated).



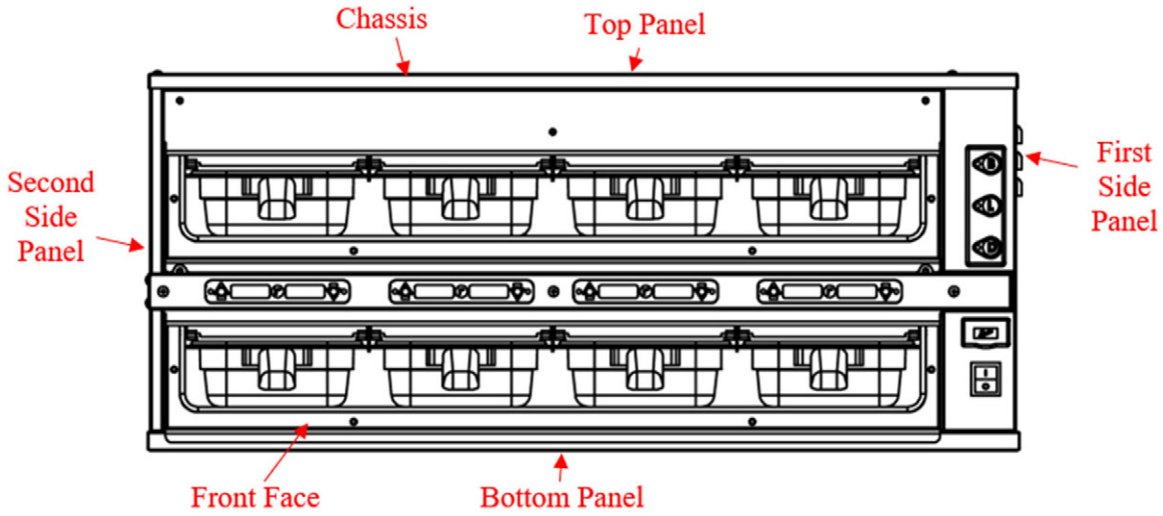
EX1007: 56.

1.a: a chassis having a top panel, a first side panel, a second side panel, a bottom panel, a front face, and an opposing rear face

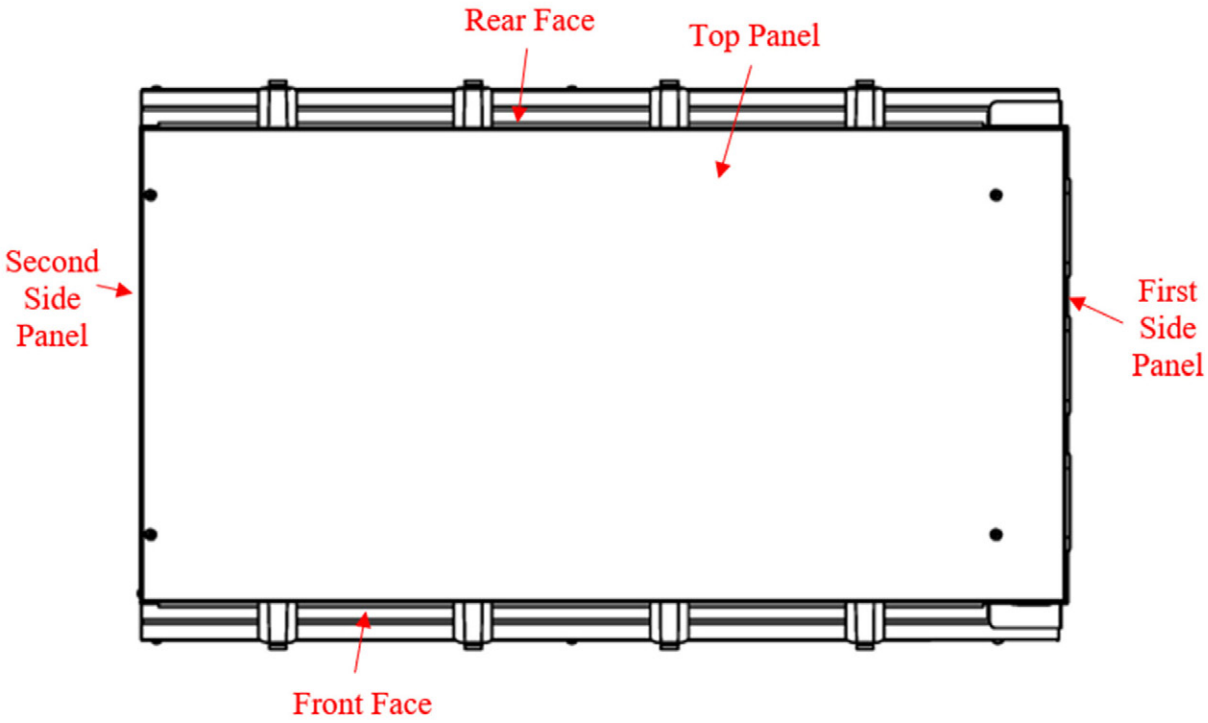
129. As disclosed in the images and figures of the IRHS Documents, the IRHS24 Holding Unit has a chassis. The chassis of the IRHS24 Holding Unit has a top structure (*i.e.*, a top panel), side structures (*i.e.*, a first side panel and a second side panel), and a bottom structure (*i.e.*, a bottom panel) that surrounds the food holding volume. The chassis of the IRHS24 Holding Unit further defines a front side (*i.e.*, a front face) and a rear side (*i.e.*, an opposing rear face) opposite the front face.



EX1005: 8 (annotated).



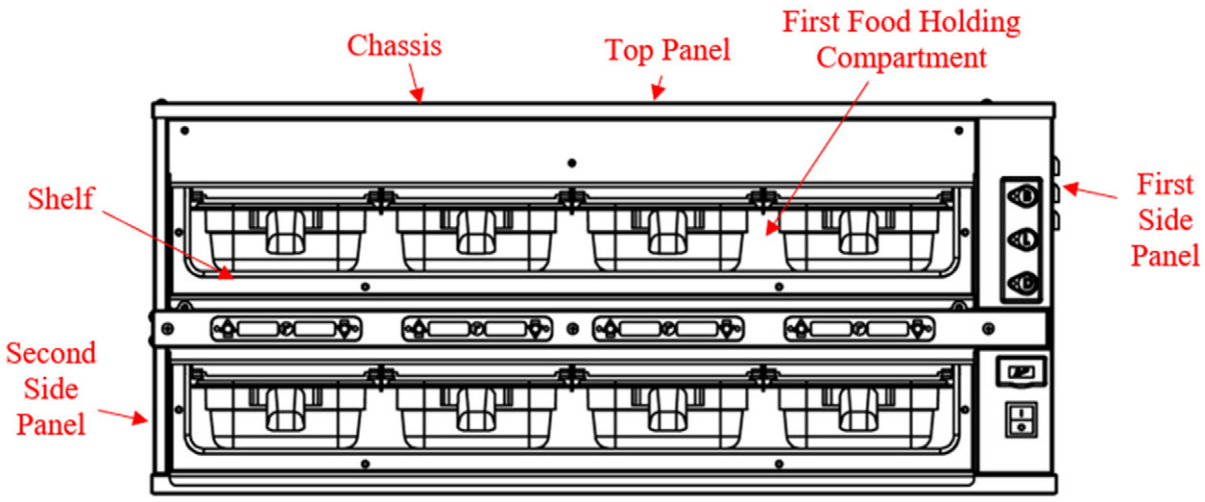
EX1005: 8 (annotated).



EX1005: 8 (annotated).

1.b.1: a first food holding compartment within the chassis, the first food holding compartment being defined by the first side panel, the second side panel, the top panel and a shelf

130. The chassis has a shelf extending between the first and second side panels. A first food holding compartment is located above the shelf within the chassis. The first food holding compartment is defined by the first side panel, the second side panel, the top panel, and the shelf.

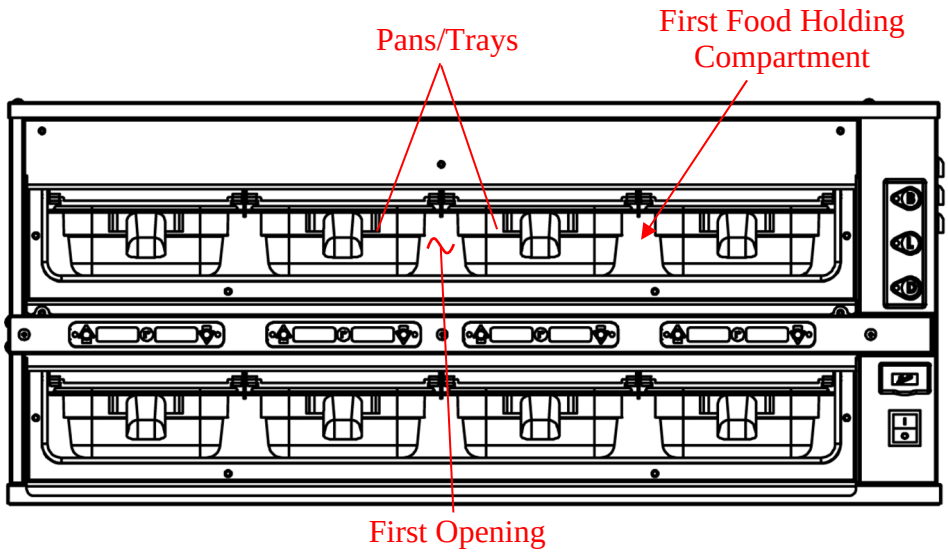


EX1005: 8 (annotated).

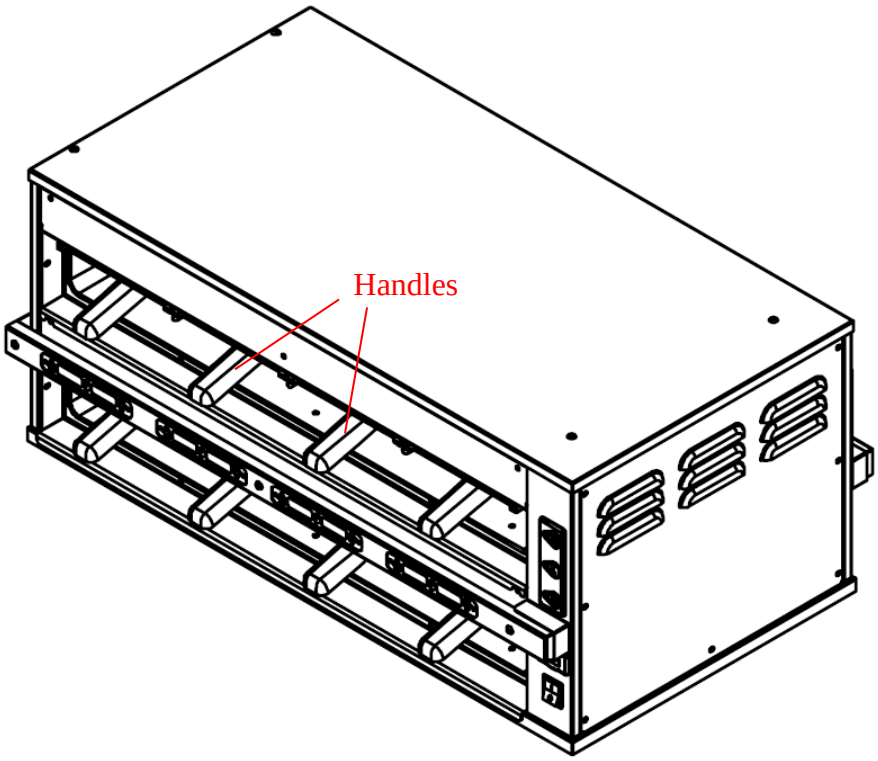
1.b.2: the first food holding compartment having a first opening, the first opening of the first food holding compartment being configured to allow food items to be placed into and removed from the first food holding compartment

131. The POSA would recognize that IRHS Documents discloses the first 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." The 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. As shown below, handles of the food pans project out of the first opening to allow the operator to insert and remove pans through the first opening of the first food holding compartment. EX1007: 52 (upper image).



EX1005: 8 (annotated).



EX1005: 8 (annotated).



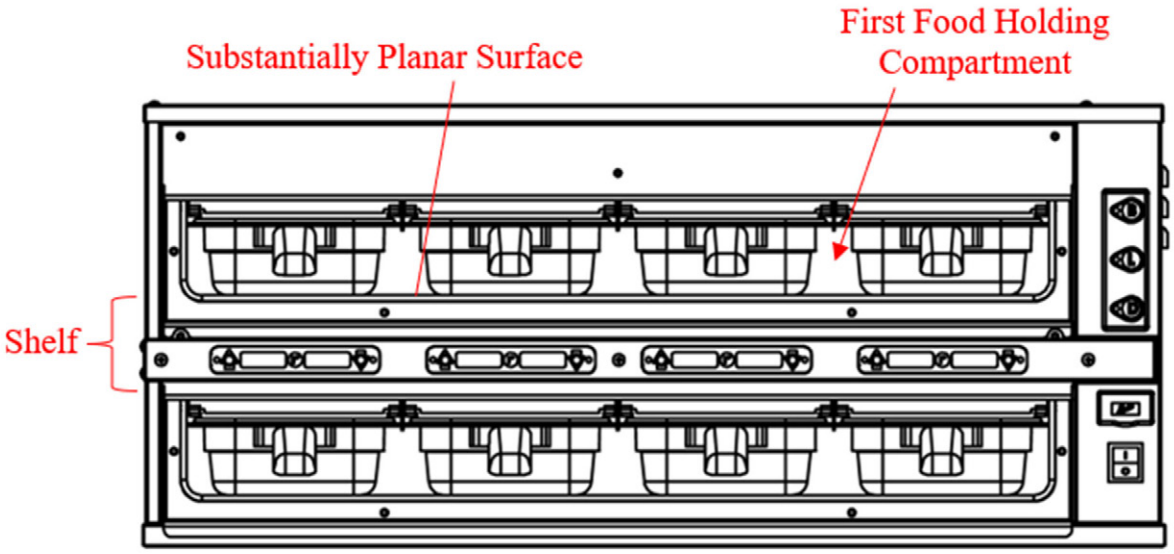
EX1007: 58 (annotated).



EX1007: 52.

1.c.1: a substantially planar surface forming a top surface of the shelf and thus a bottom surface of the first food holding compartment

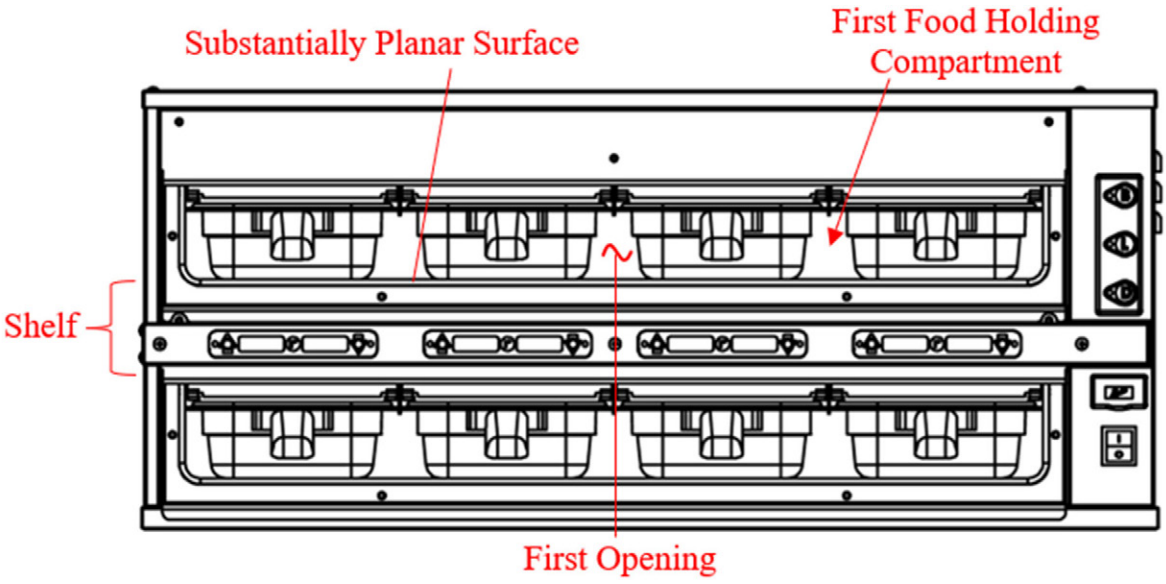
132. The POSA would recognize that the IRHS Documents disclose that the top surface of the shelf defines "substantially planar surface" and that this substantially planar surface acts as the bottom surface of the first food holding compartment. This claim limitation is demonstrated in the annotated figure below in which the top surface of the shelf includes a substantially planar surface that forms the bottom surface of the first food holding compartment.



EX1005: 8 (annotated).

1.c.2: the substantially planar surface extending completely to the first opening of the first food holding compartment

133. The POSA would recognize that the IRHS Documents disclose that the substantially planar surface extends completely to the first opening of the first food holding compartment.



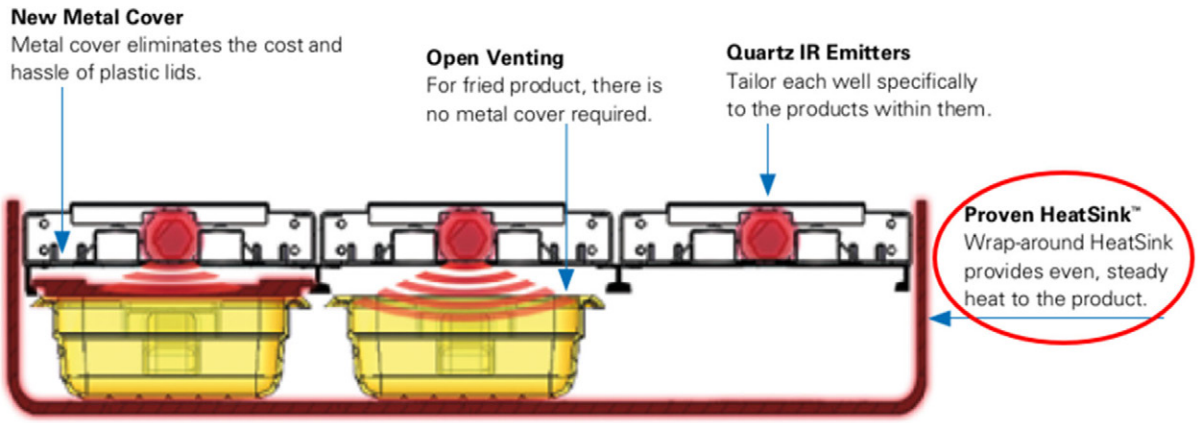
EX1005: 8 (annotated).

1.c.3: and the substantially planar surface comprising a thermally conductive material

134. The IRHS Documents suggest the substantially planar surface forming the top surface of the shelf—which is identified as being part of the Heatsink—is composed of anodized aluminum. EX1006: 1 ("[a]nodized aluminum HeatSink").

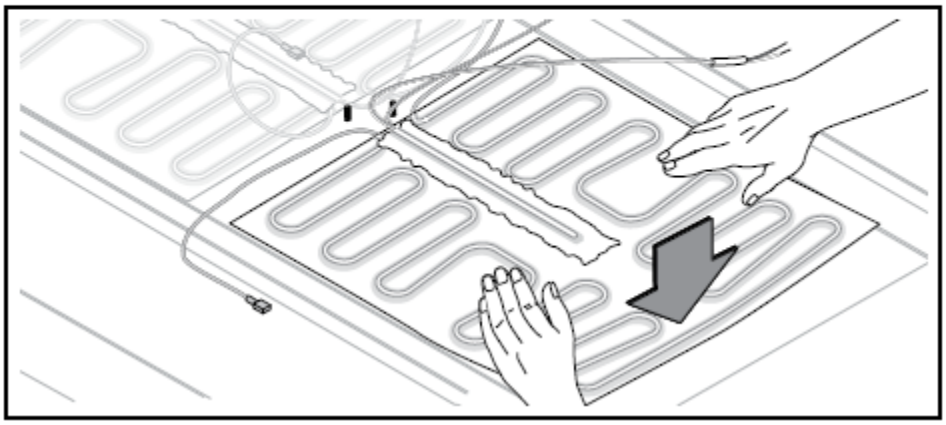
135. Anodized aluminum is recognized a thermally conductive material and thus meets the claim limitation requiring the planar surface to comprise a thermally conductive material.

136. Specifically, the POSA would recognize that because the substantially planar surface forming the top surface of the shelf is intended to act as the HeatSink, it would necessarily comprise a thermally conductive material 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").



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.



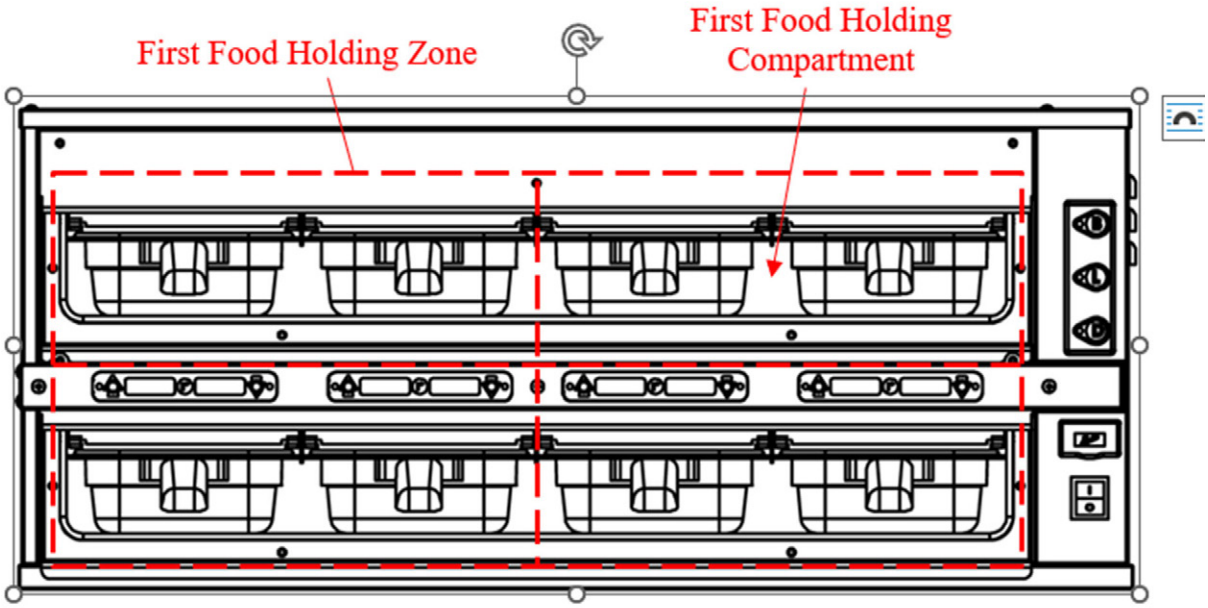
EX1008: 23.

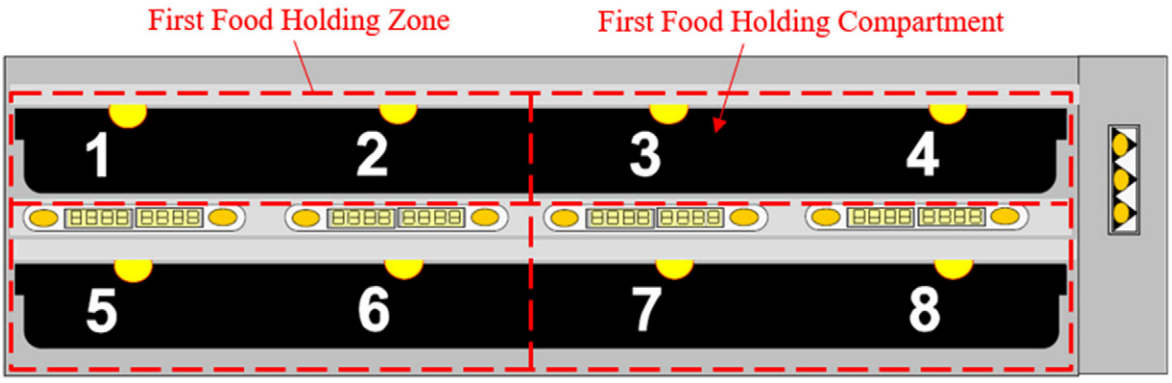
137. Even without the express disclosure of the use of aluminum, it would have been obvious to make the IRHS heatsinks from aluminum, like the aluminum covers, to be durable and provide good heat transfer. EX1005: 4 ("robust aluminum Heat Sink Cover"), 8, 20-21; EX1007: 53 ("[m]etal cover"), 58 ("[c]over allows better heat transfer"). 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

138. The POSA would recognize that the IRHS Documents disclose that the IRHS24 Holding Unit has a first food holding zone in the first food holding compartment.





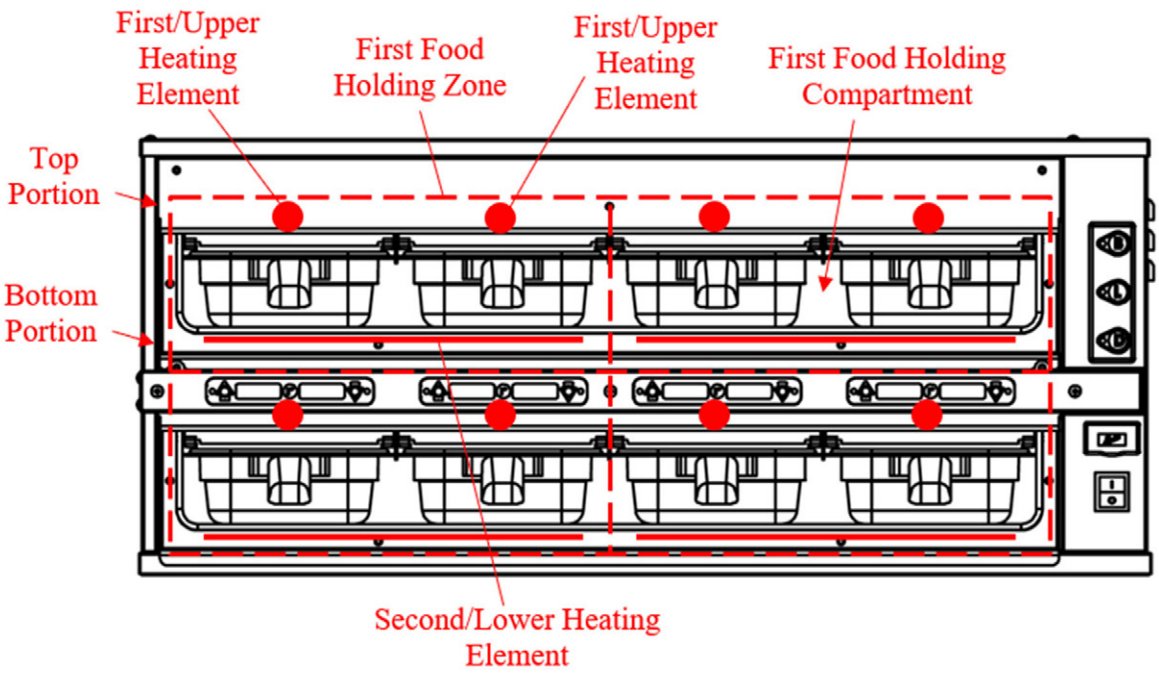
EX1005: 8, 25 (annotated)

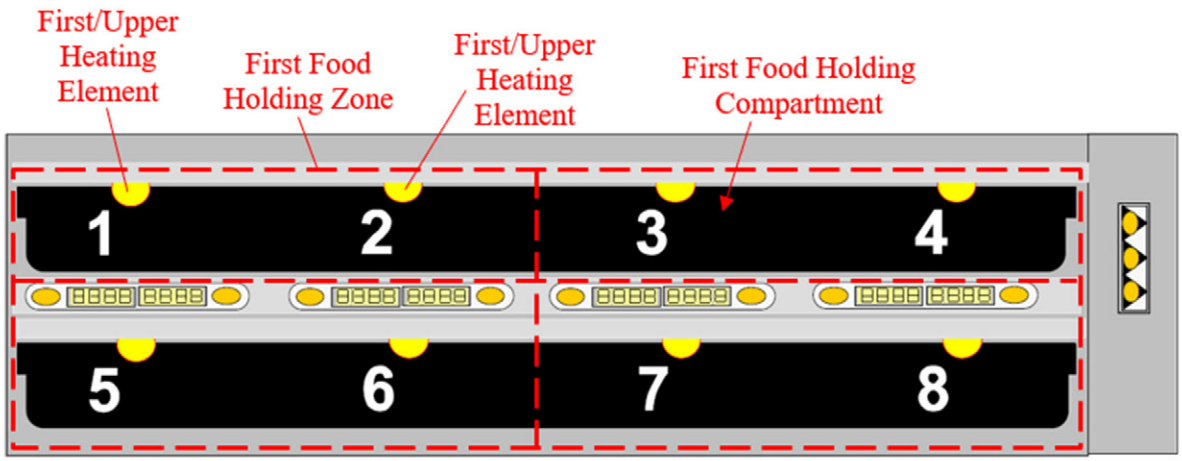
1.d.2: the first food holding zone having an independently controllable first heating element disposed at a top portion of the first food holding compartment, and an independently controllable second heating element disposed at a bottom portion of the first food holding compartment

139. The POSA would recognize that the IRHS Documents disclose the first food holding zone of the IRHS24 Holding Unit as having at "an independently controllable first heating element disposed at a top portion of the first food holding compartment, and an independently controllable second heating element disposed at a bottom portion of the first food holding compartment."

140. Specifically, the first food holding zone of the IRHS24 Holding Unit is disclosed as having two independently controllable IR bulbs (*i.e.*, first heating element(s)) disposed at the top portion of the first food holding compartment and an independently controllable electrical heating element (*i.e.*, a second heating

element) disposed at the bottom portion of the first food holding compartment as illustrated.

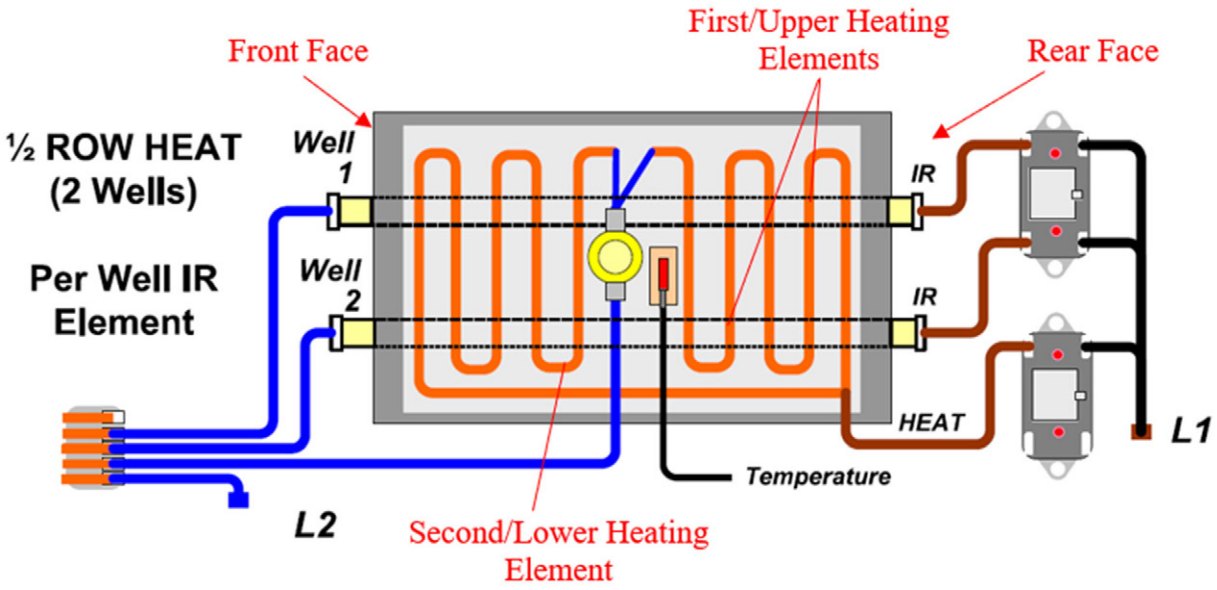




EX1005: 8, 25 (annotated).

141. More specifically the POSA would recognize that as disclosed in the IRHS Documents, the IRHS24 Holding Unit has four heating zones. Each heating

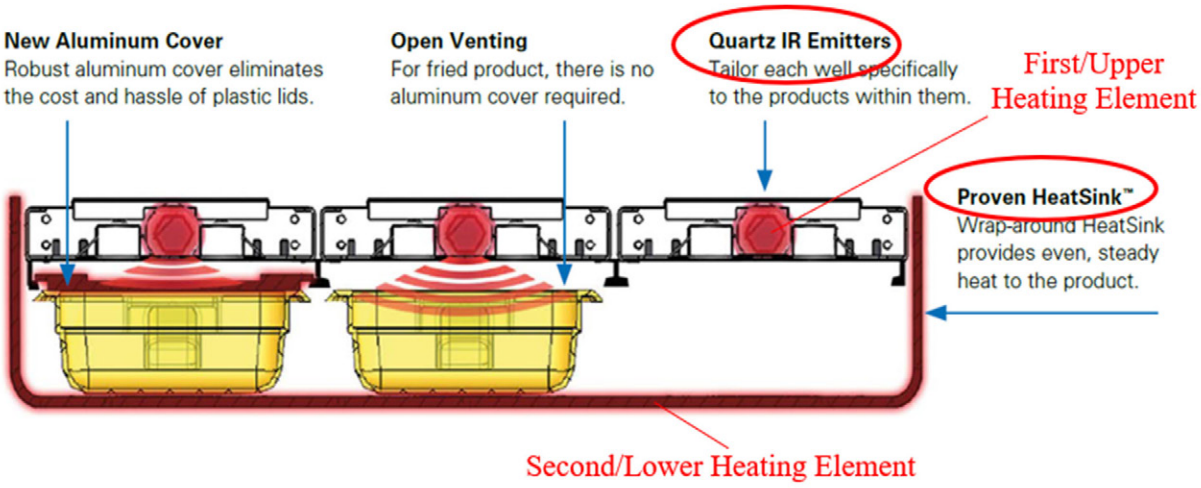
zone corresponds to one of the food holding zones. The schematic image below shows the first (upper) and second (lower) heating elements for one heating zone in the IRHS24 Holding Unit. EX1005: 21 (elements 16 and 17), 25; EX1007: 53.



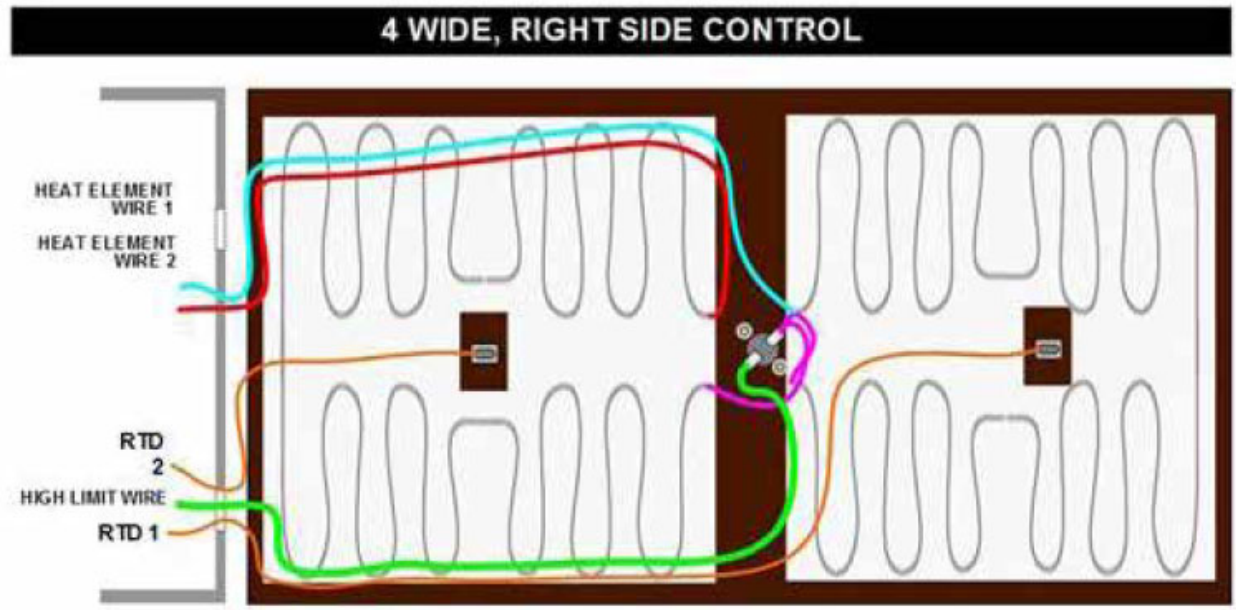
EX1005: 25 (annotated).

142. 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.

143. 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).

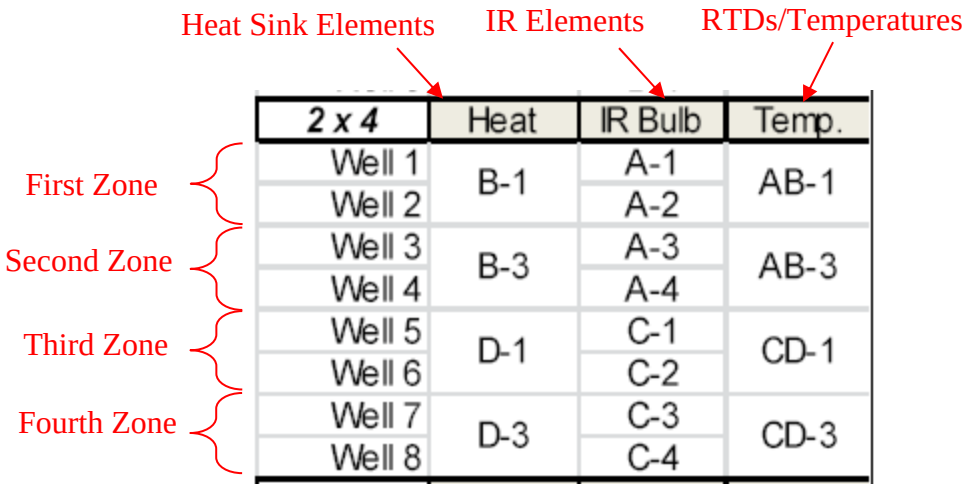


EX1008: 58.

144. The chart for interfacing Duke's Visor control system[1] with the IRHS24 Holding Unit from the IRHS Service Manual (included and annotated

[1] 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 confirm 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 for 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).

145. 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 on. 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 second zone

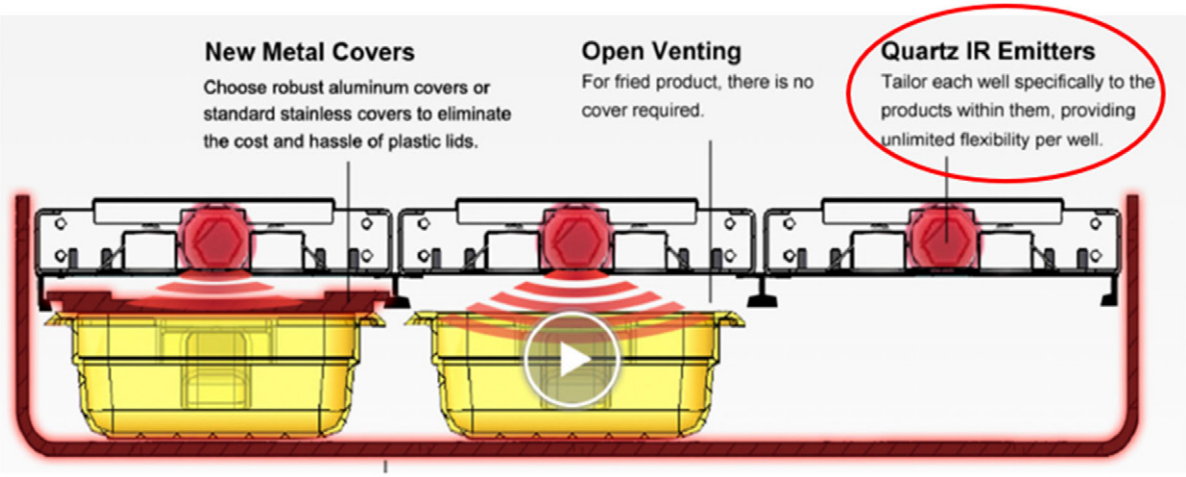
load connections would be the same for both the Visor control system and the standard control system.

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.

146. The IRHS Documents further disclose that the food holding zone's upper heating elements and 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").

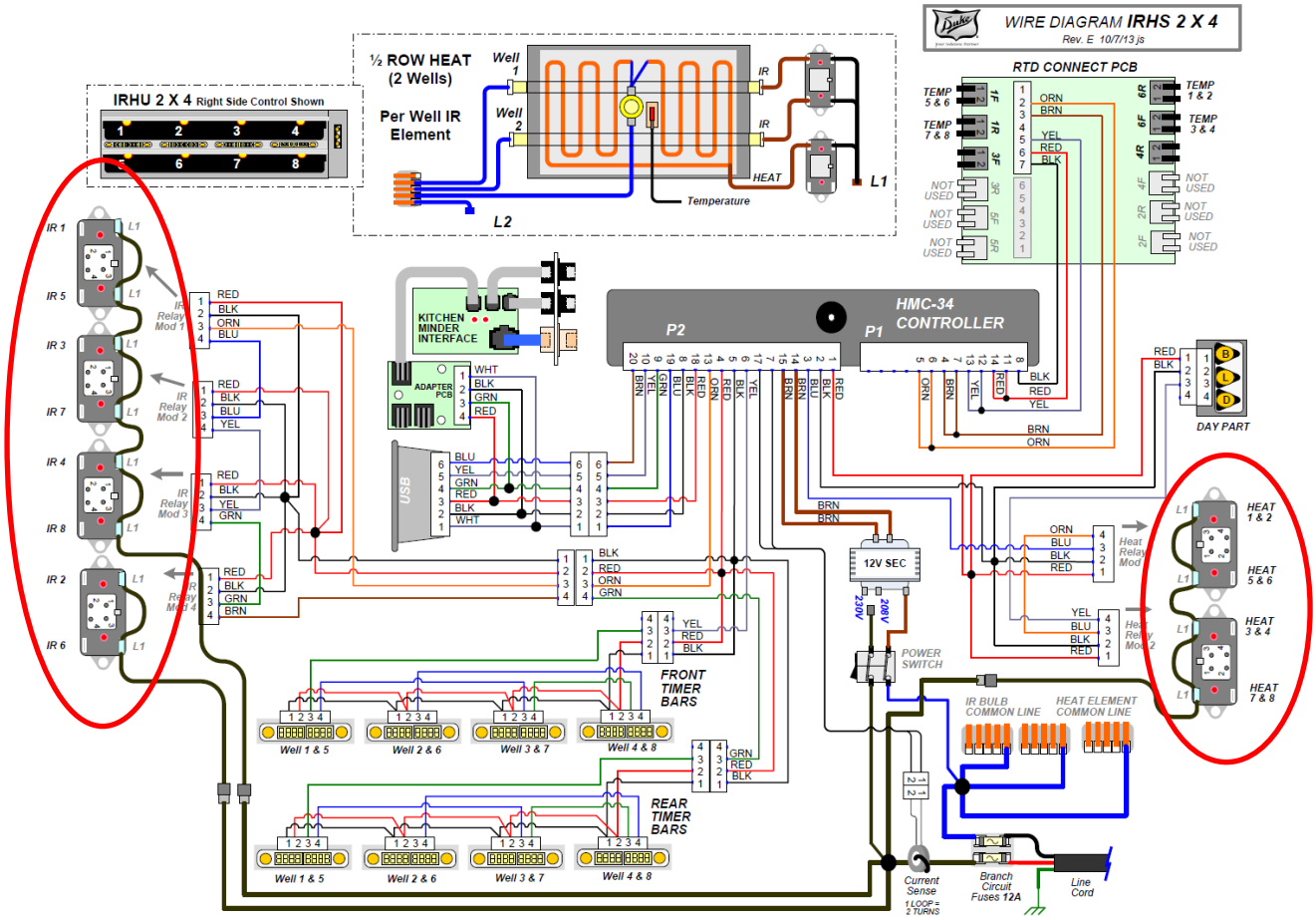
147. The IRHS Documents explain the holding unit has "[z]oned bottom heat" and "individually controlled IR emitters" for top heat. EX1006: 1; EX1007: 53 ("dual holding technologies, InfraRed and HeatSink"); EX1007: 10 ("Quartz IR Emitters" that "[t]ailor each well specifically to the products within 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").

148. The IRHS Documents teach that there is an "IR Turbo Boost" function to generate an "instant shot of IR energy," further demonstrating that the IR bulbs operate independently of the lower heating element. 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").



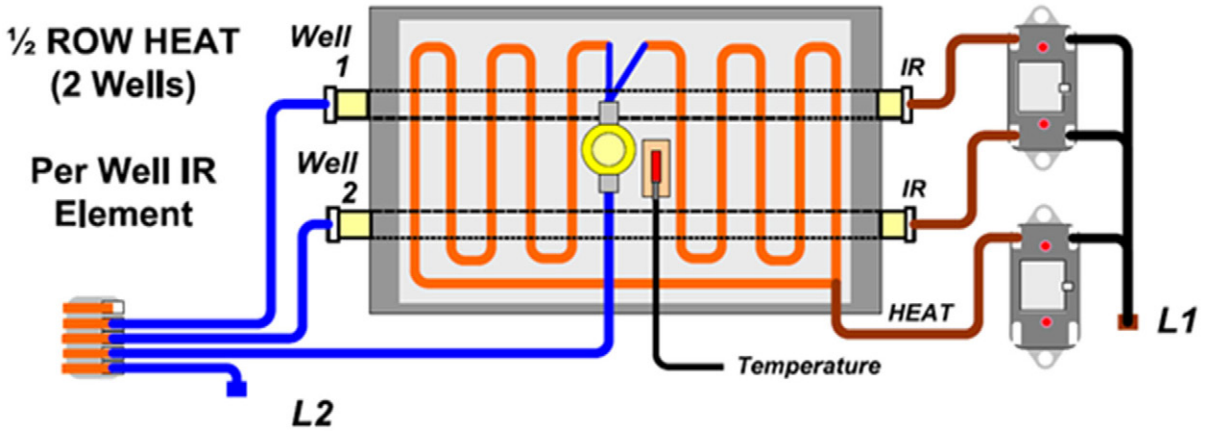
EX1007: 10 (annotated).

149. 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.



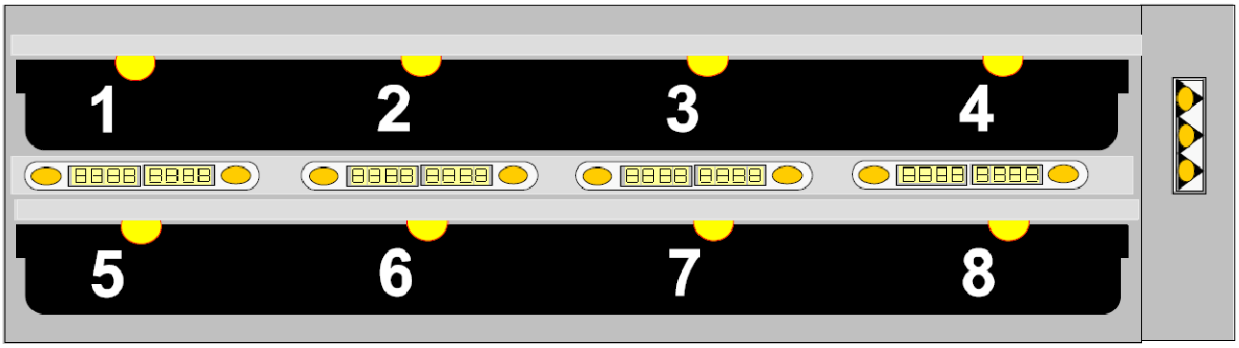
EX1005: 25 (annotated).

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



EX1005: 25.

151. 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. 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.

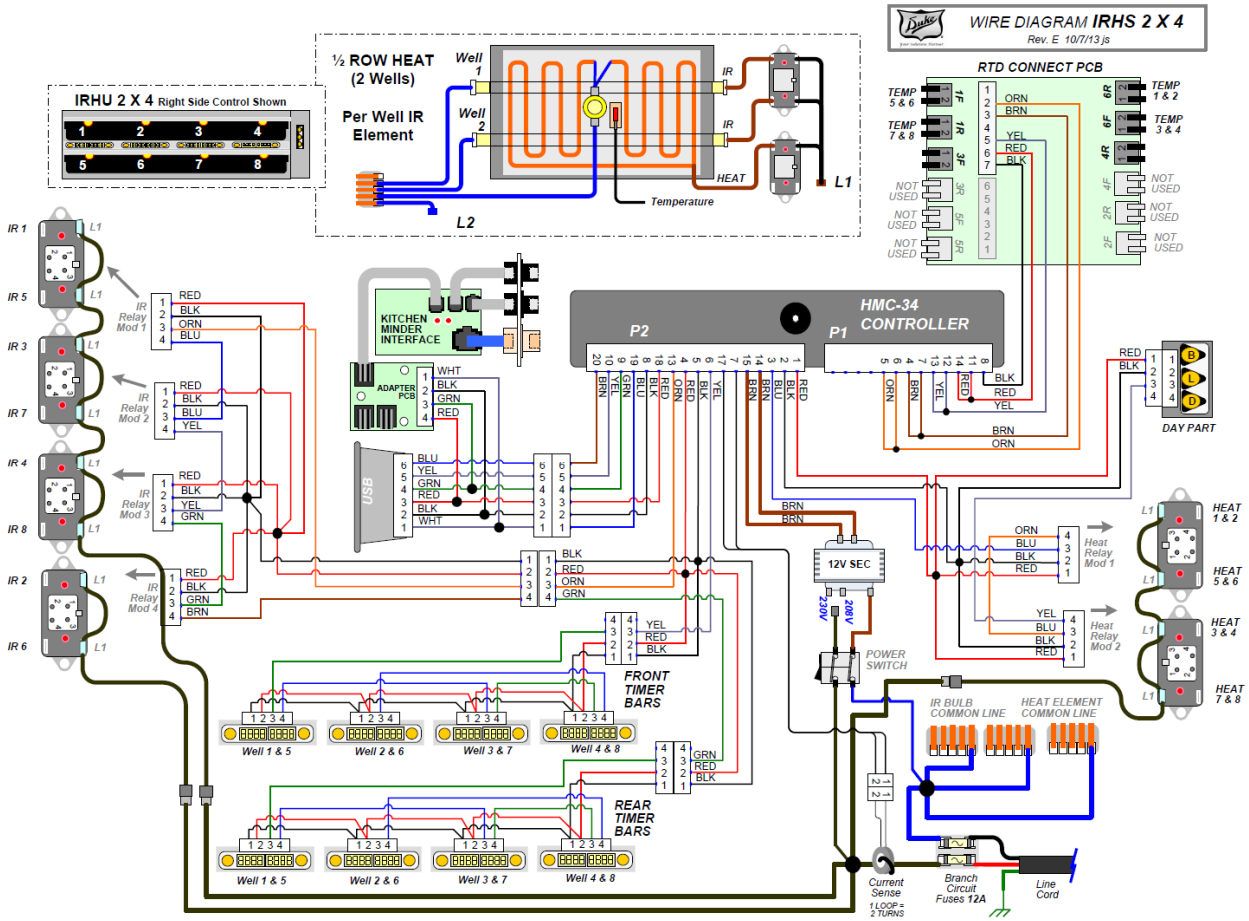


EX1005: 25.

152. 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 containing pan holding locations (bays/wells) 5-8), 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 (wells) 5 and 6, and a fourth lower heating element for pan holding locations (wells) 7 and 8.

153. The POSA would further understands from the wiring diagram that the controller is able to independently operate each heating element.



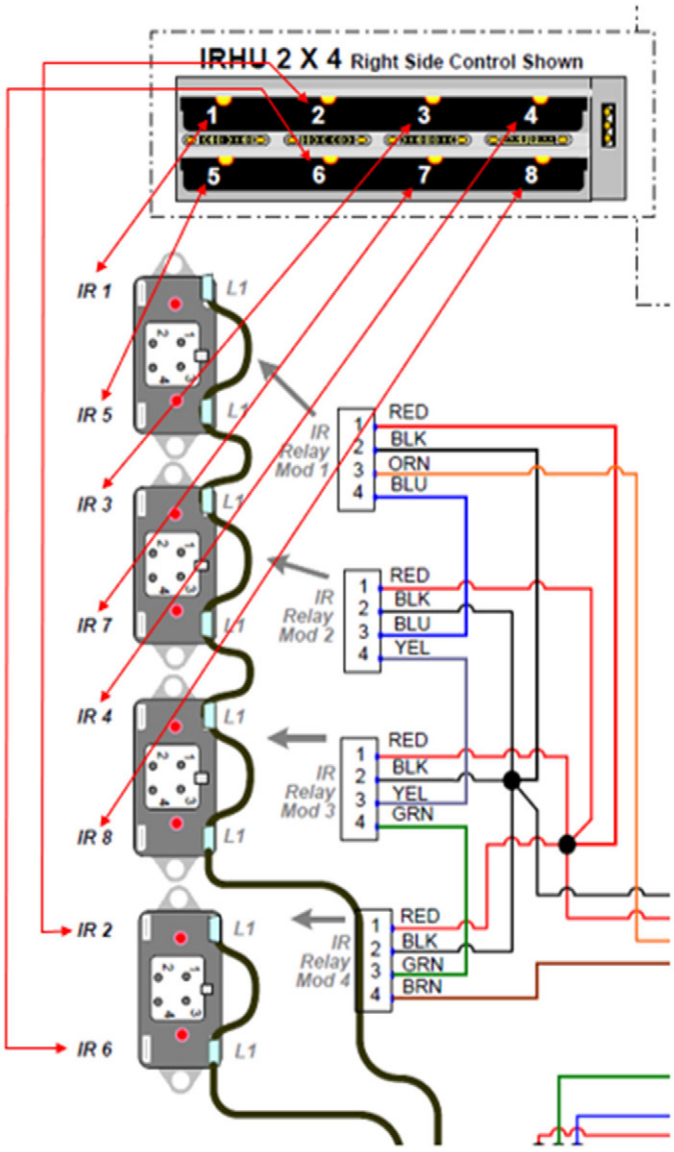
EX1005: 25.

154. The controller in the wiring diagram is communicatively connected to relays (*e.g.*, dual output relays). As known to 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).

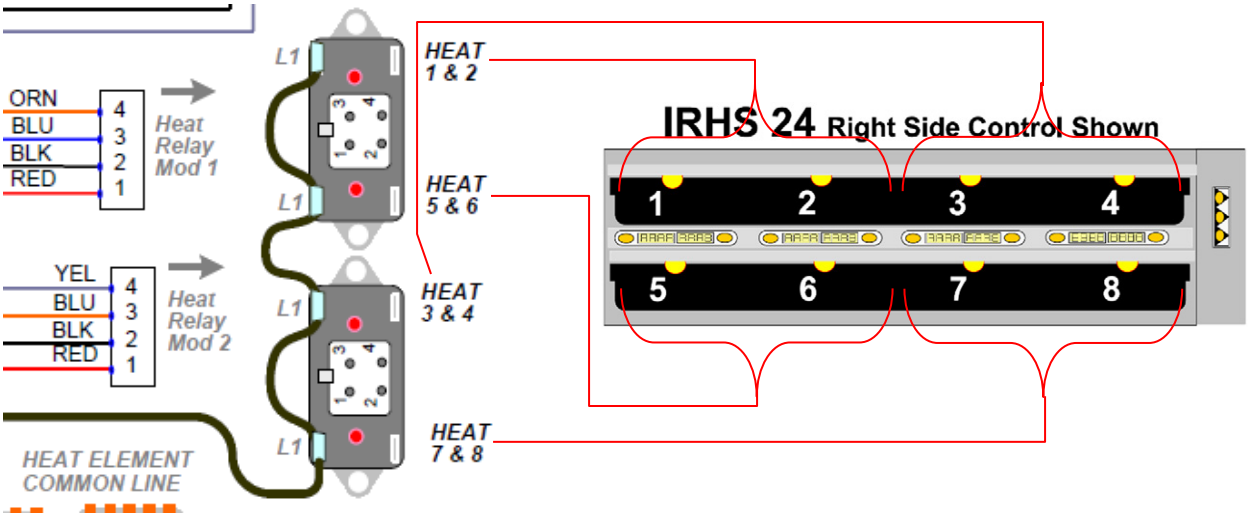
155. As indicated by the wiring diagram, a first IR relay labeled "IR Relay Mod 1" selectively connects the upper IR heating element (labeled "IR 1") for the first pan holding location (well) to the higher-powered current carrying line L1 and selectively connects the upper IR heating element (labeled "IR 5") for the fifth pan holding location (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 (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 (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 (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 (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 (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 (well) to the higher-powered current carrying line L1.



EX1005: 25 (enlarged, annotated).

156. 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 (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 (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 (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 (wells) to the higher-powered current carrying line L1.



EX1005: 25 (enlarged, annotated).

157. 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").

158. 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 (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 (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 (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 (wells) in the lower compartment.

159. 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.

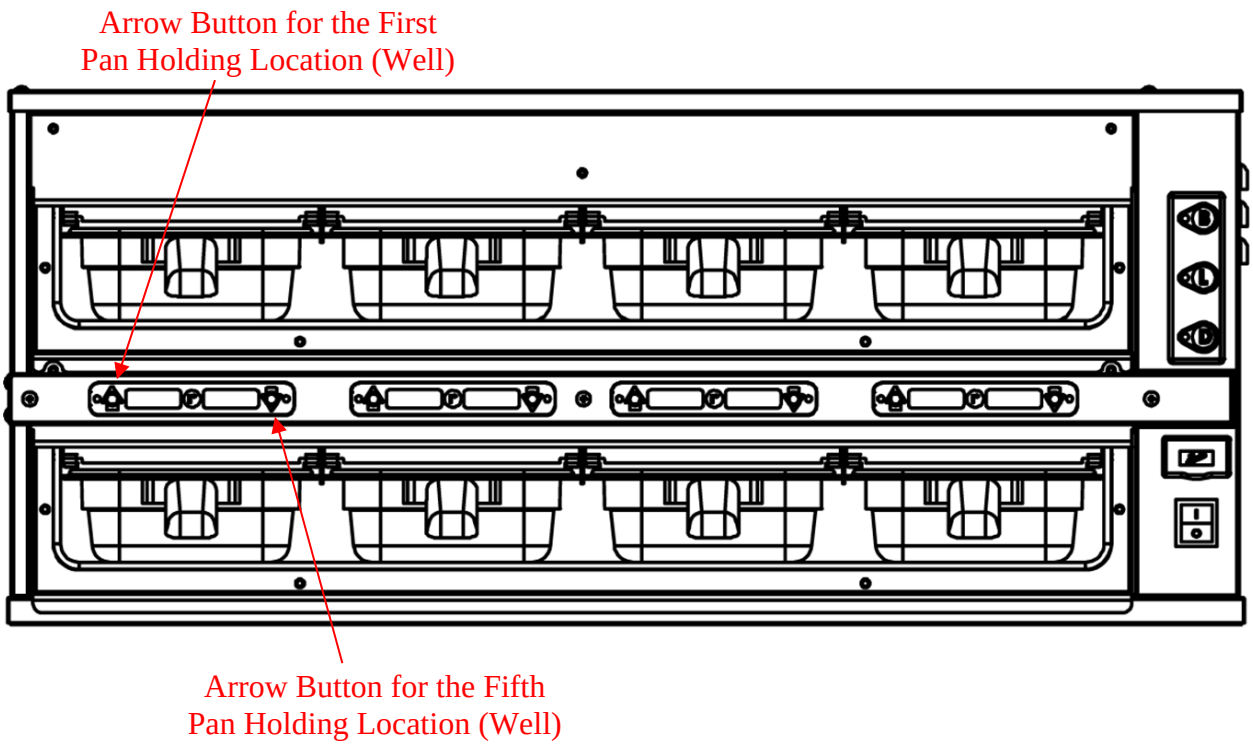
160. The other IRHS Documents further confirm the two outputs of each relay are independent from one another. The IRHS Specifications state the IRHS Holding Unit has “individually controlled IR emitters.” EX1006: 1. As each IR relay is connected to two upper IR heating elements, the only way for these 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 described 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. 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.

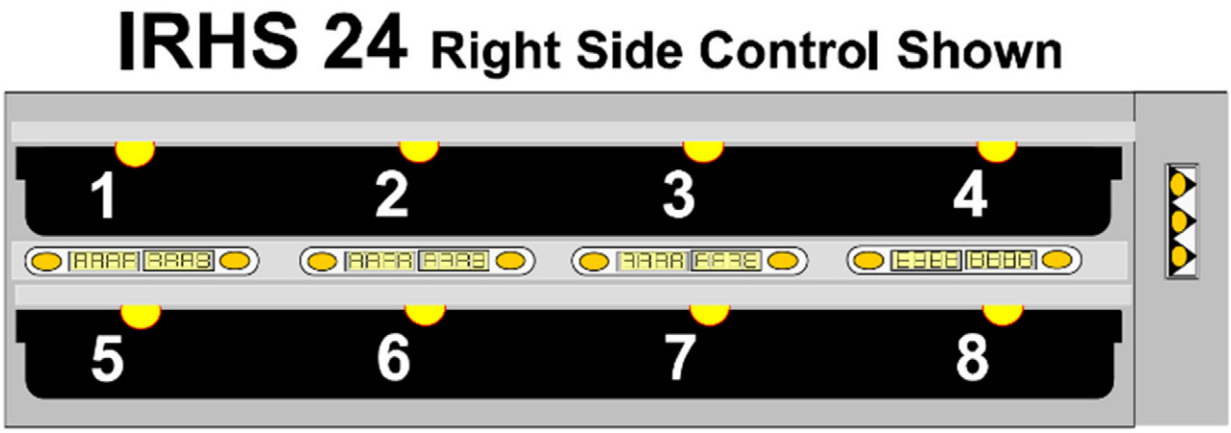
161. Beyond the wiring schematics, the IRHS Manual emphasizes that the independent control of the heating elements by stating that the IRHS Holding Unit "allows you to precisely control the environment in each pan, allowing customized settings for each food product" and "each food product has a tailored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

162. 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 158-159 above, the upper IR heating elements for the first and fifth pan holding locations (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 (well) and pressing the down arrow button activates the IR pulse rate for the upper IR heating element for the fifth pan holding location (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 (wells).



EX1005: 8 (annotated).

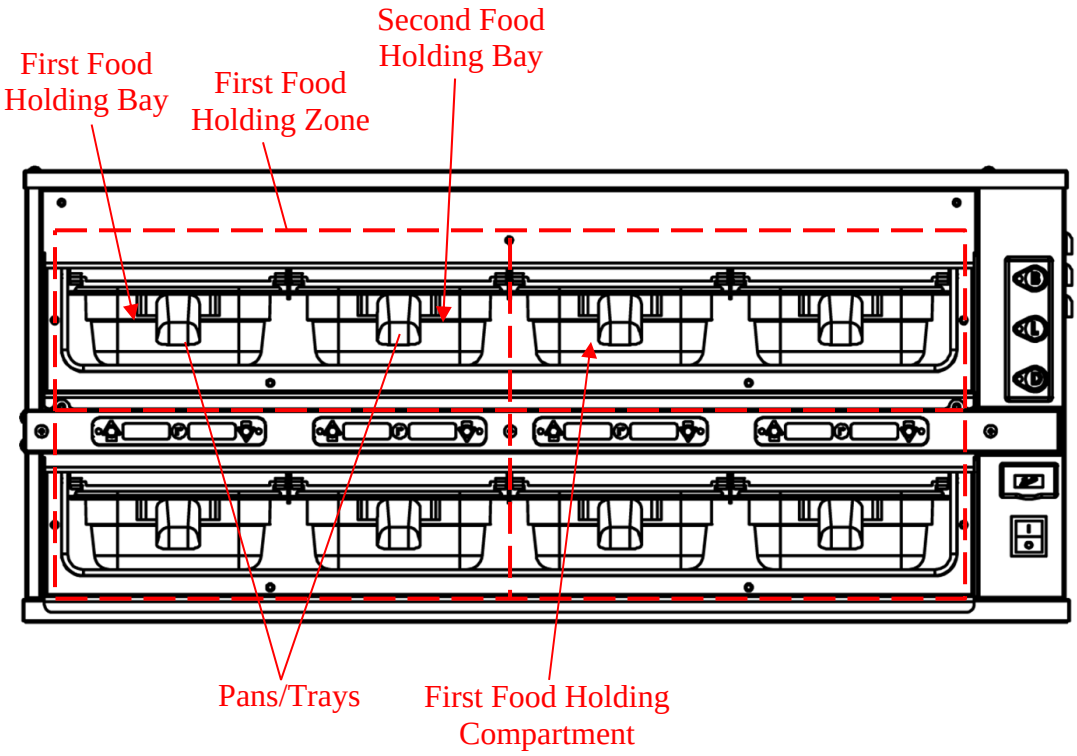


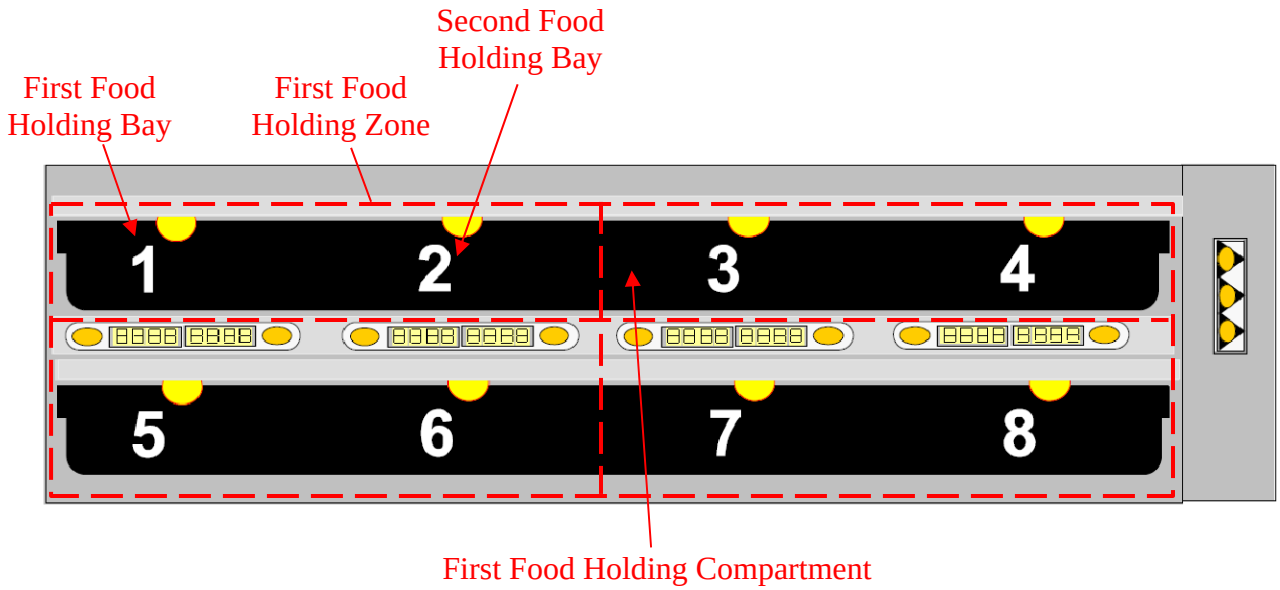
EX1005: 25.

163. 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.

1.d.3: the first food holding zone including a first food holding bay and a second food holding bay, each of the first and second food holding bays being configured to receive a food holding tray

164. The POSA would recognize that the IRHS Documents disclose that the first food holding zone the IRHS24 Holding Unit includes a first food holding bay and a second food holding bay, with each holding bay being configured to receive a food pan/tray.

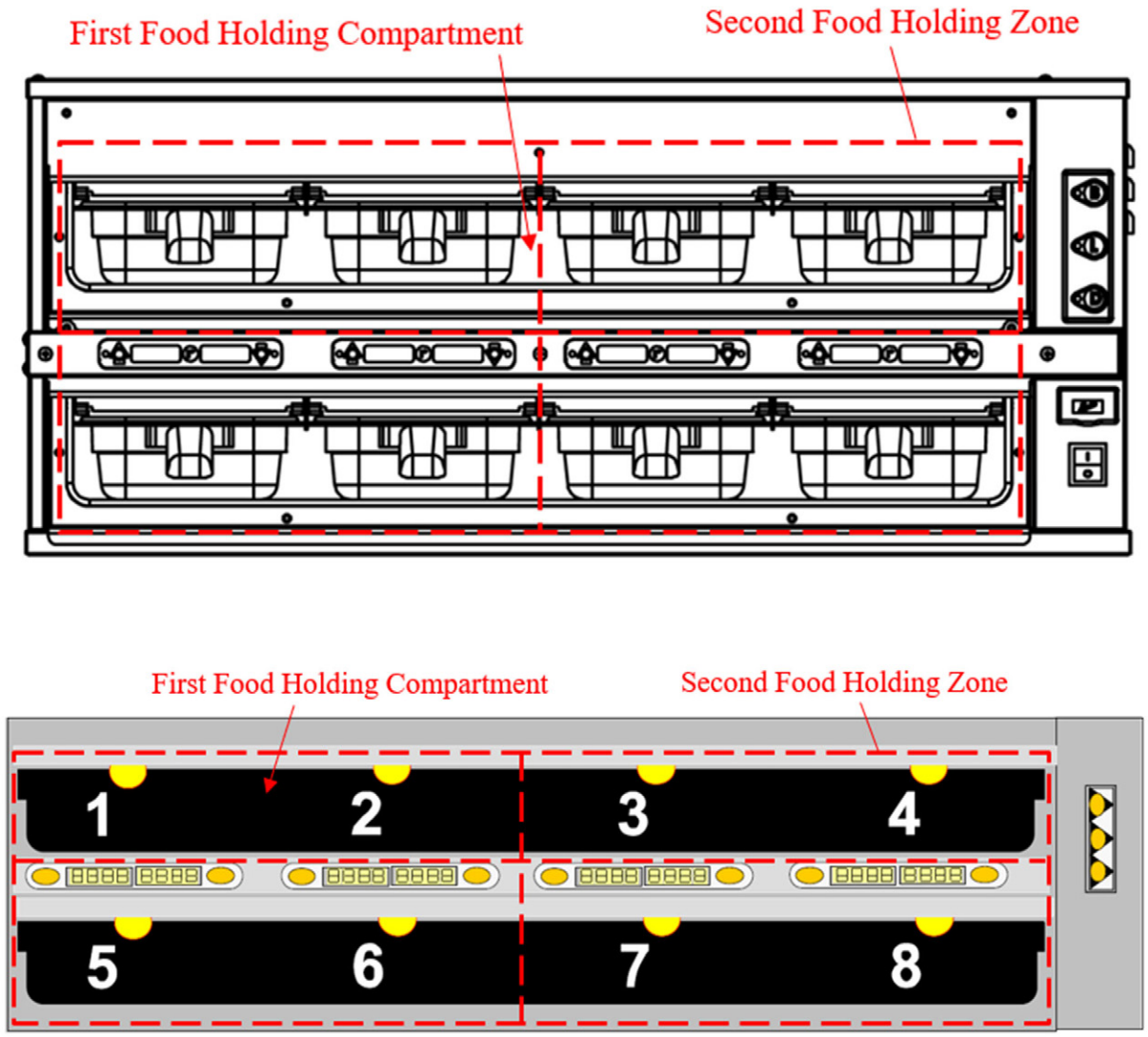




EX1005: 8, 25 (annotated).

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

165. The POSA would recognize that the IRHS Documents disclose that the IRHS24 Holding Unit has a second food holding zone in the first food holding compartment.



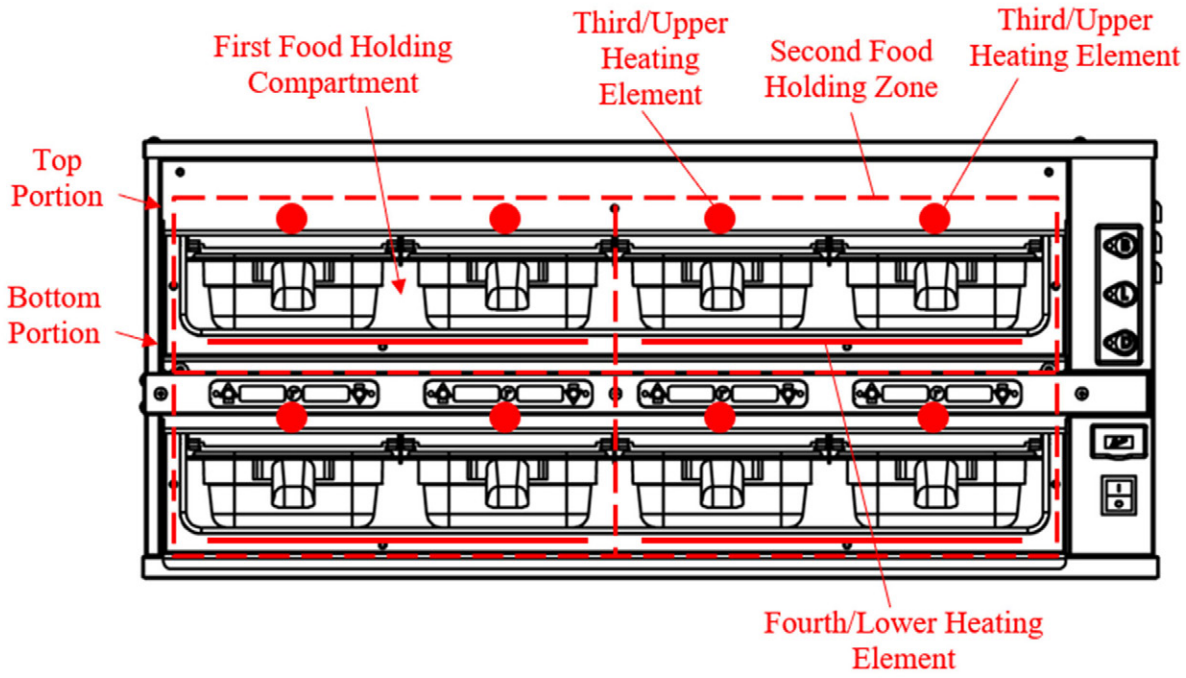
EX1005: 8, 25 (annotated)

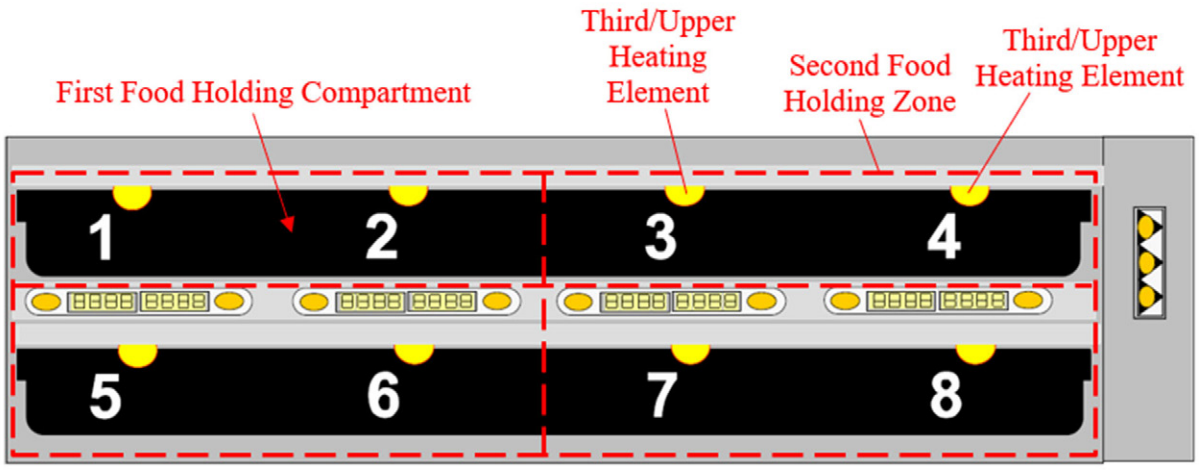
1.e.2: the second food holding zone having an independently controllable third heating element disposed at the top portion of the first food holding compartment and an independently controllable fourth heating element disposed at the bottom portion of the first food holding compartment

166. The POSA would recognize that the IRHS Documents disclose the first food holding zone as having at "an independently controllable third heating

element disposed at a top portion of the first food holding compartment, and an independently controllable fourth heating element disposed at a bottom portion of the first food holding compartment."

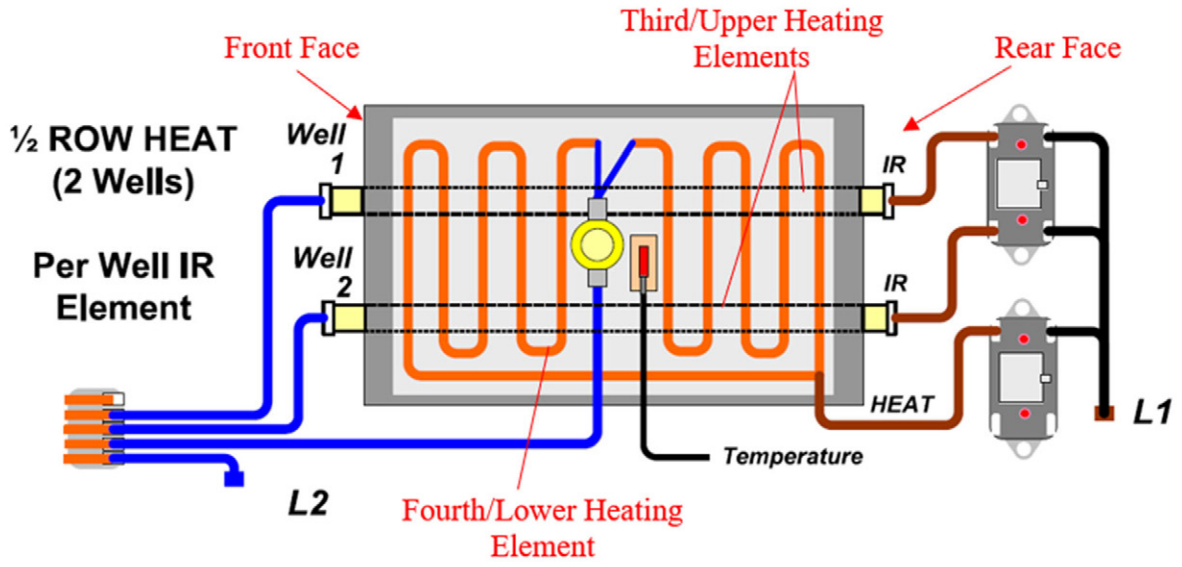
167. Specifically, the second food holding zone of the IRHS24 Holding Unit is disclosed as having two independently controllable IR bulbs (*i.e.*, third heating element(s)) disposed in the top portion of the first food holding compartment and an independently controllable electrical heating element (*i.e.*, a fourth heating element) disposed in the bottom portion of the first food holding compartment as illustrated.





EX1005: 8, 25 (annotated).

168. 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 upper (third) and lower (fourth) heating elements for one heating zone in the IRHS24 Holding Unit. EX1005: 21 (elements 16 and 17), 25; EX1007: 53.

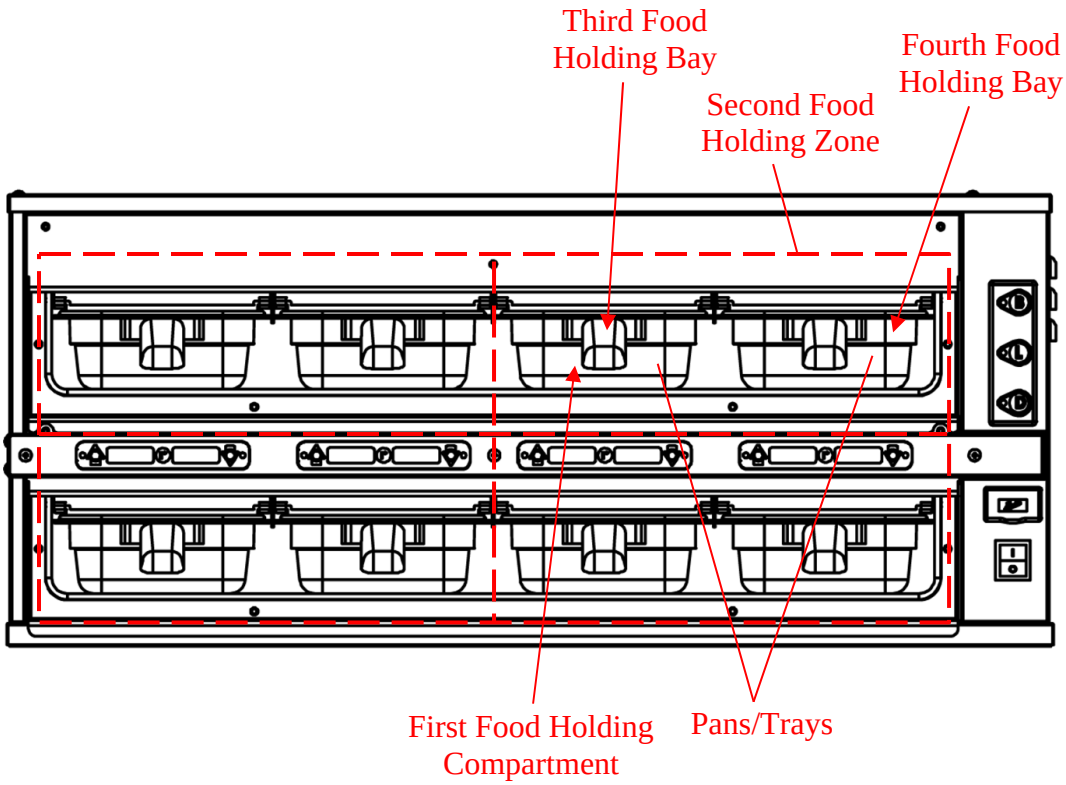


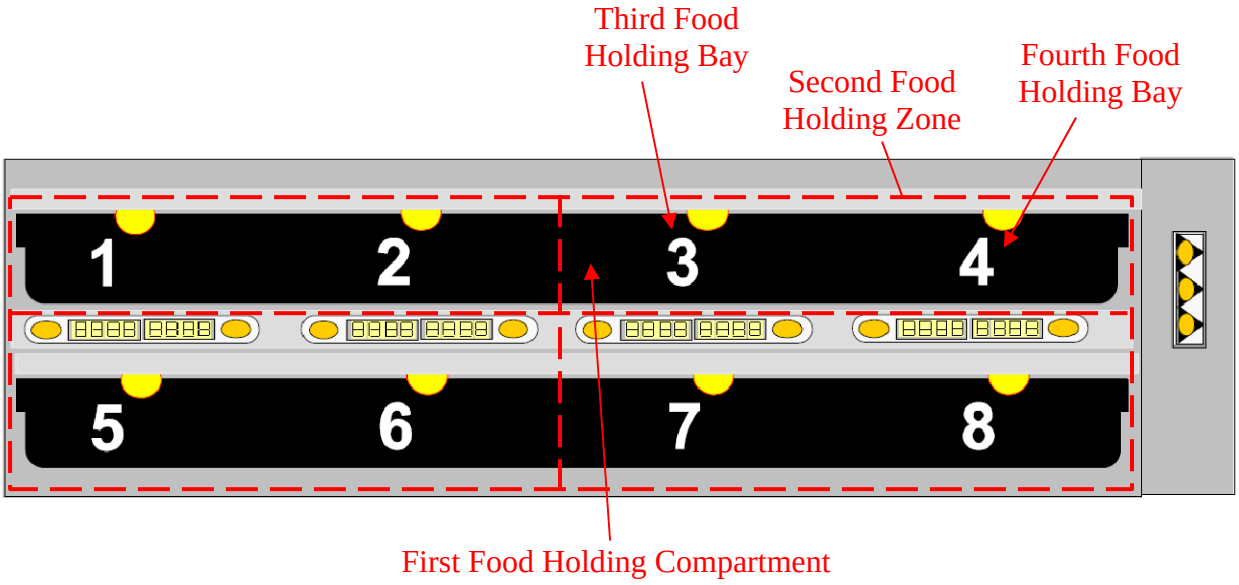
EX1005: 25 (annotated).

169. The second food holding zone's upper elements (*i.e.*, the third heating element(s)) and lower heating element (*i.e.*, the fourth heating element) are independently controllable from one another and from the heating elements of the other food holding zones, for the same reasons explained above in Paragraphs 139-163 with respect to claim element 1.d.2.

1.e.3: the second food holding zone including a third food holding bay and a fourth food holding bay, each of the third and fourth food holding bays being configured to receive a food holding tray

170. The POSA would recognize that the IRHS Documents disclose that the third food holding zone includes a third food holding bay and a fourth food holding bay, with each holding bay being configured to receive a food pan/tray.

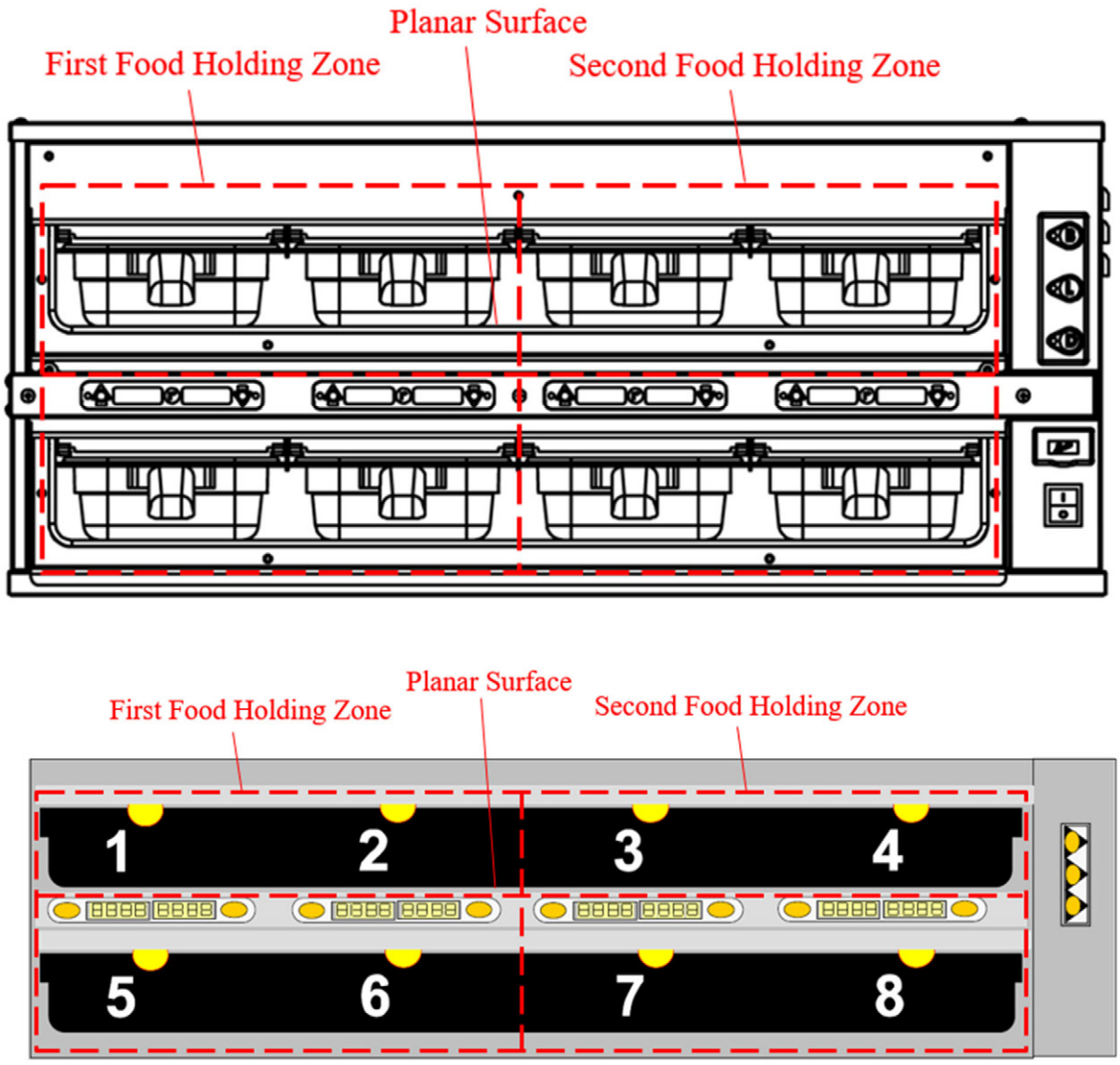




EX1005: 8, 25 (annotated).

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

171. The POSA would recognize that the IRHS Documents disclose "that first food holding zone and the second food holding zone are adjacent one another across the substantially planar surface."



EX1005: 8 (annotated).

1.f.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

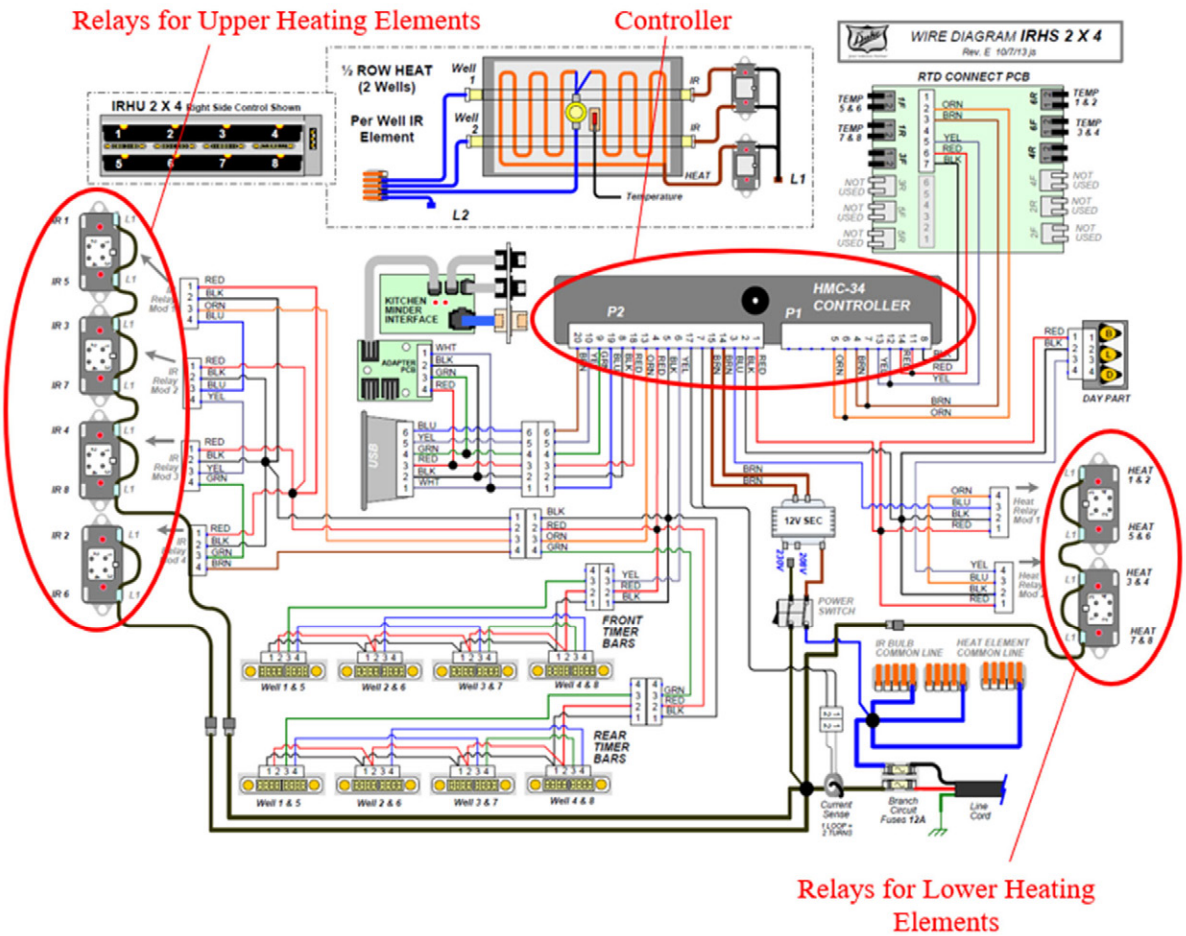
172. POSA would recognize that the IRHS Documents disclose that the first food holding zone as being configured to maintain a first temperature and the second food holding zone as being configured to maintain a second temperature, wherein the first temperature and the second temperature may be different from each other.

173. As explained in Paragraphs 139-163 and 166-169 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.

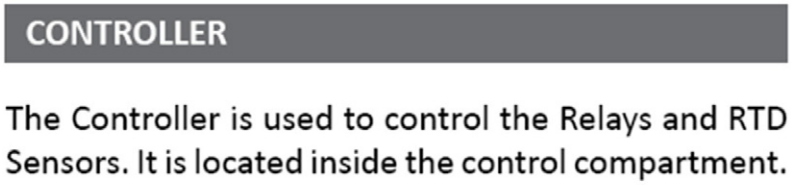
174. The IRHS24 Holding Unit includes a controller that operates the heating elements of the different food holding zones independently, so each food holding zone has an independently controlled and maintained temperature (*e.g.*, first temperature, second temperature). EX1006: 1 ("[c]ustom heat settings 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"); EX1006: 1 ("[c]ustom heat settings for food product"); EX1007: 10 ("[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").

175. As shown in the wiring diagram, the controller is connected to each heating element, enabling the controller to independently operate each heating element. *See supra* Paragraphs 139-163 (1.d.2). Thus, the temperatures of each zone are capable of being different from one another.



EX1005: 25 (annotated).



EX1008: 30.

176. 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)"); Paragraphs 139-163(1.d.2).

177. 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").

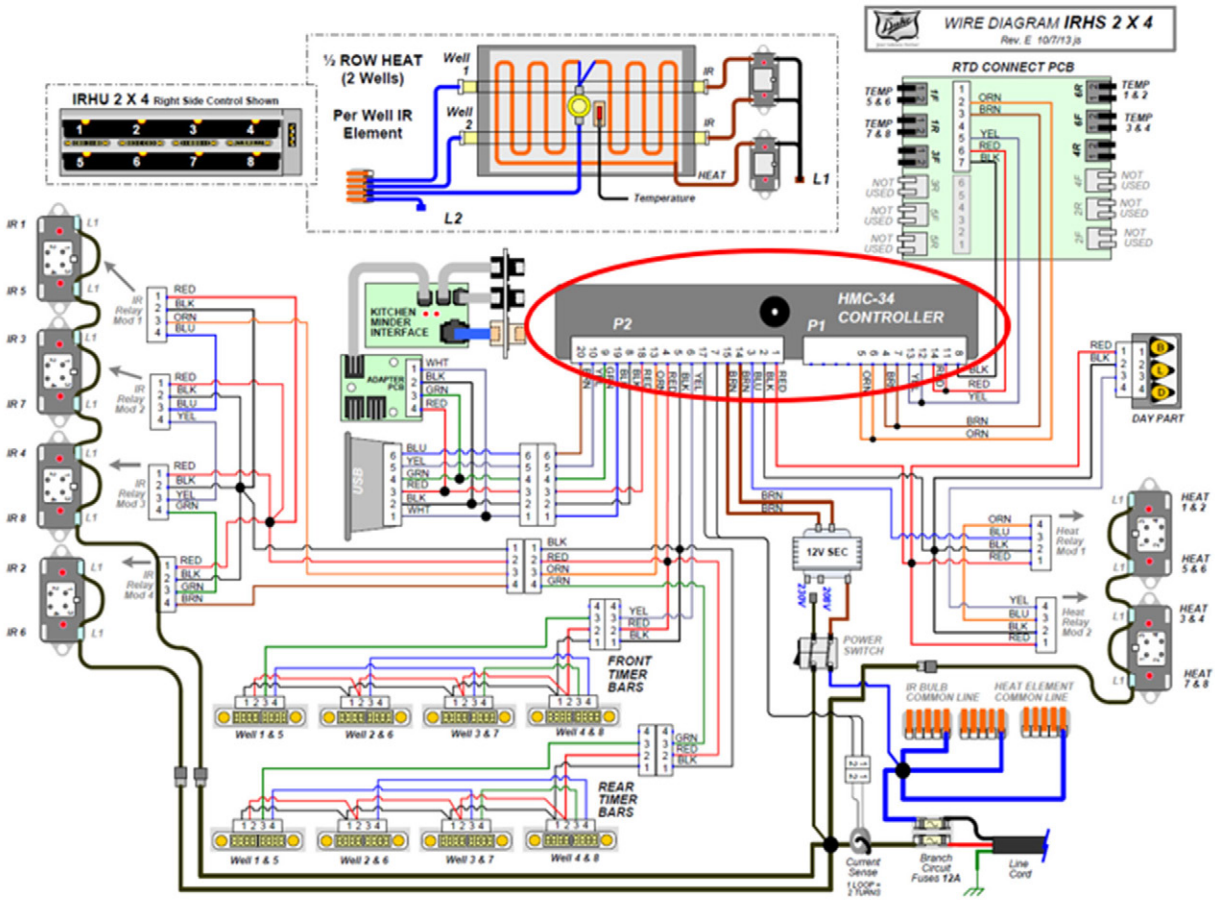
178. Based on the food product types assigned to the pan locations in the different zones, the controller controls each of the four food holding zones to provide

a different food holding temperature, where each food holding temperature corresponds to the food product held in the respective zone.

179. 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").

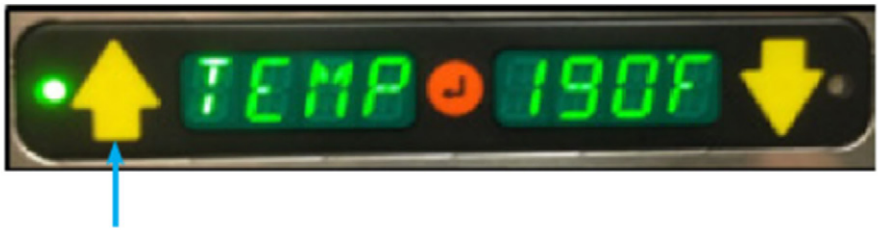
180. For each food holding zone (*e.g.*, each of the first and second food holding zones), a vertical temperature profile (including temperatures from top to bottom of each food holding zone) is disclosed as being controllable by the IRHS24 Holding Unit's controller (disclosed as being an HMC-34 Controller)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

181. 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).

182. For example, the IRHS24 has a controllable food holding temperature at a bottom of the food holding zone based on a heat sink temperature setting for the type of food and 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.

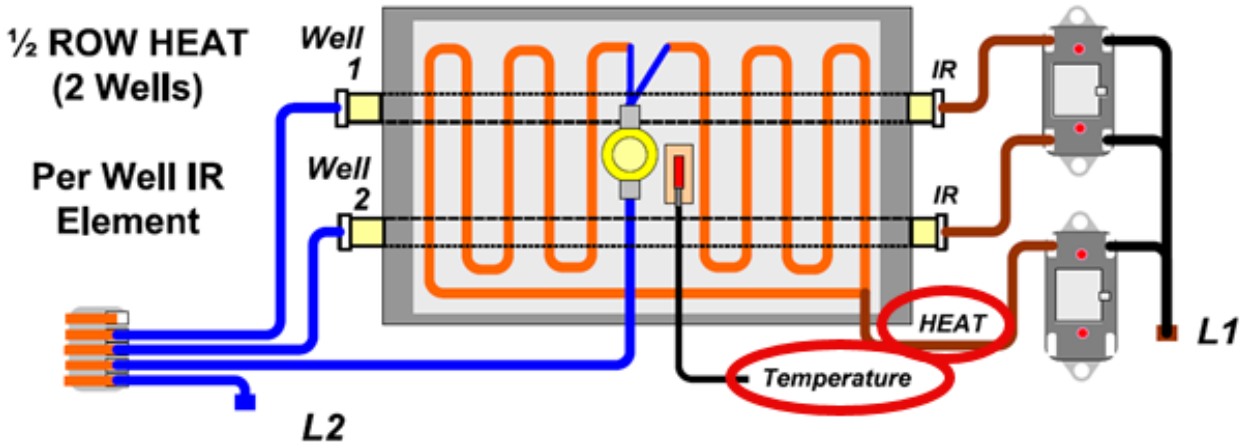
SENS – SENSOR FAULT

- 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

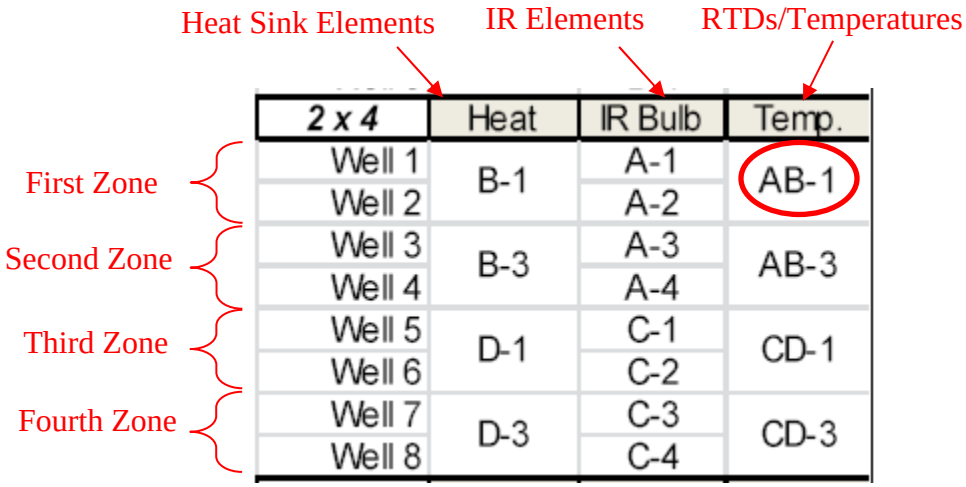
TEMPERATURE CHECK PROCEDURE

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).

183. Still further, the IRHS Documents teach to customize temperature settings by food type and setting the holding zones such that each holding zone may have 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").



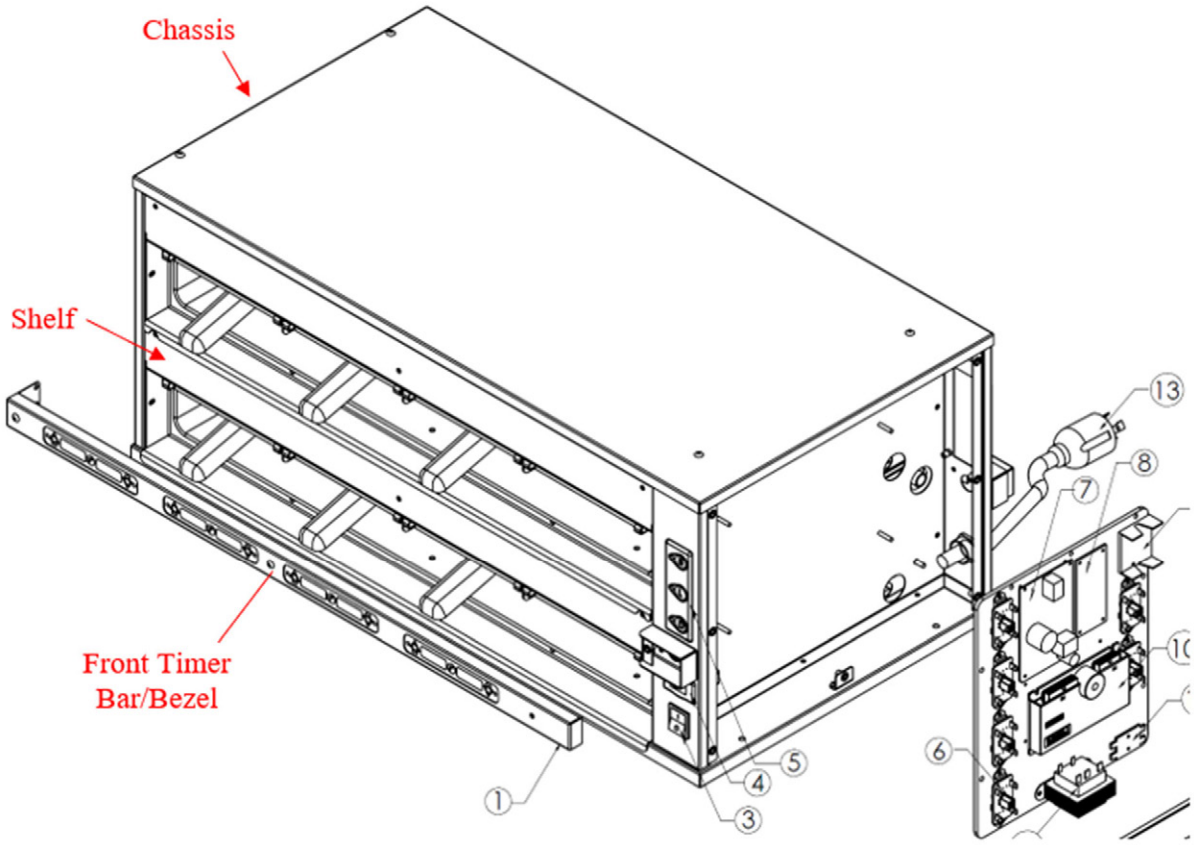
EX1007: 12.

184. 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

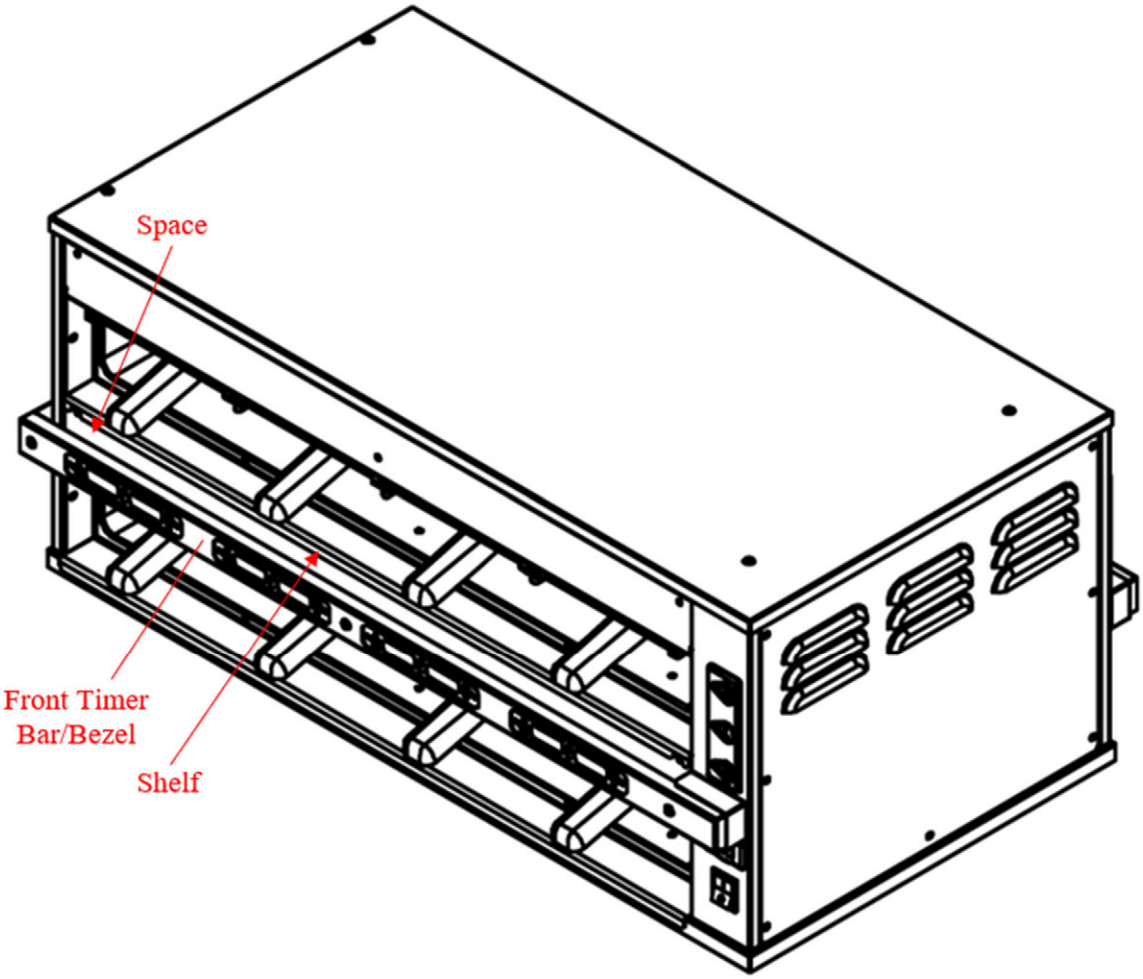
second food types) and to increase holding capacity for different types of cooked food to meet customer demands. EX1028: 30 ("[i]t is critically important that each of these 'heat zones' be set to the appropriate temperature for each type of food product"), 14 (example temperatures), 39 (example temperatures); 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"). 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].

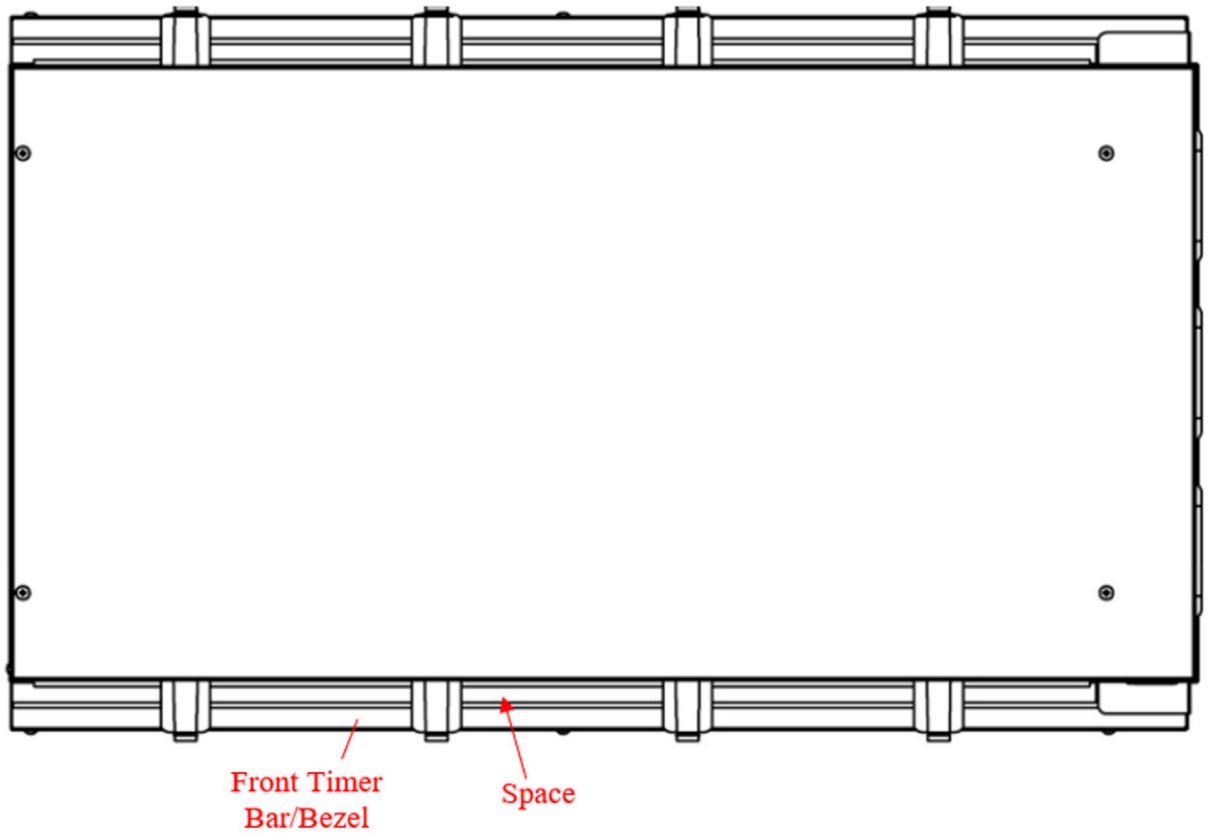
1.g: wherein a first bezel is set forward from the shelf by a space

185. The POSA would recognize that the IRHS Documents disclose that the IRHS24 Holding Unit has a front timer bar (first bezel) that is set forward from the shelf by a space.

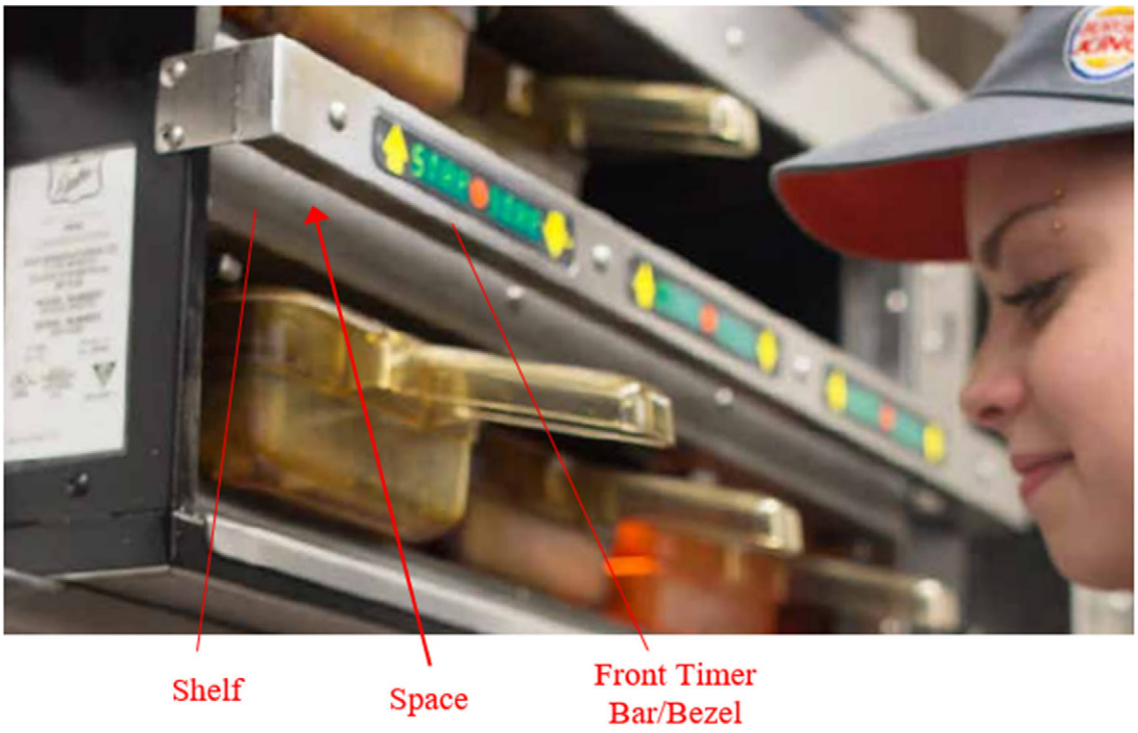


EX1005: 19 (annotated).


Space
Front Timer
Bar/Bezel
Shelf



EX1005: 8 (annotated).



EX1007: 28 (annotated).

186. Accordingly, each limitation of Claim 1 is disclosed within the IRHS Documents.

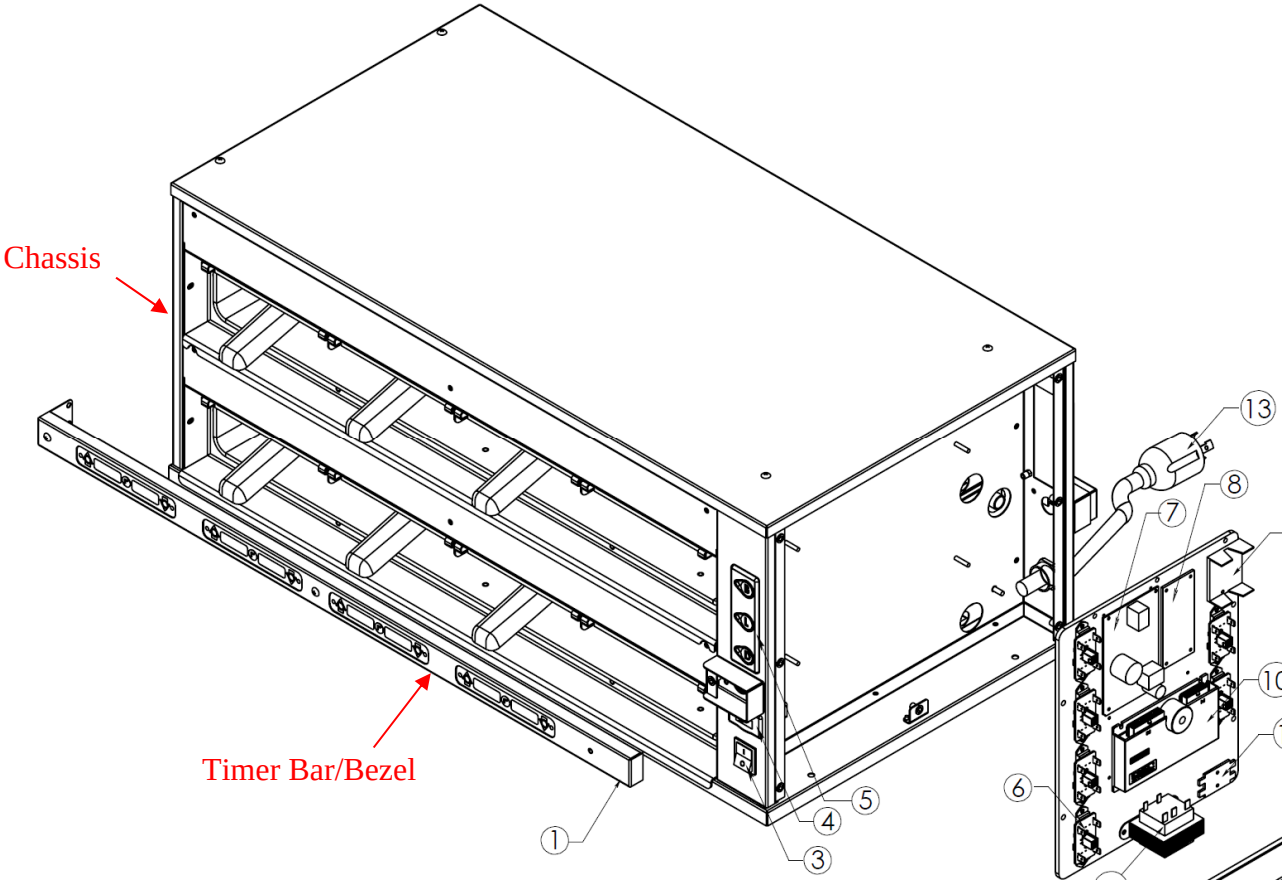
187. Because the IRHS Documents would have been understood to be describing the same family of IRHS Holding Units, the POSA would have found it obvious to combine the teachings and disclosures of the IRHS Documents—which collectively disclosed each limitation of Claim 1—to arrive at the food holding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

C. Claim 3: the food holding bin of claim 1, wherein the first bezel comprises dedicated displays and the dedicated display displays a temperature setting for a corresponding food holding bay

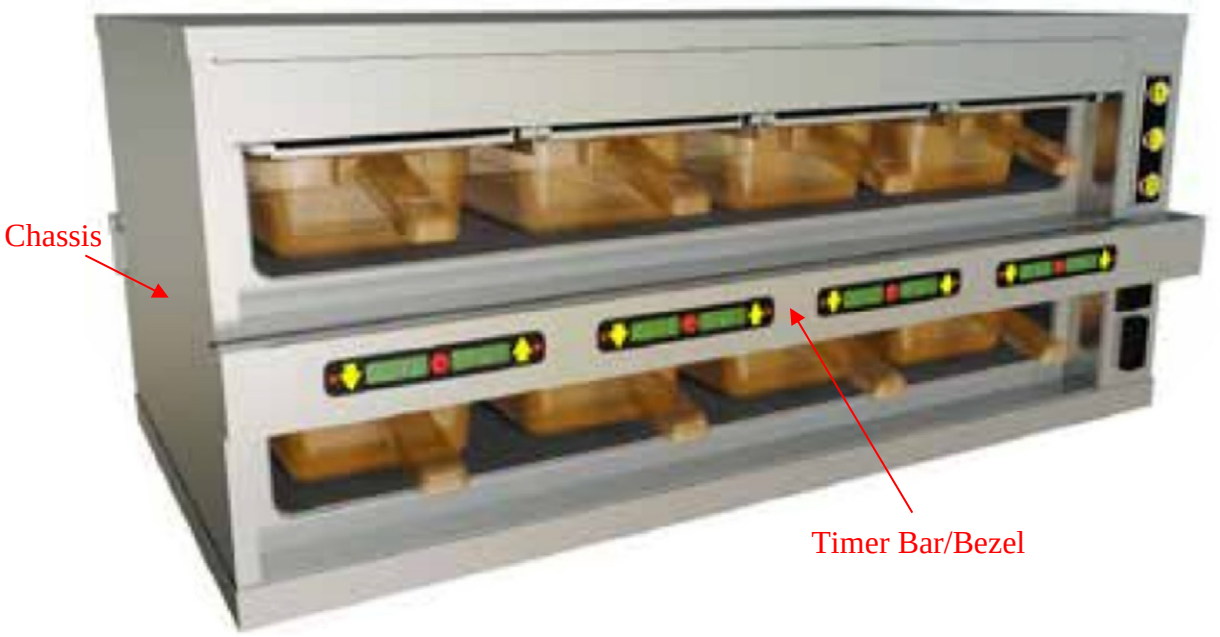
188. As discussed above, the POSA would have found it obvious to combine the teachings and disclosures of the IRHS Documents to arrive at the claimed food holding bin of Claim 1.

189. The POSA would additionally recognize that the IRHS Documents disclose the additional limitation added in Claim 3 requiring that the first bezel "comprises dedicated displays and the dedicated display displays a temperature setting for a corresponding food holding bay."

190. As disclosed in the IRHS Documents, the IRHS24 Holding Unit has a first bezel in the form of the front timer bar that is attached to the chassis.

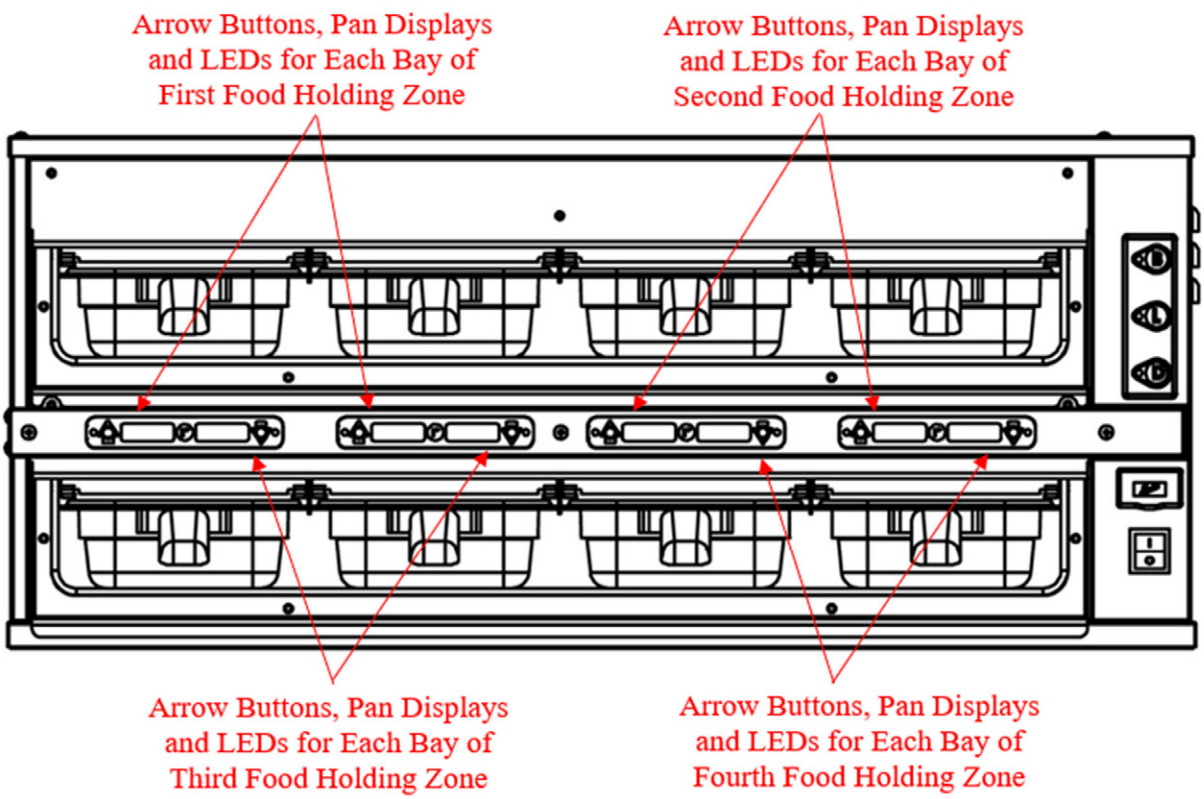


EX1005: 19 (annotated).



EX1007: 56 (annotated).

191. The front timer bar is disclosed as providing user interfaces comprising dedicated controls (arrow buttons) and dedicated displays (LEDs and pan displays) for each pan holding location in the food holding zones. Each arrow button points to the pan holding location (and therefore food holding bay) to which the arrow button and associated LED and pan display correspond. EX1005: 16 ("Arrow Buttons … Indicate which pan the adjacent Status LED and Pan Display are linked to").



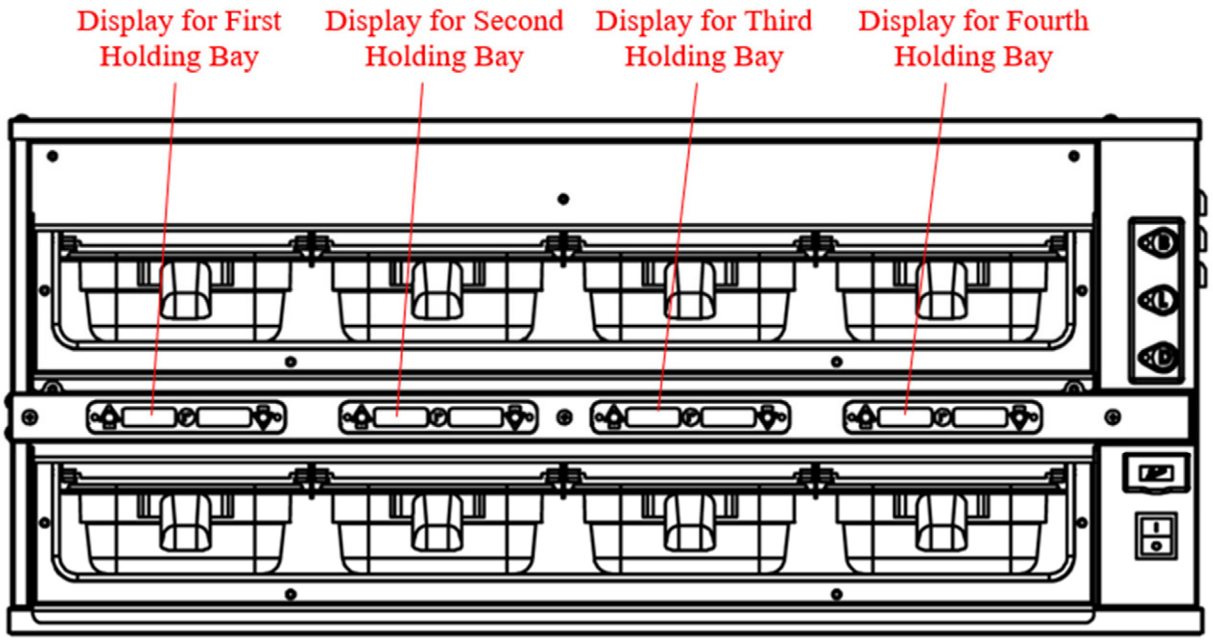
EX1005: 8 (annotated).



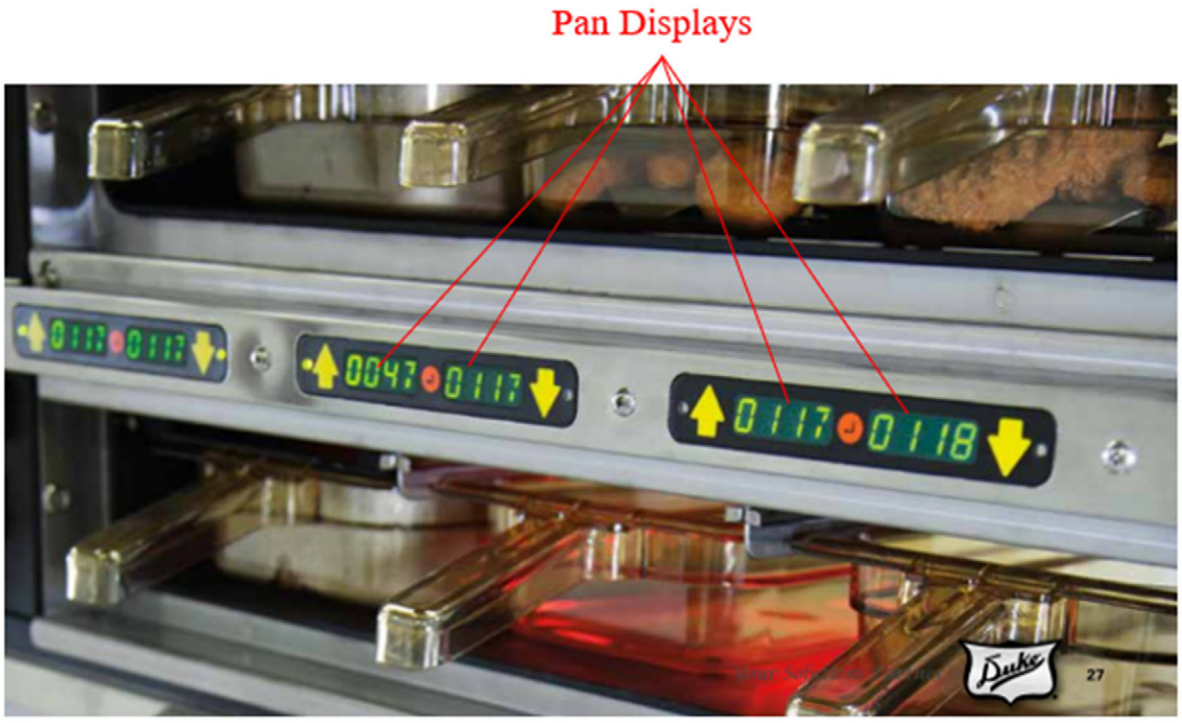
EX1005: 16.

2. Arrow Buttons
   a. Used for Starting / Stopping / Resetting Timer.
   b. Used to access MENU MODE.
   c. Indicate which pan the adjacent Status LED and Pan Display are linked to.
3. Pan Display
   a. Displays Product Name and Hold Time Remaining (alternates between the two when Timer is active).
4. Enter Button
   a. Used to access MENU MODE.

EX1005: 16 (annotated).



EX1005: 8 (annotated).



EX1007: 52 (annotated).

192. The pan displays display information about the pan holding locations/bays (and therefore the food holding zones), including the temperature setting for each pan holding location/bay. EX1006: 1 ("[a]lphanumeric displays to indicate product description, temp and hold time remaining"); EX1005: 16 ("[o]nce to temperature, product names can be viewed on the displays. Additional settings such as LINK, TIME, and TEMP can be viewed two different ways"), 17.



More Product Information at Each Well

(Product, Hold Time Remaining, Temperature)

EX1007: 10-11.

193. 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.

D. Claim 4

4.a.1: 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

194. 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.

195. 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."

196. 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.").

197. 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.

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



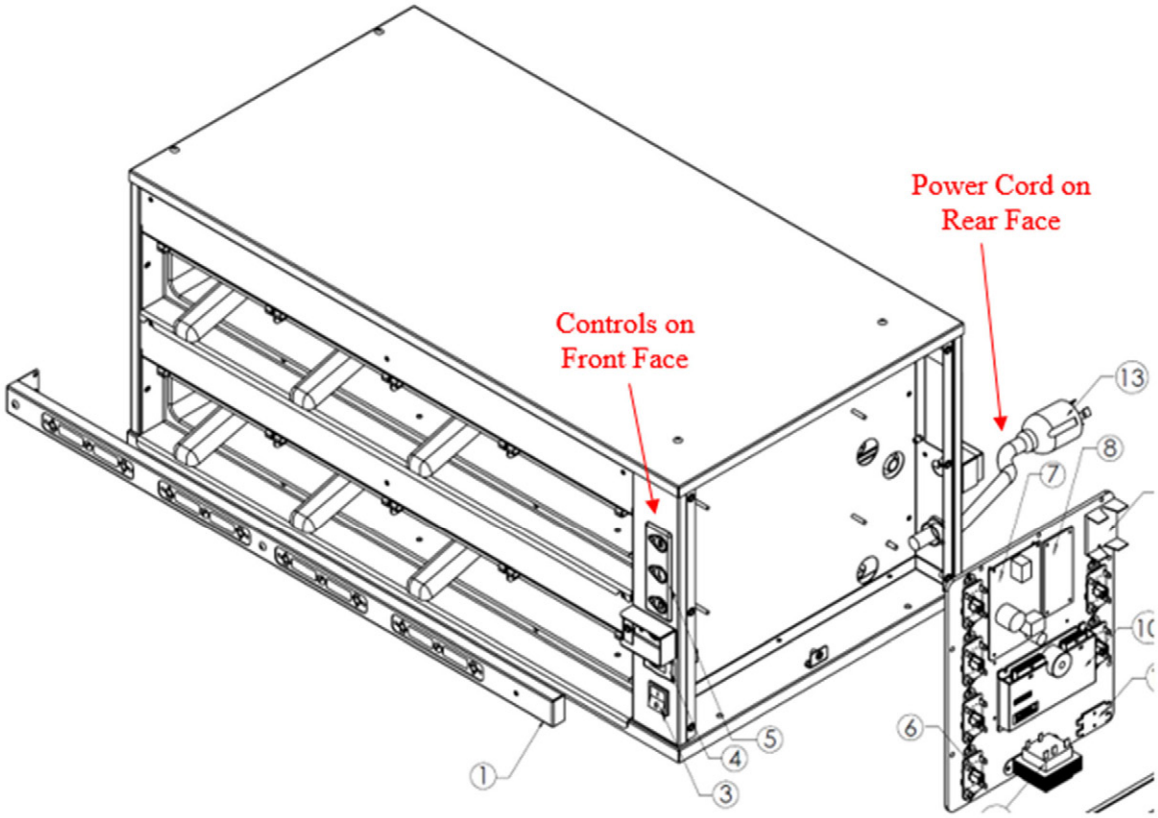
EX1007: 28, 51, 52 (annotated).

199. The IRHS Documents also includes 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).

200. 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").

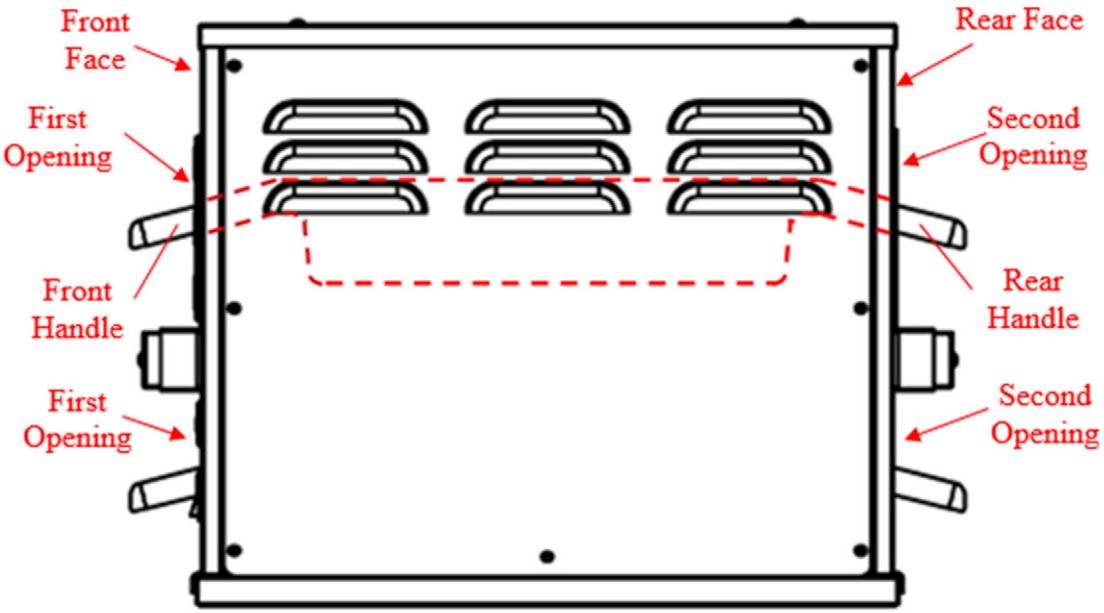
201. The food pans disclosed in the IRHS Documents confirm that the IRHS Holding Unit is a pass-through unit in that they have front and rear handles. EX1007: 58.

202. 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:

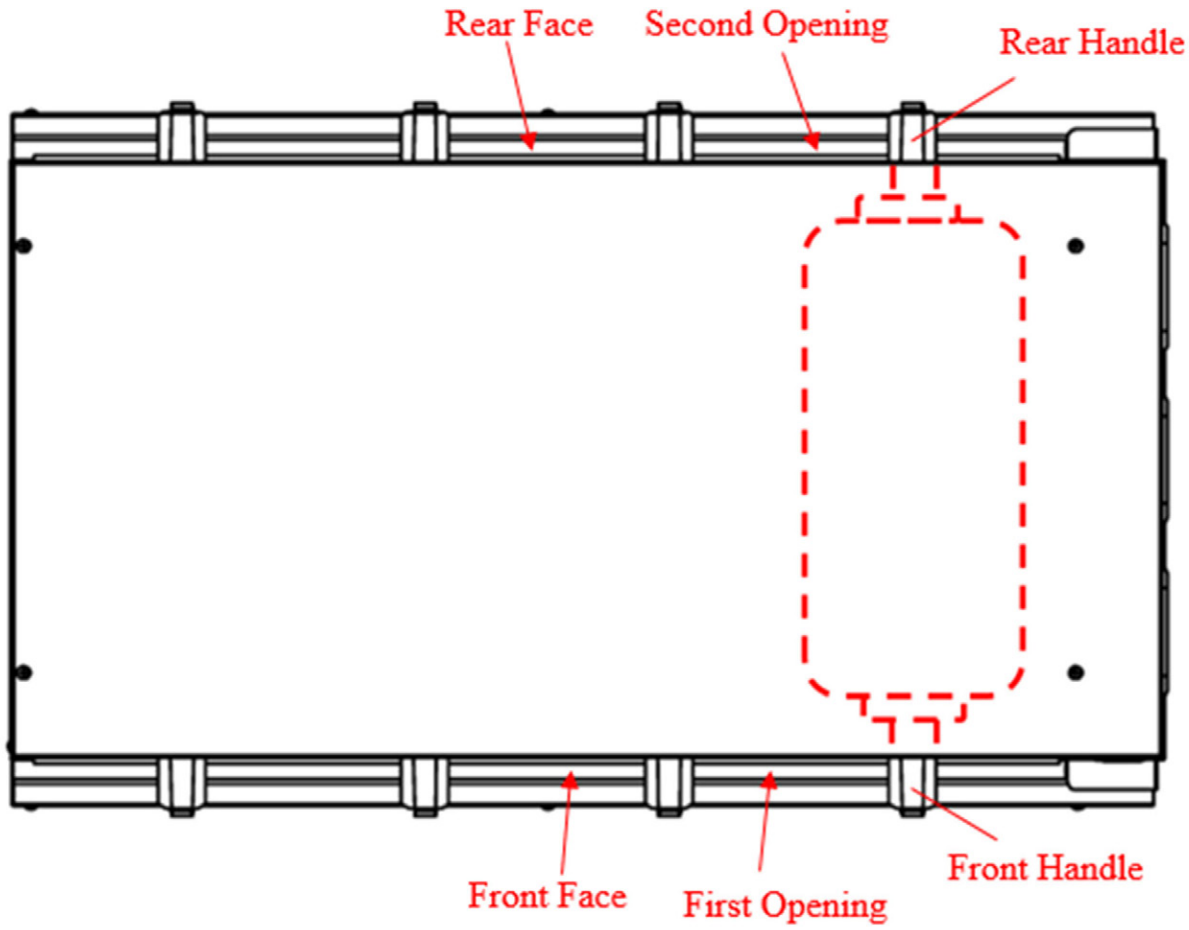


EX1007: 58 (annotated).

203. 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.



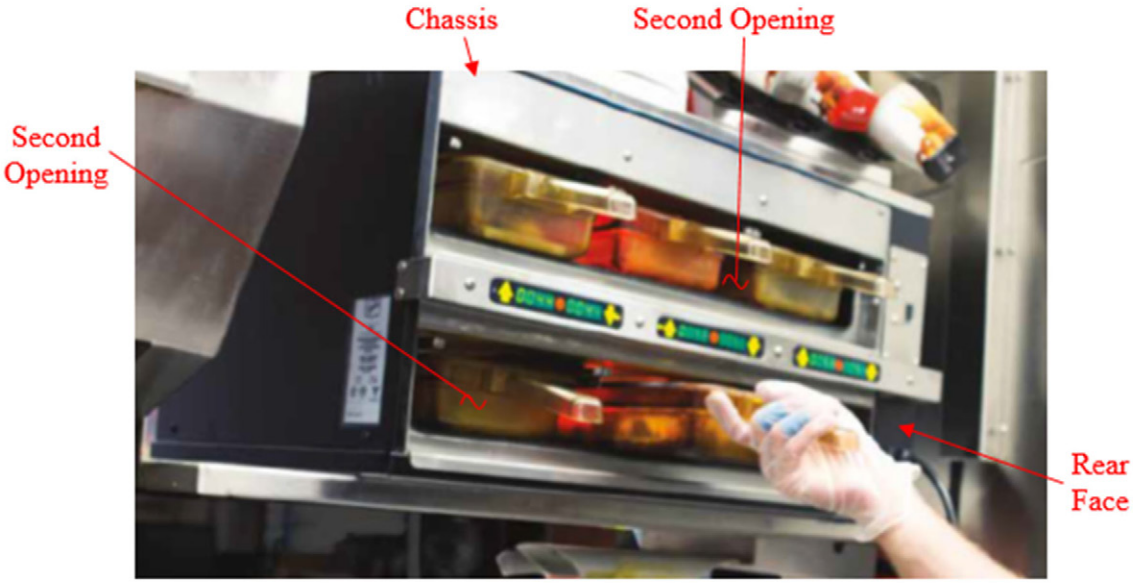
EX1005: 8 (annotated).



EX1005: 8 (annotated).

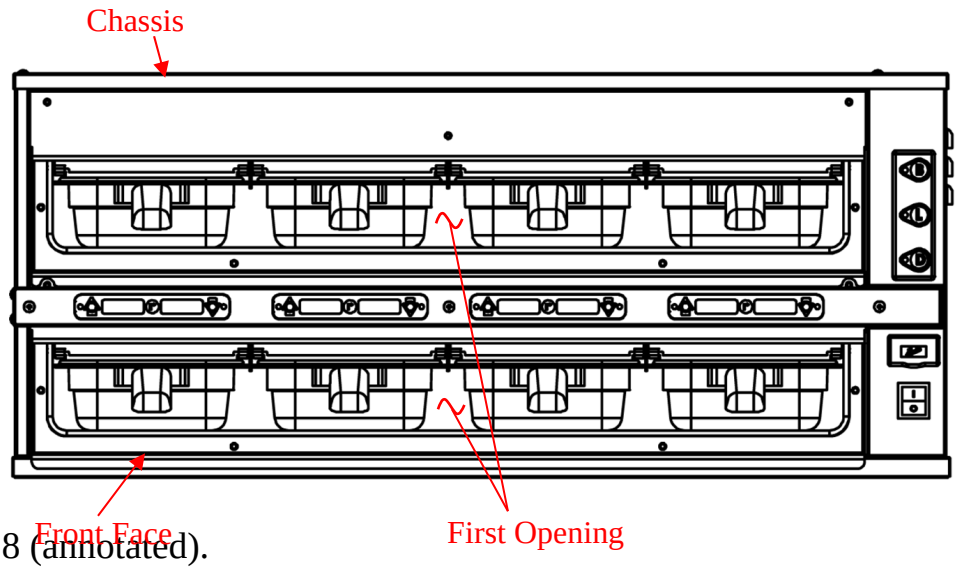
204. For the rear handles of the food pans disposed on the first planar surface to project beyond the rear face of the chassis, the chassis must have a second opening along the rear face. The first opening enables the front handle of a pan to project out of the front face of the IRHS while the second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

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

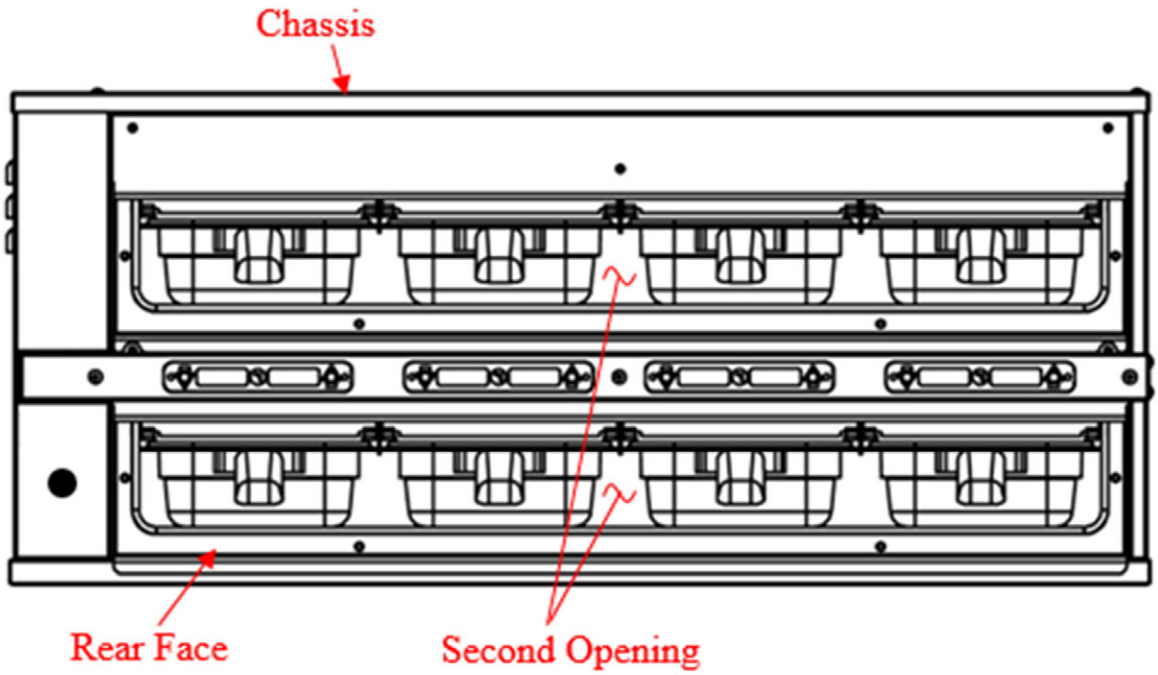


EX1007: 52 (annotated).

206. The POSA would understand this construction applies to all of the IRHS units, including the IRHS24 Holding Unit. A representative illustration of the rear face of the IRHS24 Holding Unit 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).

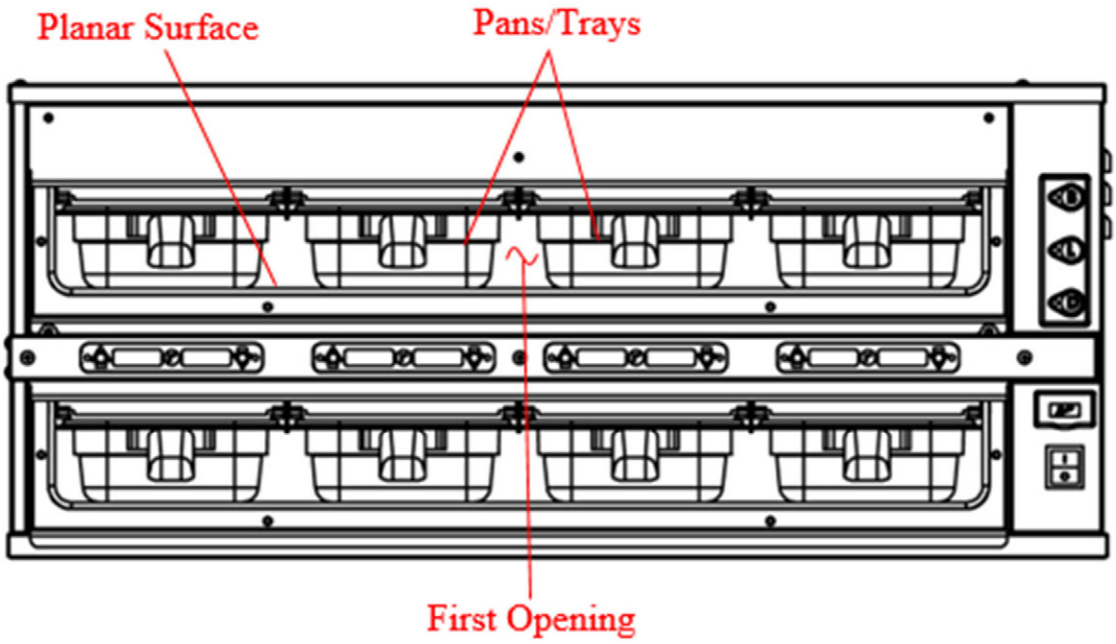
4.a.2: the substantially planar bottom surface is configured to allow food items to be placed on the substantially planar surface

through the first opening and removed from the planar and bottom surface from the second opening

207. The POSA would recognize that the IRHS Documents disclose that "the substantially planar bottom surface [of each food holding compartments] is configured to allow food items to be placed on the substantially planar surface through the first opening and removed from the planar and bottom surface from the second opening."

208. As explained in Paragraph 164 above with respect to claim limitation 1.d.3, the first opening allows food pans to be inserted into and removed from the food holding compartments.

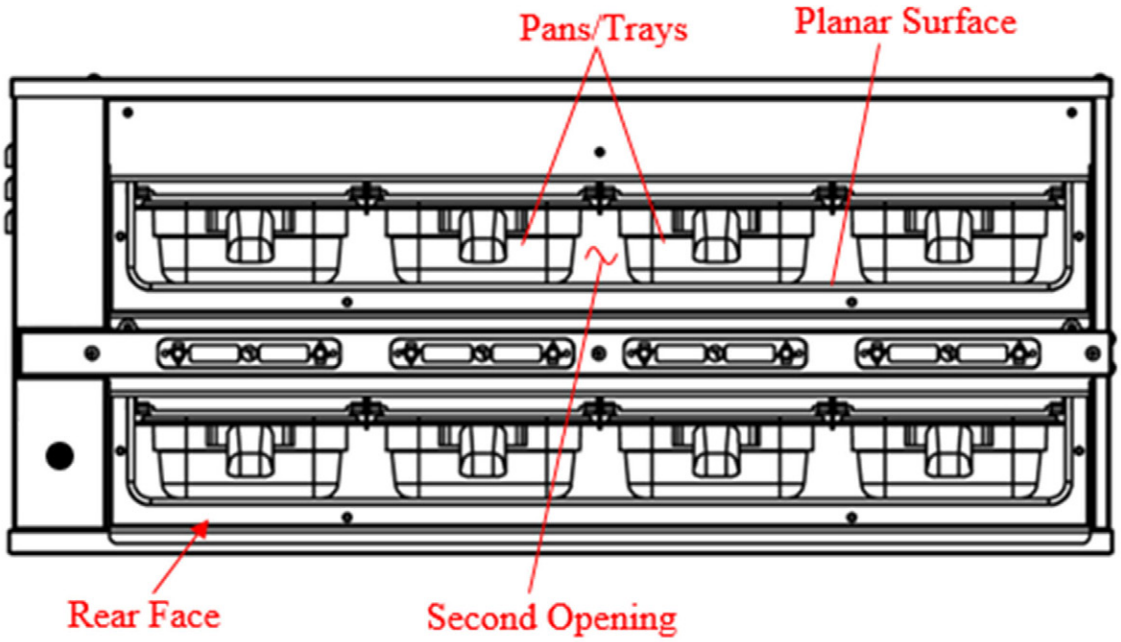
209. As shown below, the planar bottom surface of the food holding compartments allows the food pans (containing food items) to be placed thereon through the first opening, which is larger than the food pans and allows the food pans to pass therethrough.



EX1005: 8 (annotated).

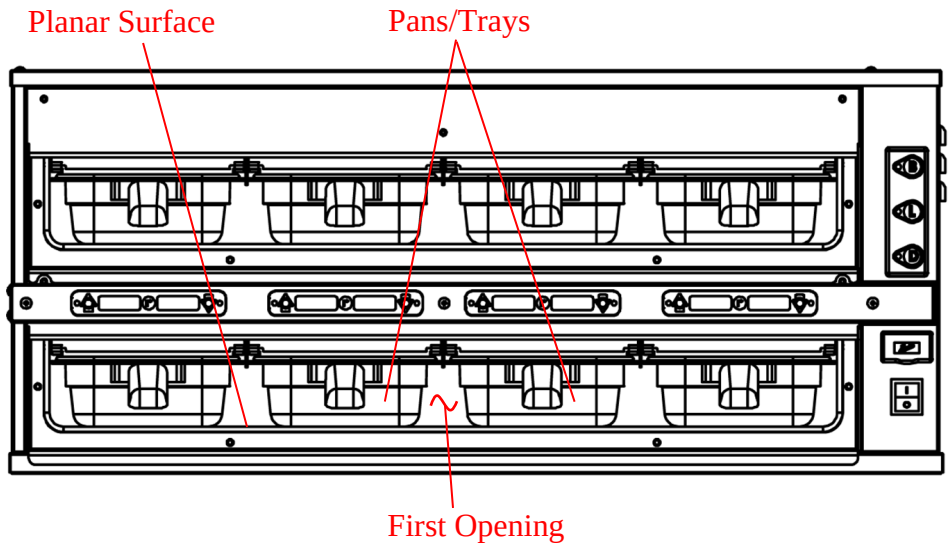
210. The IRHS Documents further demonstrate that the planar bottom surface allows the food pans (containing food items) to be removed from the planar bottom surface through the second opening.

211. 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. Further, because the second opening is larger than the food pans, to would allow the food pans to pass therethrough.

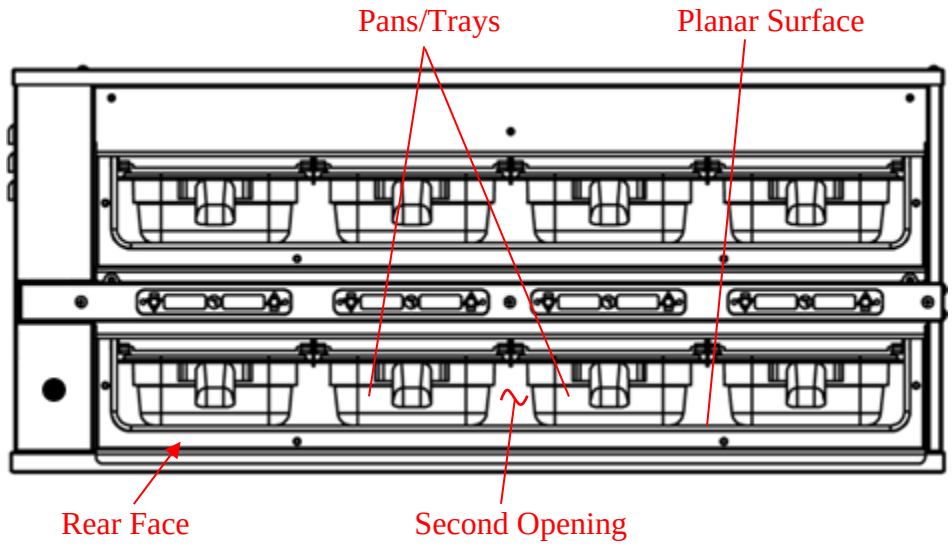


EX1005: 8 (modified to represent the rear view of the IRHS24 Holding Unit).

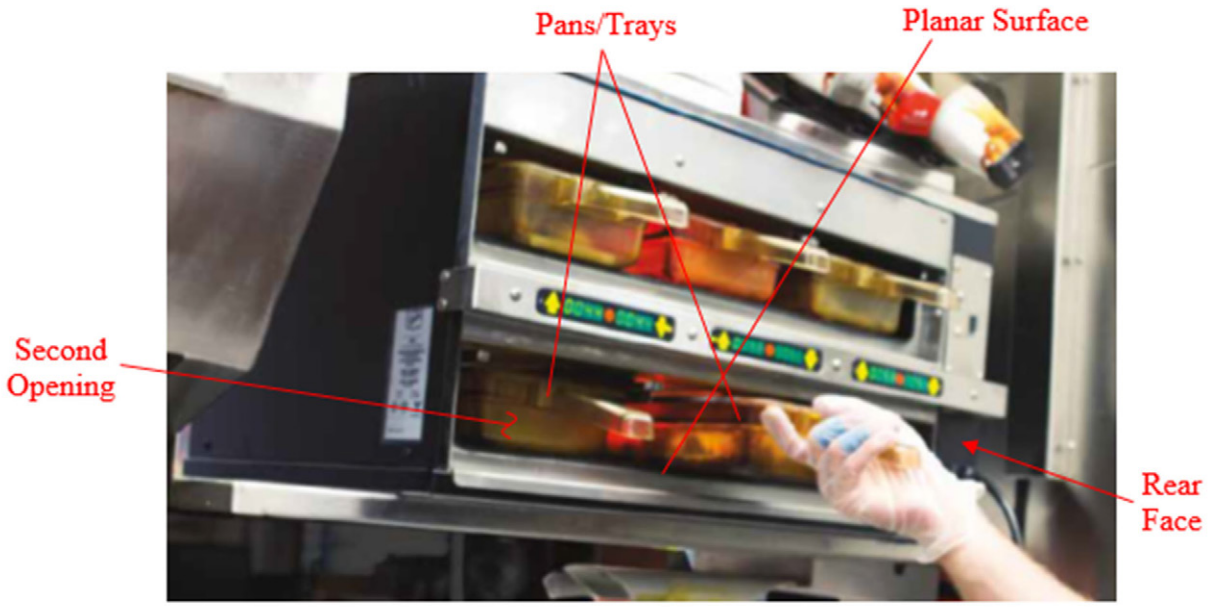
212. For the same reasons as the first/upper food holding compartment, a planar bottom surface for the second food holding compartment allows food items to be placed on the planar bottom surface through the first opening of the second food holding compartment and removed from the planar bottom surface through the second opening of the second food holding compartment.



EX1005: 8 (annotated).



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



EX1007: 52 (annotated).

213. Accordingly, each limitation of Claim 4 is disclosed within the IRHS Documents.

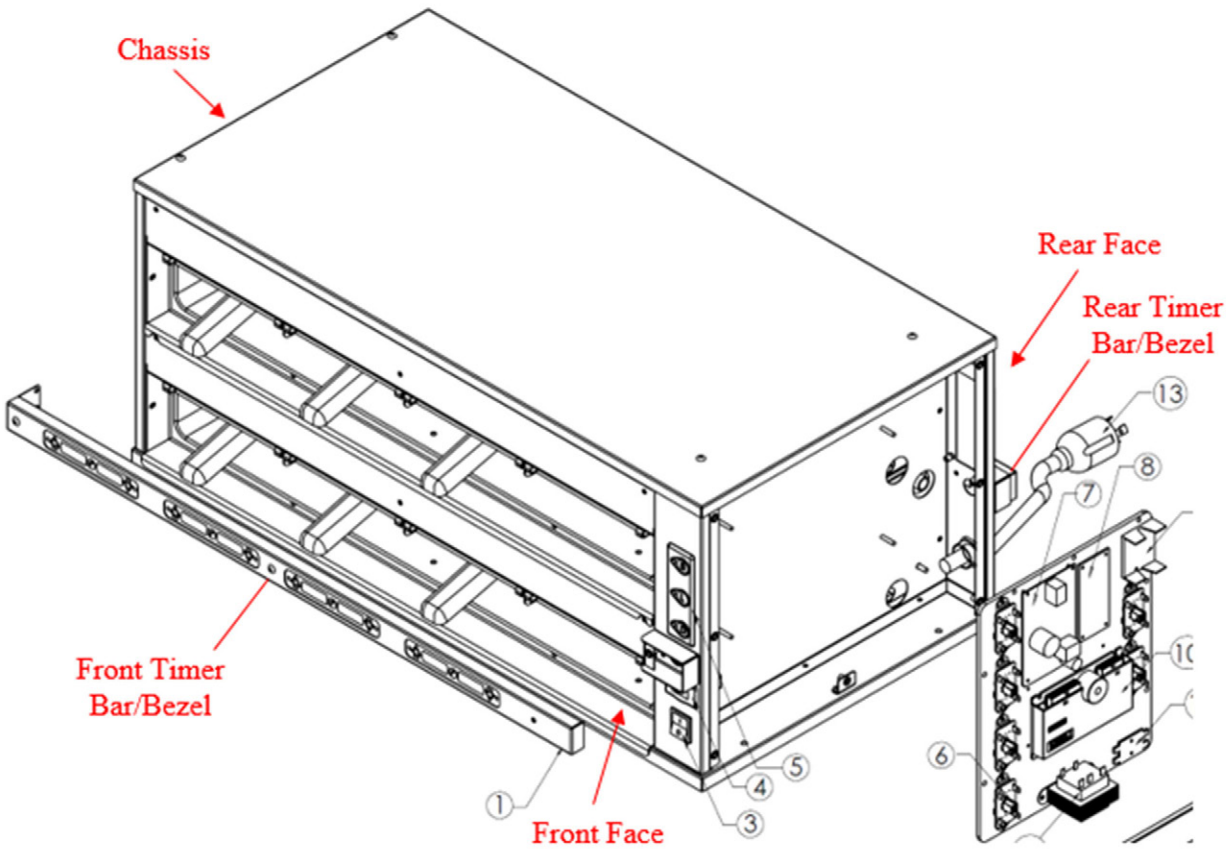
214. As each limitation of Claim 4 is disclosed within the IRHS Documents, the POSA would have found it obvious to combine the teachings and disclosures of the IRHS Documents to arrive at the food holding bin as claimed in Claim 4.

E. Claim 5: the food holding bin of claim 4, wherein the first bezel is located proximate the front face of the chassis, the food holding bin further comprising a second bezel located proximate the opposing rear face of the chassis

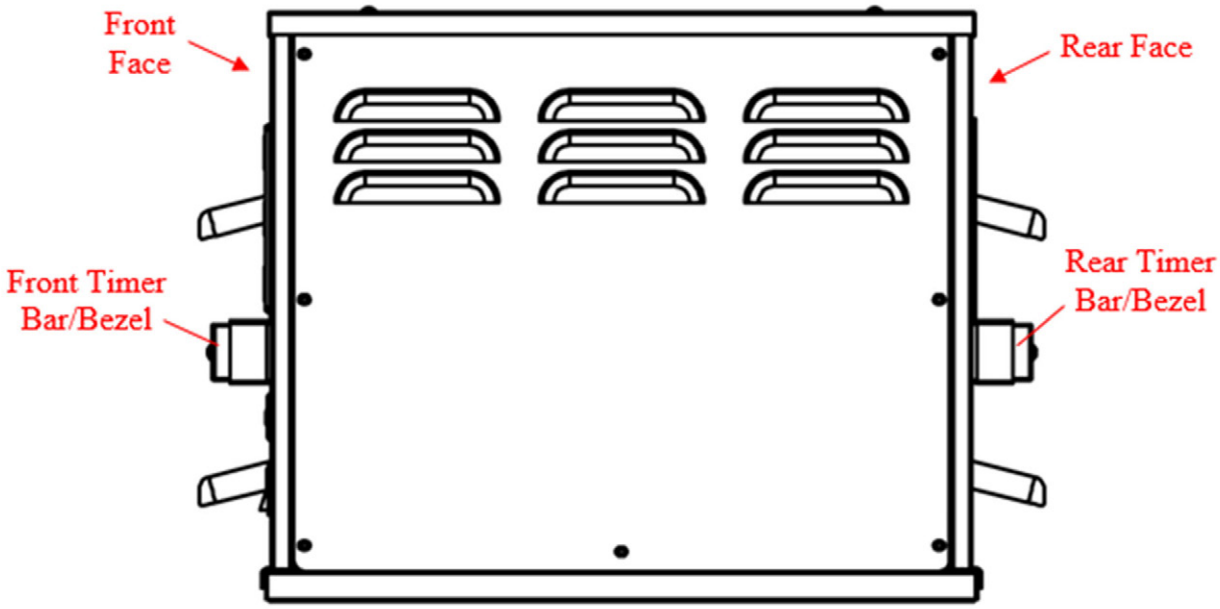
215. As discussed above, the POSA would have found it obvious to combine the teachings and disclosures of the IRHS Documents to arrive at the claimed food holding bin of Claim 4.

216. The POSA would additionally recognize that the IRHS Documents discloses that "the first bezel is located proximate the front face of the chassis" and that "the food holding bin further compris[es] a second bezel located proximate the opposing rear face of the chassis."

217. The IRHS documents disclose the IRHS Holding Unit as having both a front time bar (first bezel) located on (*i.e.*, proximate) the front face of the chassis and a rear timer bar (second bezel) located on the rear face of the chassis.



EX1005: 19 (annotated).



EX1005: 8 (annotated).





EX1007: 51, 52 (annotated).

MENU BA RS

The Menu Bars hold the Keypad Displays that control and monitor the performance of each heating well. The quantity varies (depending on model) and are located on the front and back faces of the unit.

EX 1008: 12.

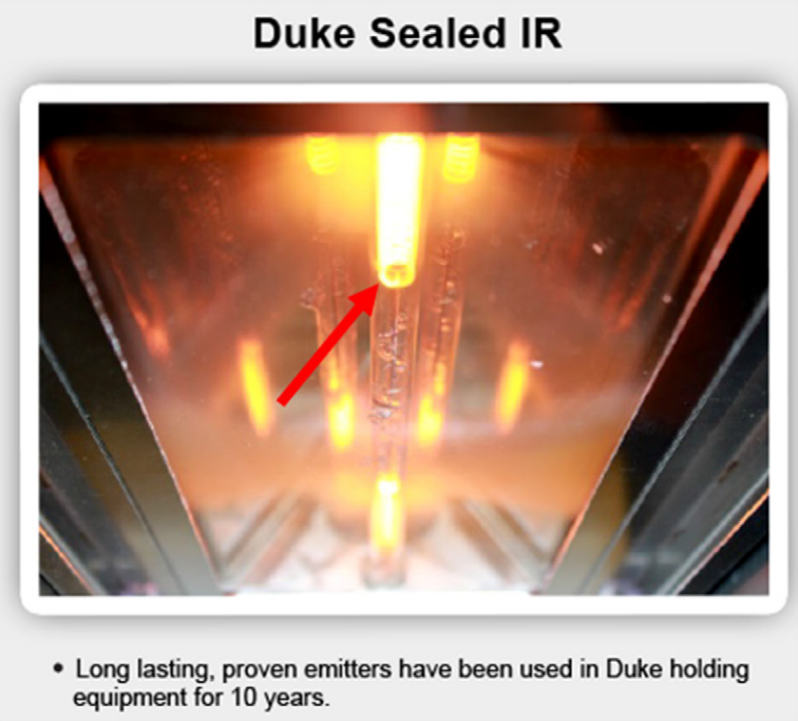
218. Accordingly, the POSA would have found it obvious to combine the teachings and disclosures of the IRHS Documents to arrive at the food holding bin as claimed in Claim 5.

F. Claim 6: the food holding bin of claim 1, wherein both the first and second independently controllable heating elements comprise a resistive wire

219. 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.

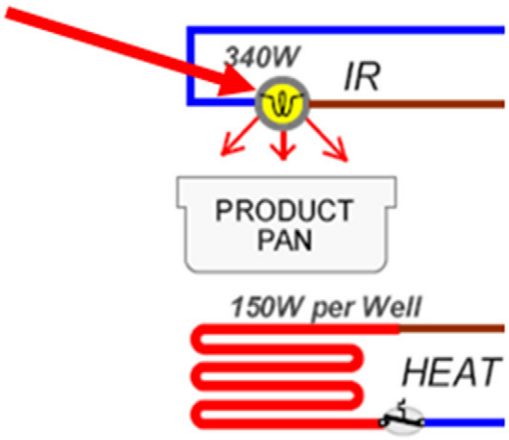
220. The POSA would additionally recognize that the IRHS Documents disclose the additional limitation added in Claim 6 further requiring "both the first and second independently controllable heating elements comprise a resistive wire."

221. As disclosed in the IRHS documents, each upper (*i.e.*, first) 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").



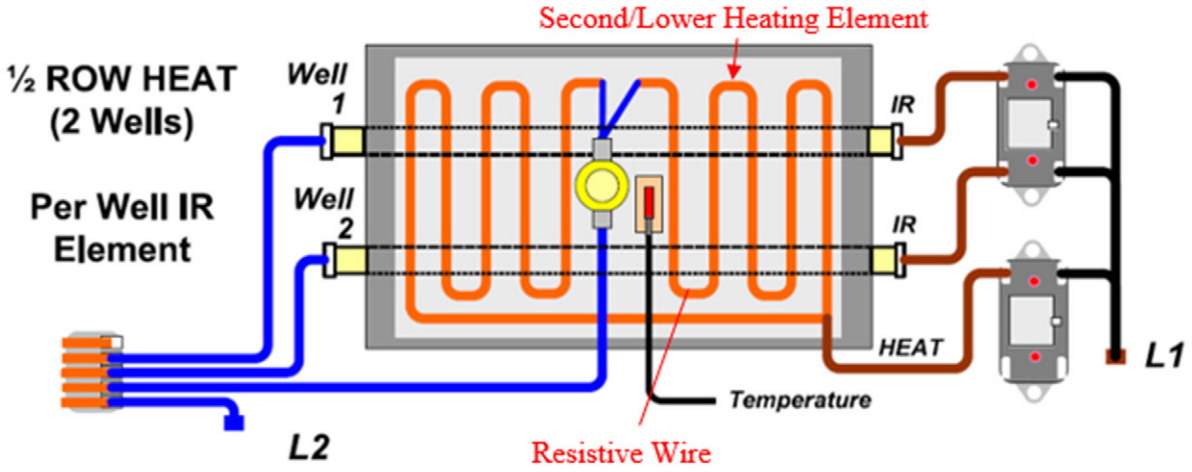


EX1007: 11 and 36 (annotated).



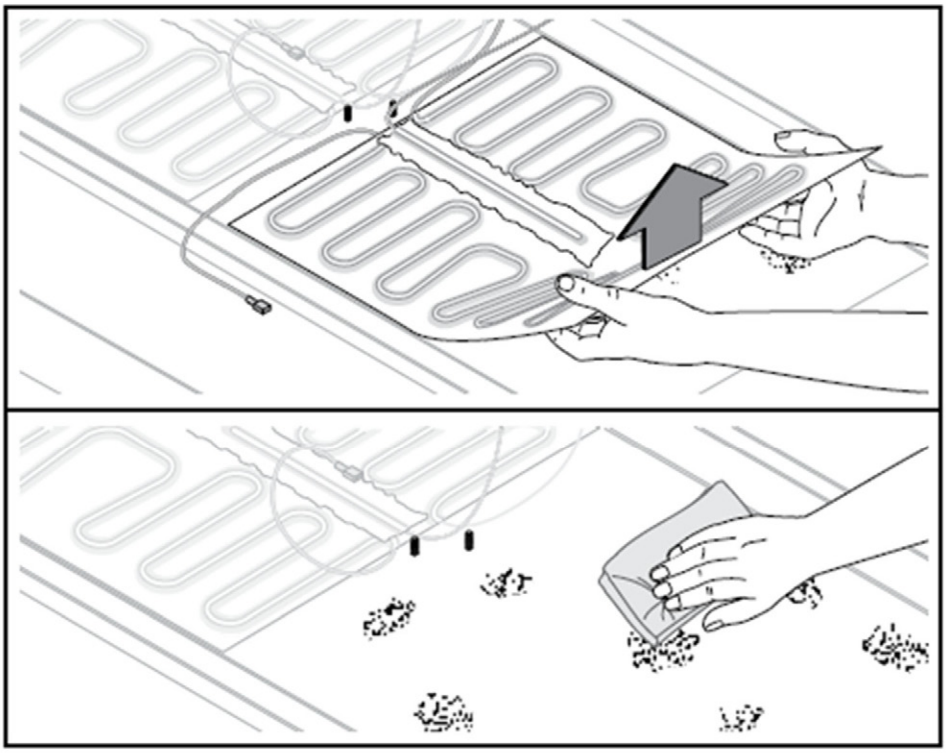
EX1008: 64 (showing schematic coiled resistive wire).

222. As disclosed in the IRHS documents, each lower (*i.e.*, second) heating element of the IRHS Holding Units comprise a resistive 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).

223. 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).

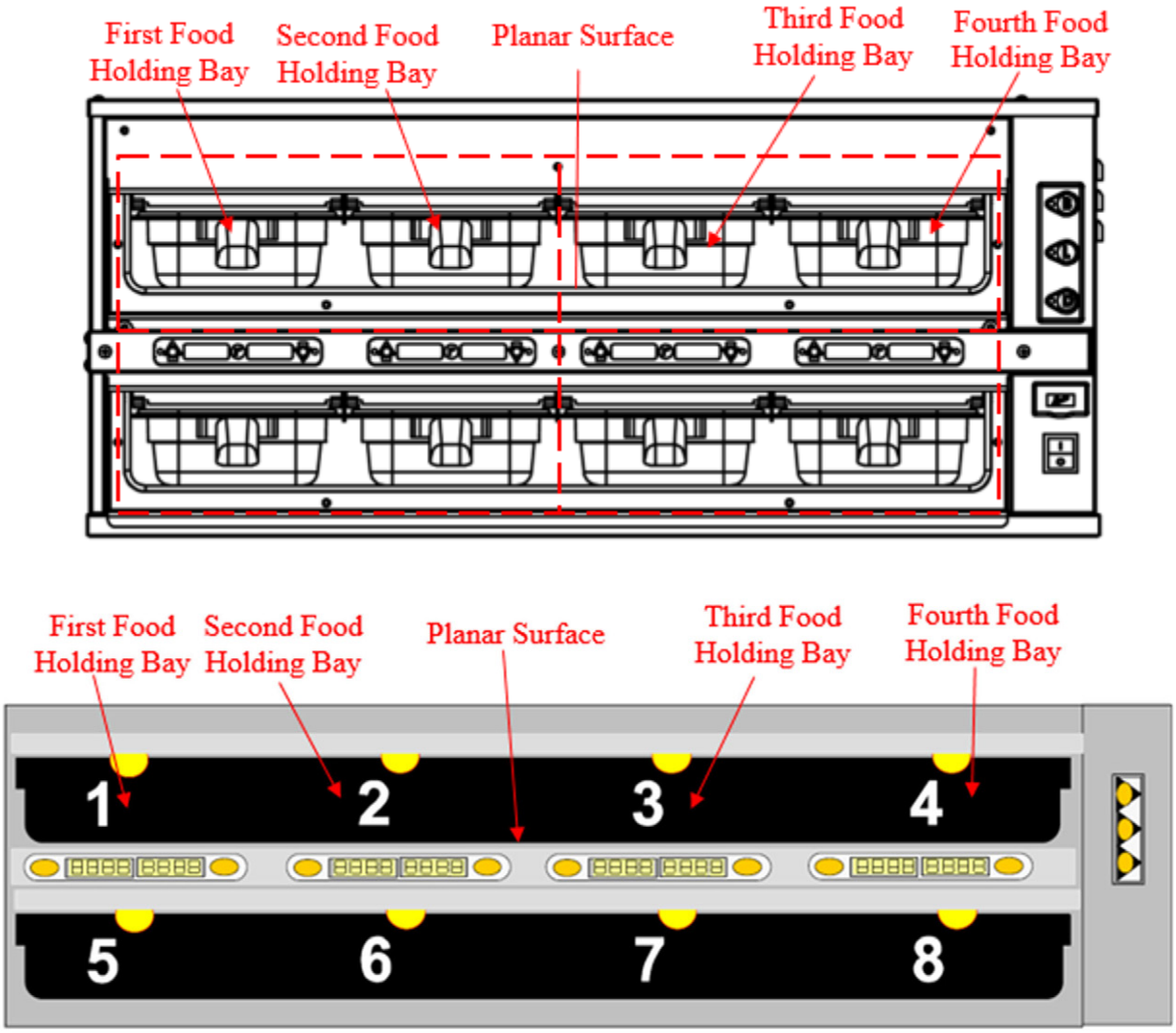
224. Accordingly, the POSA would have found it obvious to combine the teachings and disclosures of the IRHS Documents to arrive at the food holding bin as claimed in Claim 6.

G. Claim 7: the food holding bin of claim 1, wherein the substantially planar surface is substantially free of any dividing walls or other structure between the first, second, third, and fourth food holding bays

225. 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.

226. The POSA would additionally recognize that the IRHS Documents disclose the additional limitation added in Claim 6 further requiring that "the substantially planar surface is substantially free of any dividing walls or other structure between the first, second, third, and fourth food holding bays."

227. As shown below, the planar surfaces as depicted in the IRHS Documents are free of any dividing walls or other structures between the first, second, third, and fourth food holding bays.



EX1005: 8, 25 (annotated).

228. 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.

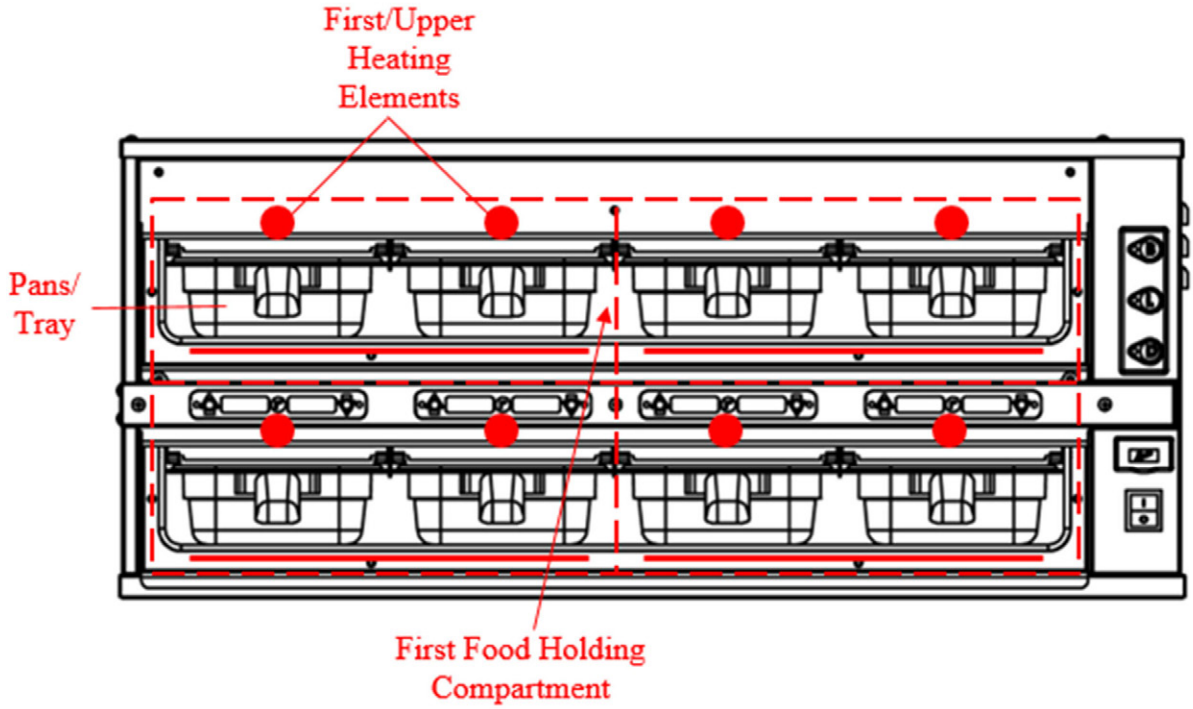
H. Claim 8: the food holding bin of claim 1, wherein the first independently controllable heating element comprises a radiant

heating source and the second independently controllable heating element provides heat energy through conduction

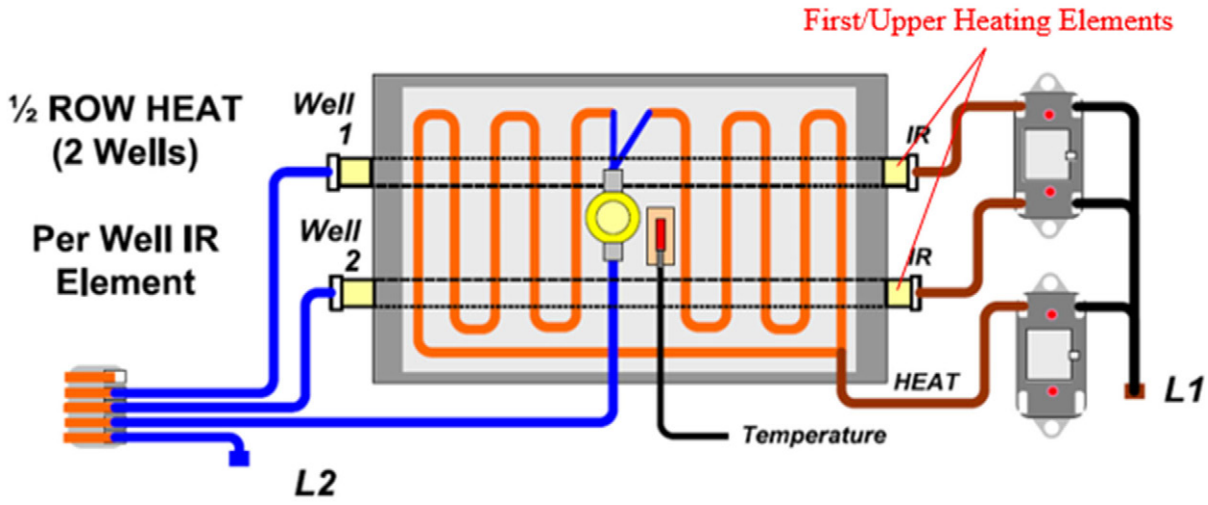
229. As discussed above, the POSA would have found it obvious to combine the teachings and disclosures of the IRHS Documents to arrive at the claimed food holding bin of Claim 1.

230. The POSA would additionally recognize that the IRHS Documents disclose the additional limitation added in Claim 8 further requiring that "the first independently controllable heating element comprises a radiant heating source" and that "the second independently controllable heating element provides heat energy through conduction."

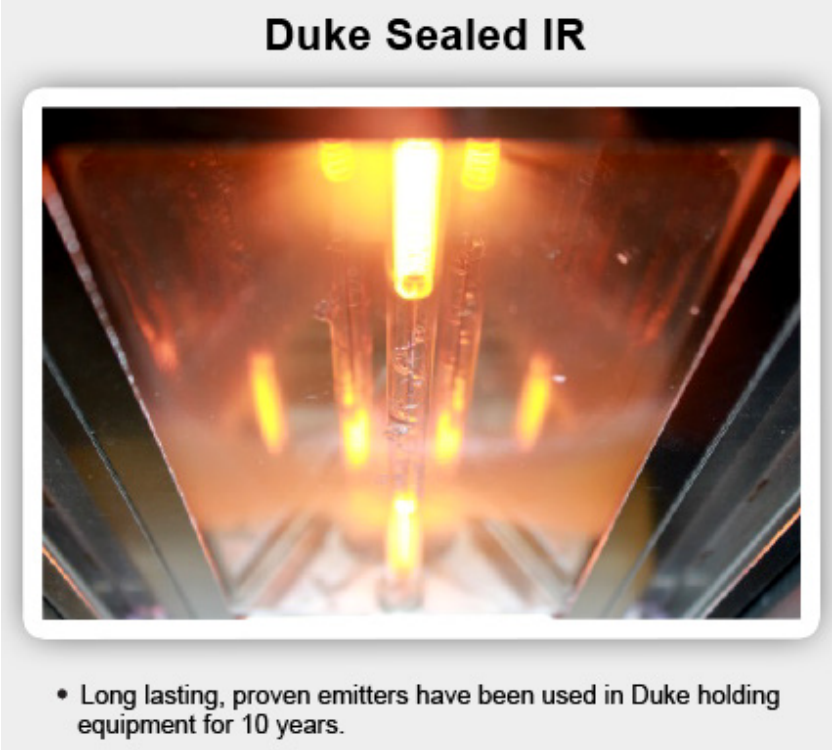
231. As disclosed in the IRHS Documents, the upper (*i.e.*, first) heating elements are IR bulbs that provide infrared radiant heat (*i.e.*, the transfer of thermal energy through infrared spectrum radiation) to the food pans/trays. EX1005: 20 (ref. no. 17 – "BULB – IR"); EX1007: 51 ("top-down InfraRed heat").



EX1005: 8 (annotated).

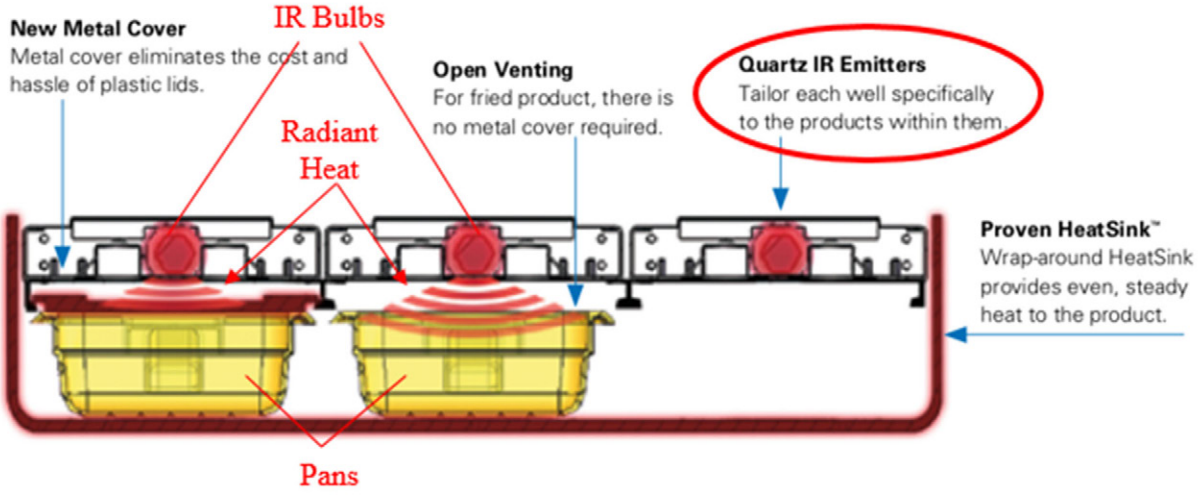


EX1005: 25 (annotated).



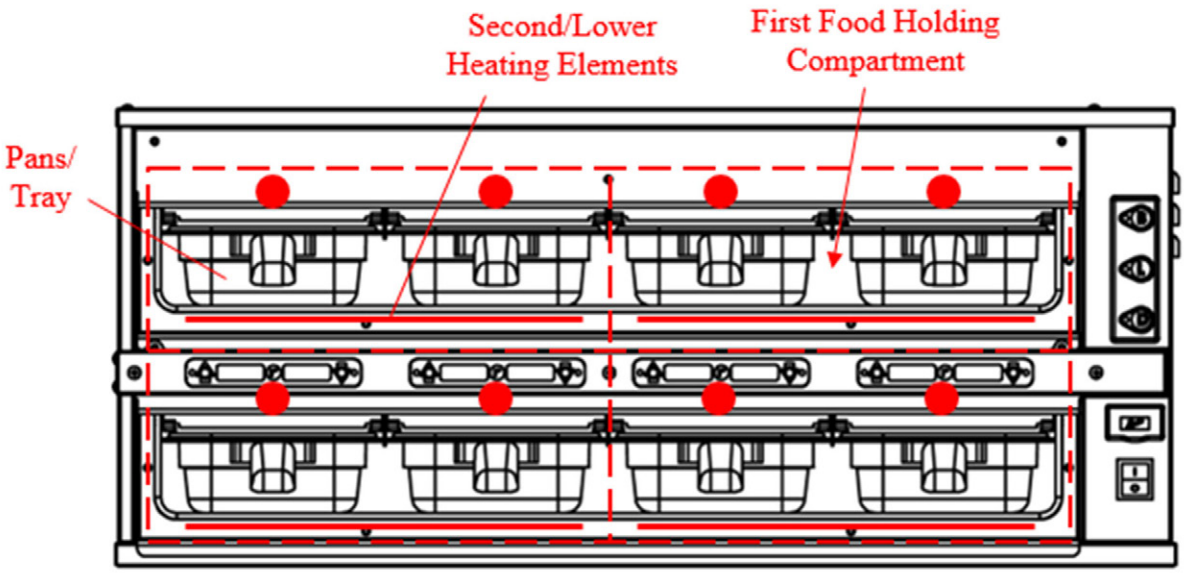


EX1007: 11 and 36.



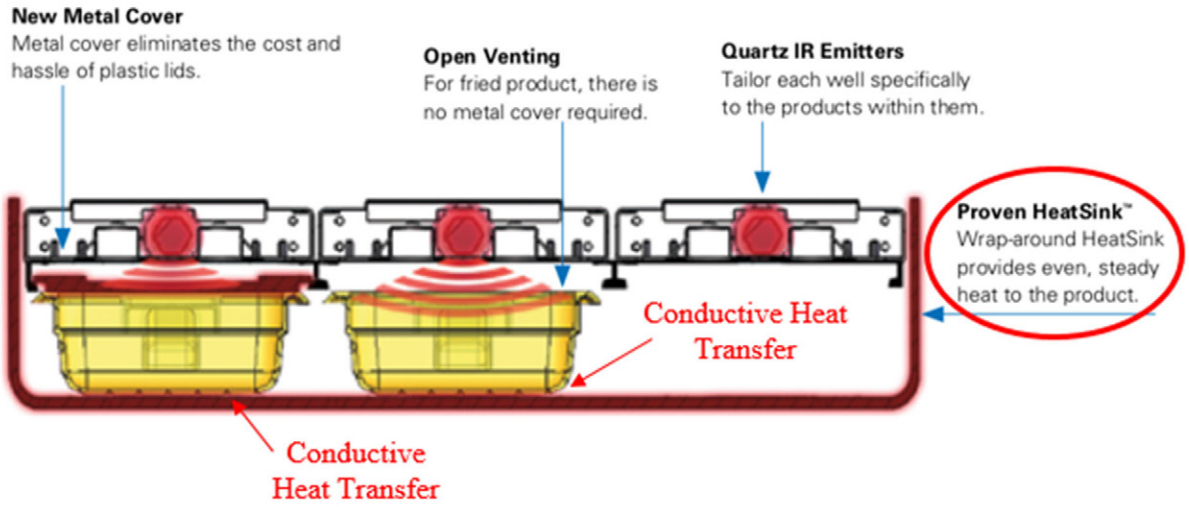
EX1007: 53 (annotated).

232. The POSA would further recognize that according to the disclosed configuration of the IRHS24 Holding Unit, the lower (*i.e.*, second) heating elements would provide heat to the food pans/trays conductively through the substantially planar surfaces, on which the pans rest.

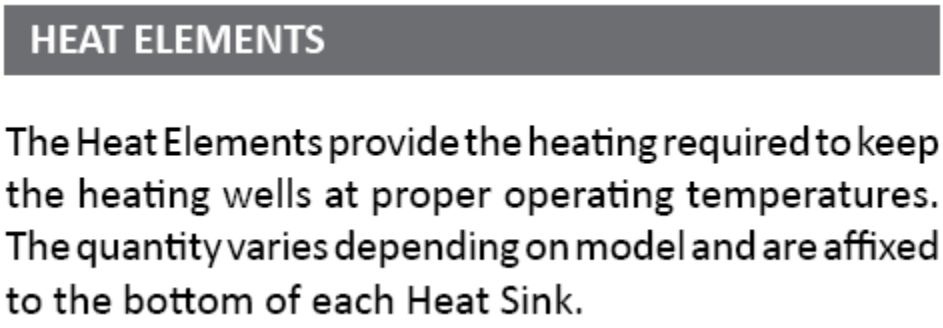


EX1005: 8 (annotated).

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

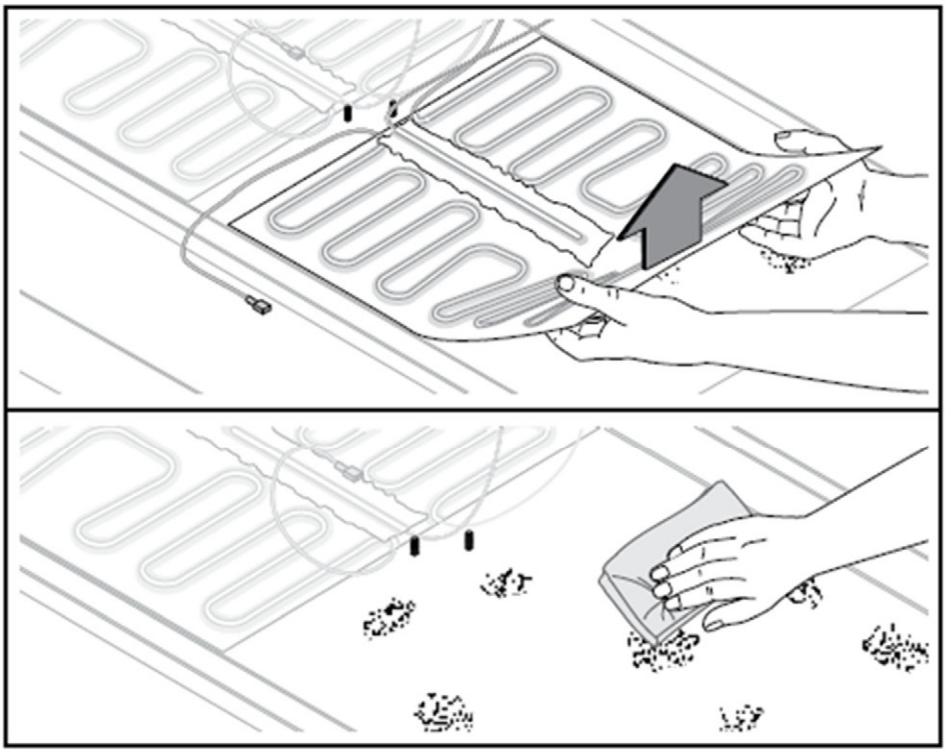


EX1007: 53 (annotated).



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.

234. It would be understood that because the lower (*i.e.*, second) heating elements and planar surfaces are parts of the HeatSinks and the food pans rest on the HeatSinks (the planar surfaces 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 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]").

235. 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.

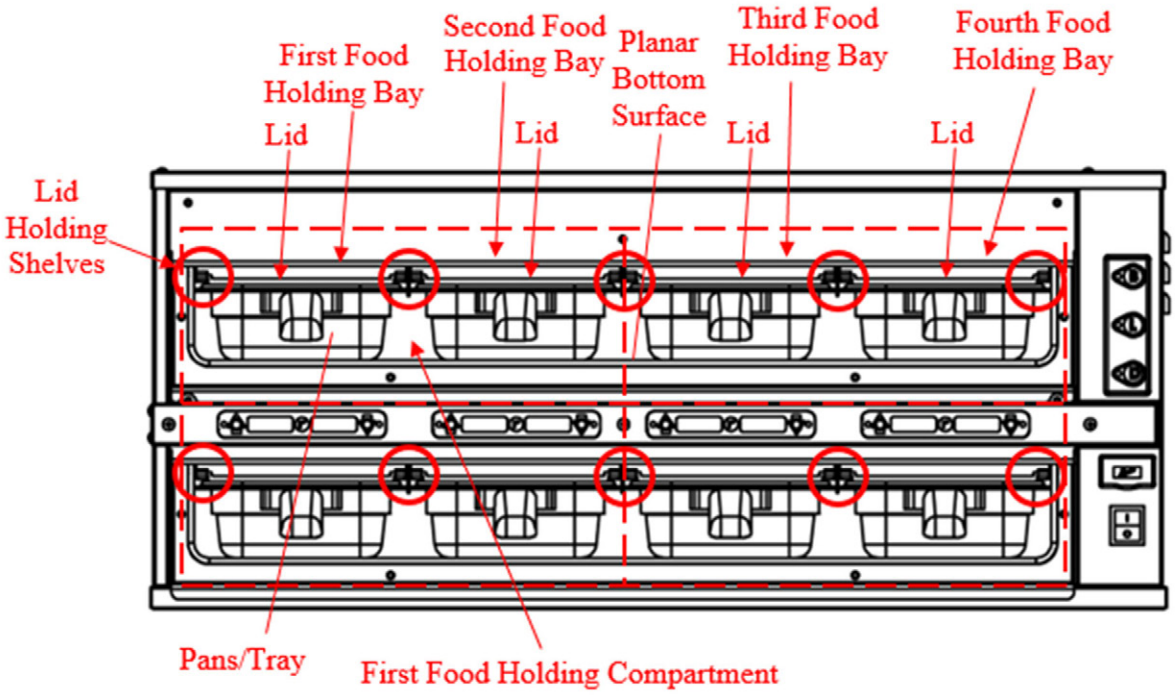
I. Claim 9: the food holding bin of claim 1, wherein each food holding bay further comprises a dedicated lid holding shelf elevated above the substantially planar bottom surface in the first food holding compartment, the dedicated lid holding shelf being configured to receive and store a lid for a food holding tray

236. 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.

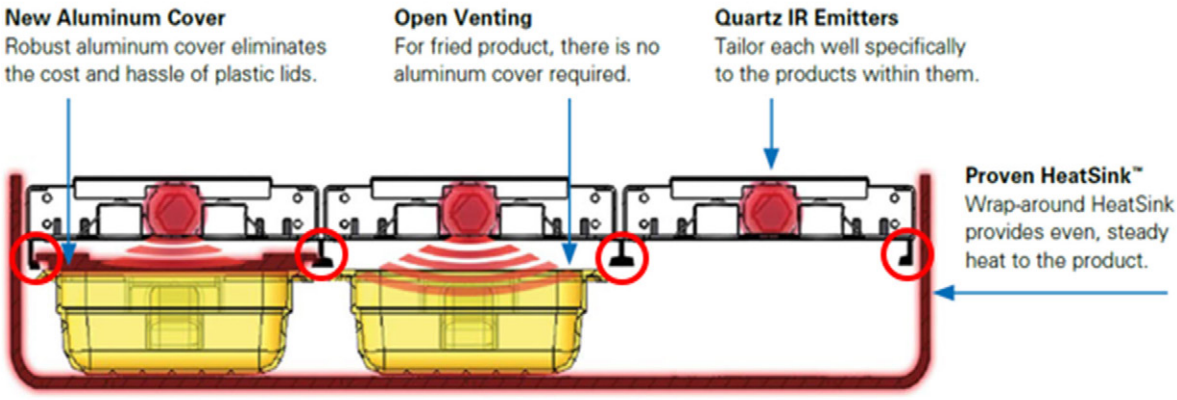
237. The POSA would additionally recognize that the IRHS Documents disclose the additional limitation added in Claim 9 further requiring that "each food holding bay further comprises a dedicated lid holding shelf elevated above the substantially planar bottom surface in the first food holding compartment, the dedicated lid holding shelf being configured to receive and store a lid for a food holding tray."

238. As disclosed in the IRHS Documents, the IRHS Holding Units include covers or lids suspended above each pan holding location (*i.e.*, each food holding 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").

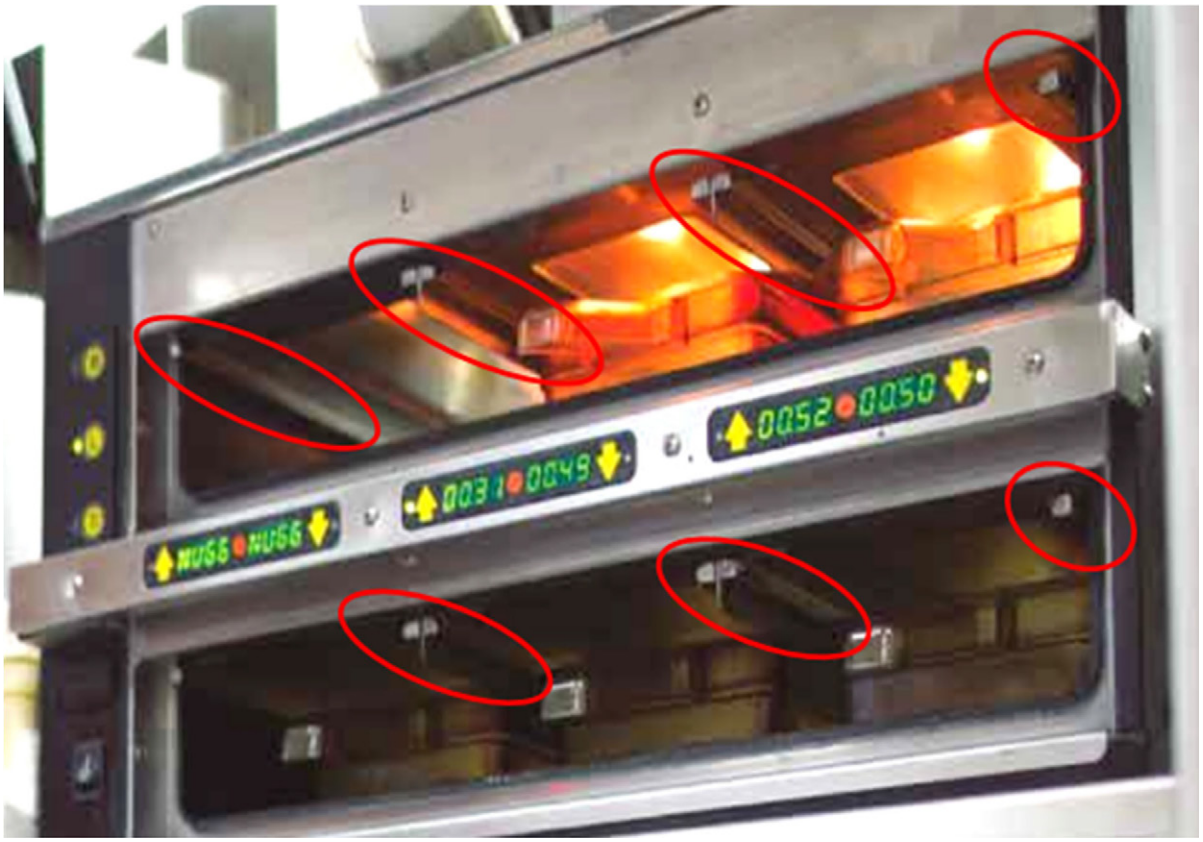
239. The IRHS Holding Units—including the IRHS24 Holding Units—have lid-holding shelves in each food holding bay for receiving and storing the lids. These lid-holding shelves are elevated above the substantially planar bottom surface in the first food holding compartment.



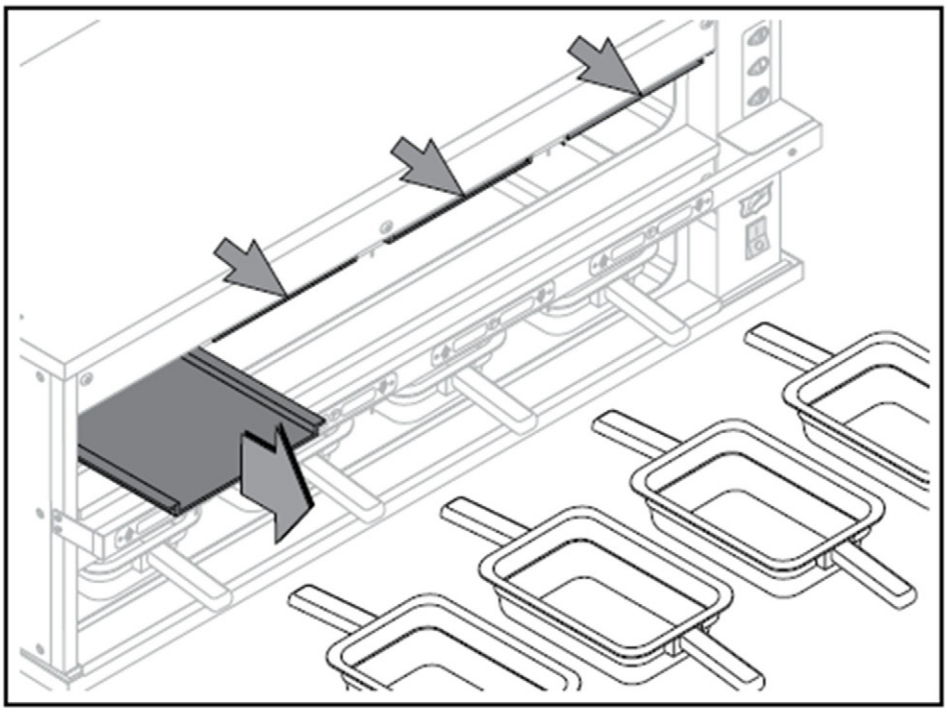
EX1005: 8 (annotated).



EX1007: 53 (annotated).



EX1007: 36 (annotated).



EX1008: 16.

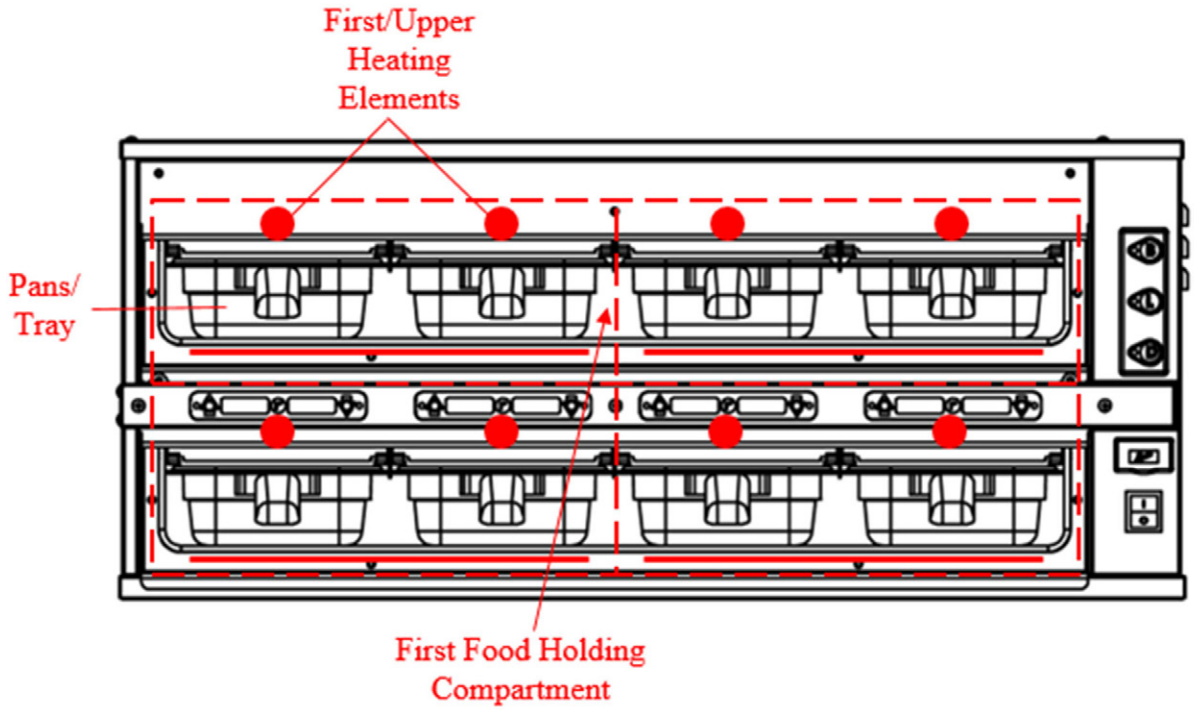
240. Accordingly, the POSA would have found it obvious to combine the teachings and disclosures of the IRHS Documents to arrive at the food holding bin as claimed in Claim 9.

J. Claim 10: the food holding bin of claim 1, wherein the first independently controllable heating element is a radiant heating element

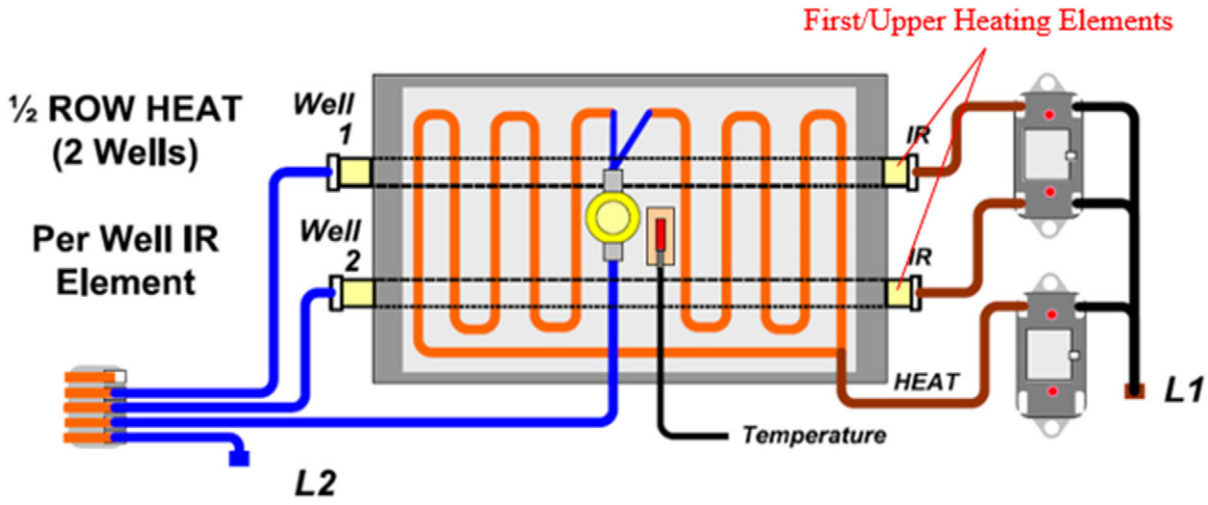
241. As discussed above, the POSA would have found it obvious to combine the teachings and disclosures of the IRHS Documents to arrive at the claimed food holding bin of Claim 1.

242. As already explained with respect to Claim 8, the POSA would recognize that the IRHS Documents disclose that "the first independently controllable heating element is a radiant heating element."

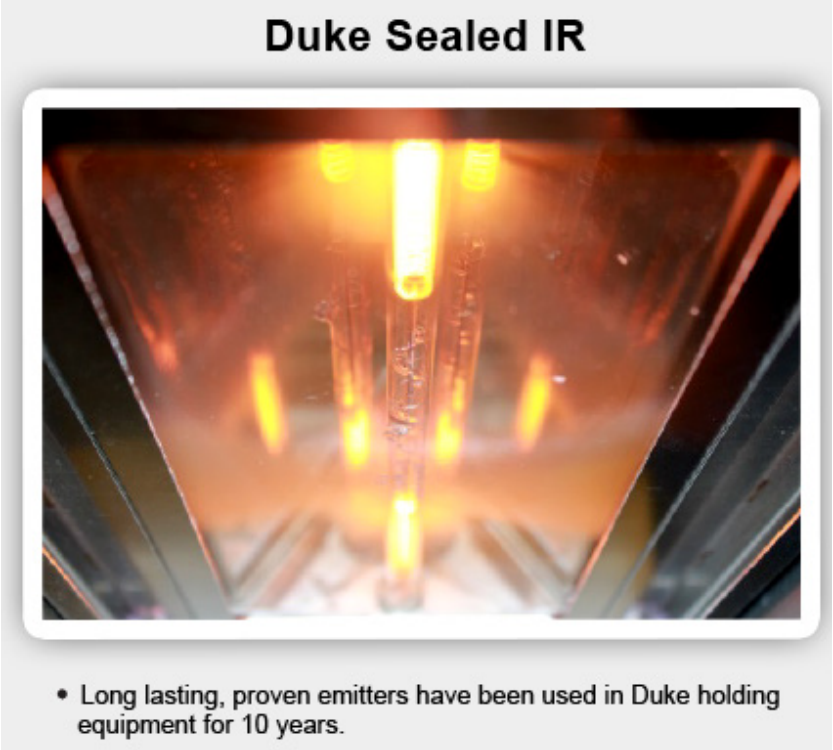
243. As disclosed in the IRHS Documents, the upper (*i.e.*, first) heating elements are IR bulbs that provide infrared radiant heat (*i.e.*, the transfer of thermal energy through infrared spectrum radiation) to the food pans/trays. EX1005: 20 (ref. no. 17 – "BULB – IR"); EX1007: 51 ("top-down InfraRed heat").



EX1005: 8 (annotated).

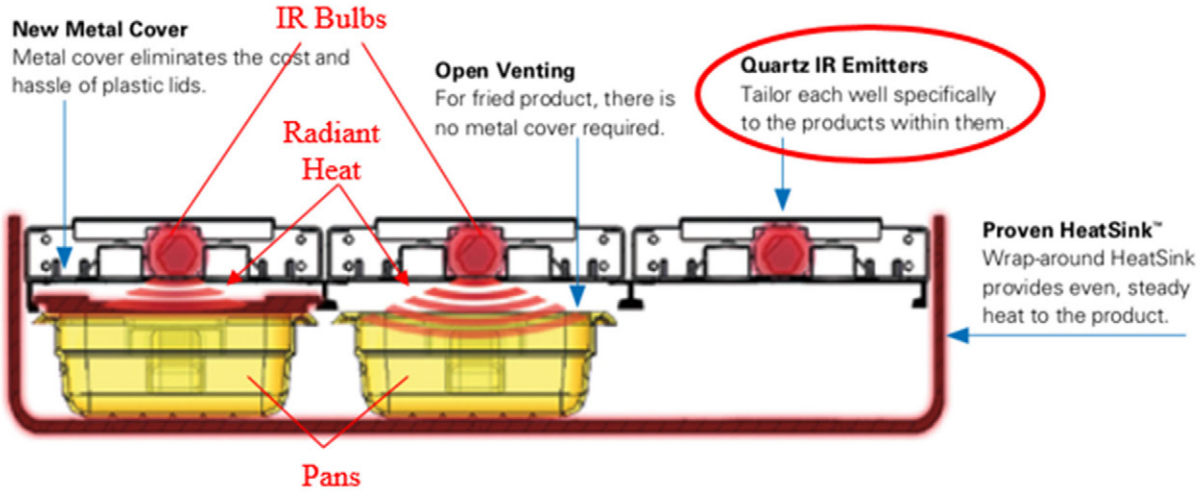


EX1005: 25 (annotated).





EX1007: 11 and 36.



EX1007: 53 (annotated).

244. The POSA would further recognize that according to the disclosed configuration of the IRHS24 Holding Unit, the lower (*i.e.*, second) heating elements would provide heat to the food pans/trays conductively through the substantially planar surfaces, on which the pans rest.

245. 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 10.

K. Claim 11: the food holding bin of claim 1, wherein the substantially planar surface comprises aluminum

246. 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.

247. The POSA would additionally recognize that the IRHS Documents disclose the additional limitation added in Claim 1 further requiring that "the substantially planar surface comprises aluminum."

248. As described in Paragraphs 134-137 above (1.c.3), the IRHS Documents identify the Heatsinks—which the substantially planar surface is part of—as being composed of anodized aluminum. EX1006: 1 ("[a]nodized aluminum HeatSink").

249. Even without such a disclosure, 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").

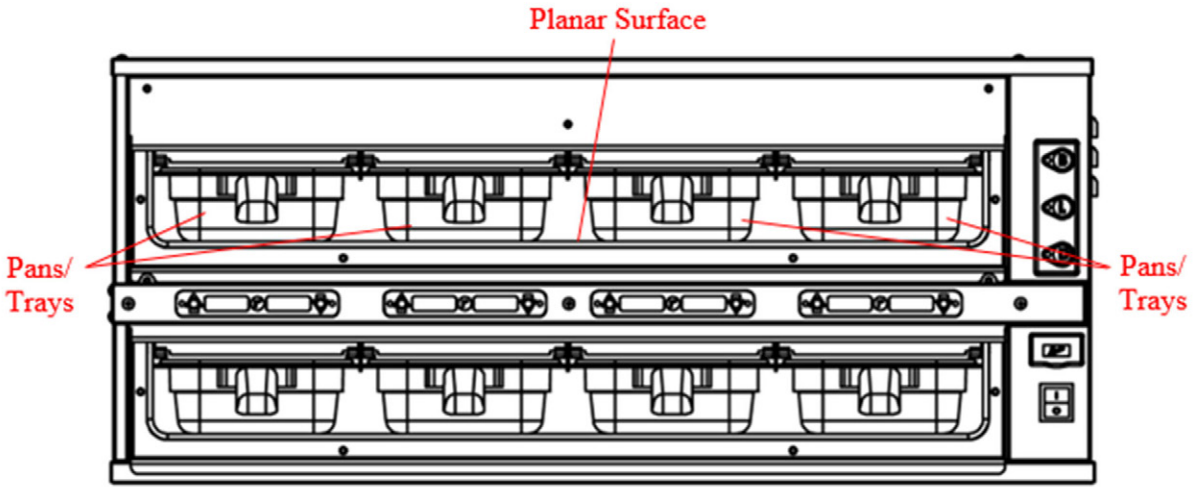
250. Accordingly, the POSA would have found it obvious to combine the teachings and disclosures of the IRHS Documents to arrive at the food holding bin as claimed in Claim 11.

L. Claim 12: The food holding bin of claim 1, further comprising a food holding tray resting on the substantially planar surface.

251. 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.

252. The POSA would additionally recognize that the IRHS Documents disclose the additional limitation added in Claim 12 further requiring "a food holding tray resting on the substantially planar surface."

253. The IRHS24 Holding Unit is disclosed within the IRHS Documents as having food pans/trays resting on the substantially planar surfaces.



EX1005: 8 (annotated).

254. 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 12.

M. Claim 13: The food holding bin of claim 1, the first food holding zone and the second food holding zone being heated to different temperatures.

255. 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.

256. The POSA would additionally recognize that the IRHS Documents disclose the additional limitation added in Claim 13 further requiring that "the first food holding zone and the second food holding zone be[] heated to different temperatures."

257. As already discussed in Paragraphs 139-163, 166-169, and 172-184 above with respect to claim limitations 1.d.2, 1.e.2, and 1.f.2, the upper heating elements (*i.e.*, first and third heating elements) and the lower heating elements (*i.e.*, second and fourth heating elements) are independently controllable from one another via the controller. The first food holding zone has independently controllable first and second heating elements. *See supra* Paragraphs 139-163 (1.d.2). Thus, the second food holding zone has independently controllable third and fourth heating elements. *See supra* Paragraphs 166-169 (1.e.2).

258. The IRHS Documents teach that the controller of IRHS24 Holding Unit operates the heating elements of the respective food holding zones to heat each of the respective heating/holding zones to different temperatures based on the different heat settings for different food types in the food holding zones.

259. Specifically, 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").

260. The temperature settings for each pan location/heating zone are thus 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.

261. It would have been obvious to the POSA per the IRHS Documents to heat 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 (providing 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").

262. 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 13.

N. Independent Claim 14

14.P-14.f.2

263. Limitations 14.P-14.f.2 of independent claim 14 are identical to limitations 1.P-1.f.2 of independent claim 1.

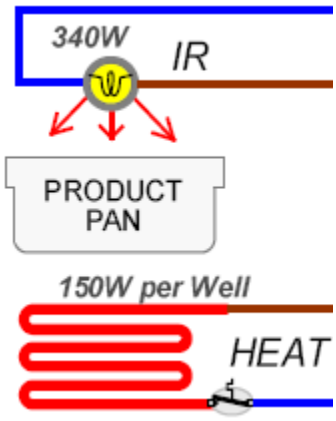
264. For the reasons set forth in Paragraphs 128-184 (1.P-1.f.2), the IRHS Documents also disclose the limitation 14.P-14.f.2.

14.g: wherein the first independently controllable heating element is adapted to output more heat energy than the second heating element

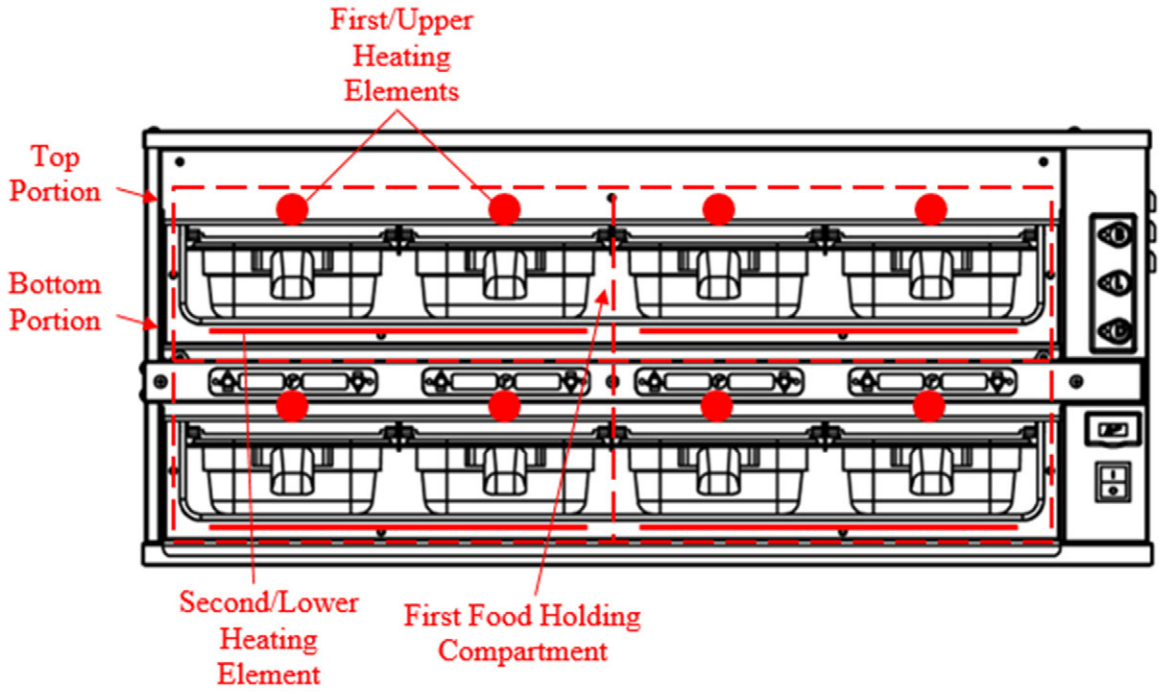
265. The POSA would recognize that the IRHS Documents disclose that "the first independently controllable heating element is adapted to output more heat energy than the second heating element."

266. As explained in Paragraphs 139-163 and 172-184 above (1.d.2 and 1.f.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.

267. 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).

268. 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.

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 26.

O. Claim 15

15.a.1: the food holding bin of claim 14, wherein the first and second food holding compartments each have a second opening, uncovered and located at the rear face of the chassis

270. 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 14.

271. The additional "wherein the first and second food holding compartments each have a second opening, uncovered and located at the rear face of the chassis" limitation added in Claim 15.a.1 is identical in claim scope to the limitation added in Claim 4.a.1.

272. Accordingly, this limitation is disclosed by the IRHS Documents as explained in Paragraphs 194-206 above.

15.a.2: the substantially planar bottom surface is configured to allow food items to be placed on the substantially planar surface through the first opening and removed from the planar and bottom surface from the second opening

273. The additional "the substantially planar bottom surface is configured to allow food items to be placed on the substantially planar surface through the first opening and removed from the planar and bottom surface from the second

opening" limitation added in Claim 15.a.2 is identical in claim scope to the limitation added in Claim 4.a.2.

274. Accordingly, this limitation is disclosed by the IRHS Documents as explained in Paragraphs 207-214 above.

P. Claim 17: the food holding bin of claim 14, wherein both the first and second independently controllable heating elements comprise a resistive wire

275. 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 14.

276. The additional "wherein both the first and second independently controllable heating elements comprise a resistive wire" limitation added in Claim 17 is identical in claim scope to the limitation added in Claim 6.

277. Accordingly, this limitation is disclosed by the IRHS Documents as explained in Paragraphs 219-224 above.

Q. Claim 18: the food holding bin of claim 14, wherein the substantially planar surface is substantially free of any dividing walls or other structure between the first, second, third, and fourth food holding bay

278. 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 14.

279. The additional "wherein the substantially planar surface is substantially free of any dividing walls or other structure between the first, second, third, and fourth food holding bay" limitation added in Claim 18 is identical in claim scope to the limitation added in Claim 7.

280. Accordingly, this limitation is disclosed by the IRHS Documents as explained in Paragraphs 225-228 above.

R. Claim 19: the food holding bin of claim 14, wherein the first independently controllable heating element comprises a radiant heating source and the second independently controllable heating element provides heat energy through conduction

281. 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 14.

282. The additional "wherein the first independently controllable heating element comprises a radiant heating source and the second independently controllable heating element provides heat energy through conduction" limitation added in Claim 19 is identical in claim scope to the limitation added in Claim 8.

283. Accordingly, this limitation is disclosed by the IRHS Documents as explained in Paragraphs 225-235 above.

S. Independent Claim 21

21.P-21.f.2

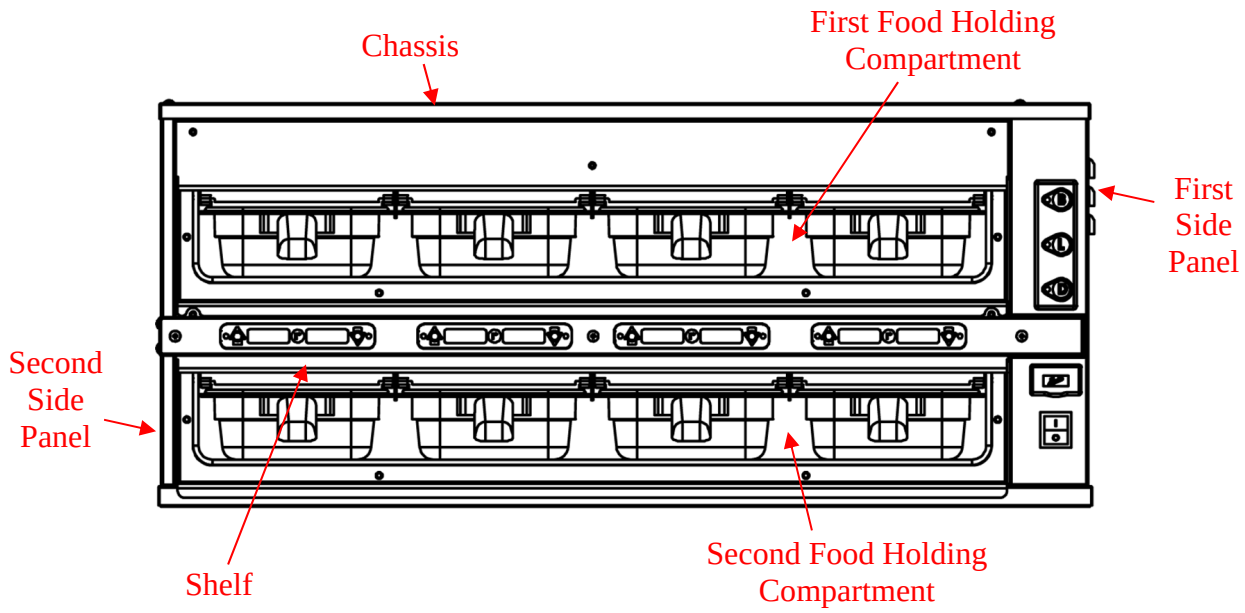
284. Limitations 21.P-21.f.2 of independent claim 21 are identical to limitations 1.P-1.f.2 of independent claim 1.

285. For the reasons set forth in Paragraphs 128-184 (1.P-1.f.2), the IRHS Documents also disclose the limitation 21.P-21.f.2.

21.g.1: further comprising a second food holding compartment disposed below the first food holding compartment within the chassis, the second food holding compartment being defined by the first side panel, the second side panel, and the shelf

286. The POSA would recognize that the IRHS Documents disclose "a second food holding compartment disposed below the first food holding compartment within the chassis, the second food holding compartment being defined by the first side panel, the second side panel, and the shelf."

287. The chassis of the IRHS units have a second food holding compartment within the chassis below the first food holding compartment. As annotated below using the IRHS24 Holding Unit, this second food holding compartment is defined by the first side panel, the second side panel, and the shelf.



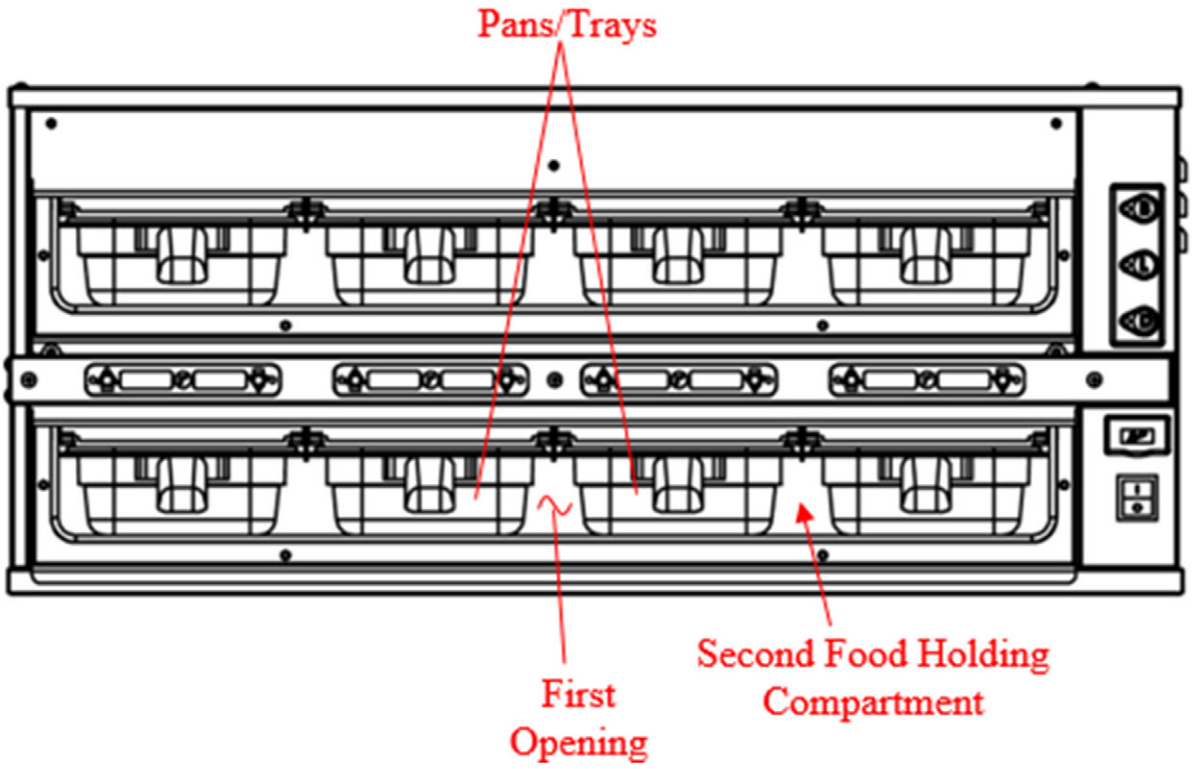
EX1005: 8 (annotated)

21.g.2: the second food holding compartment having a first opening, the first opening of the second food holding compartment being configured to allow food items to be placed into and removed from the food holding compartment

288. The POSA would recognize that the IRHS Documents disclose the second food holding compartment as "having a first opening, the first opening of the second food holding compartment being configured to allow food items to be placed into and removed from the food holding compartment."

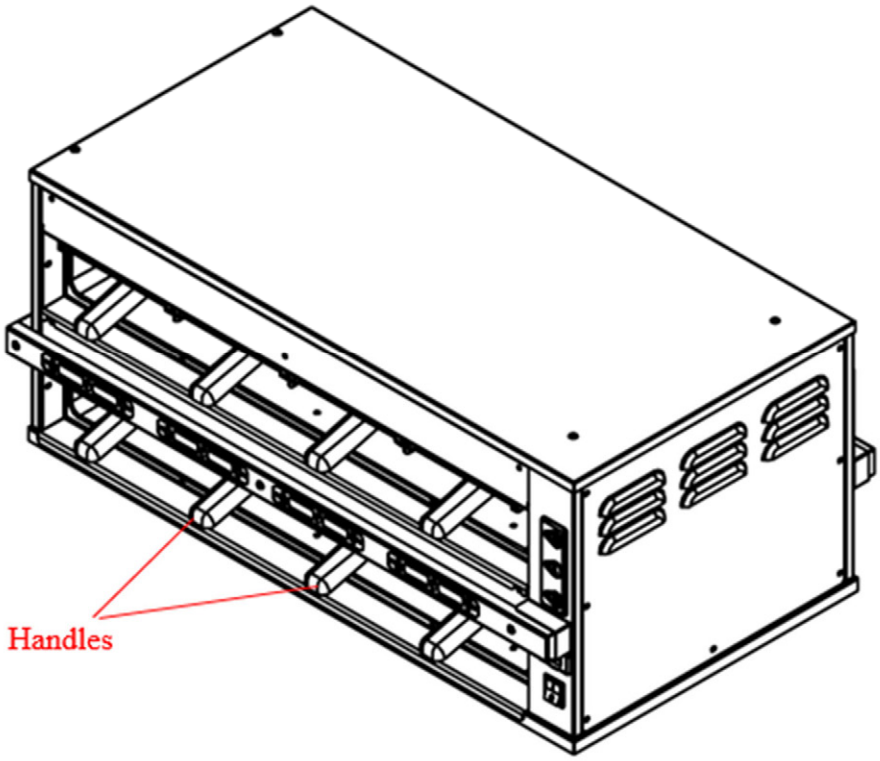
289. As annotated below using the IRHS24 Holding Unit, the second food holding compartment has a first opening. The first opening is larger than the food pans and allows the food pans, and thus food contained therein, to pass

therethrough to be placed into and removed from the second food holding compartment.



EX1005: 8 (annotated).

290. 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).

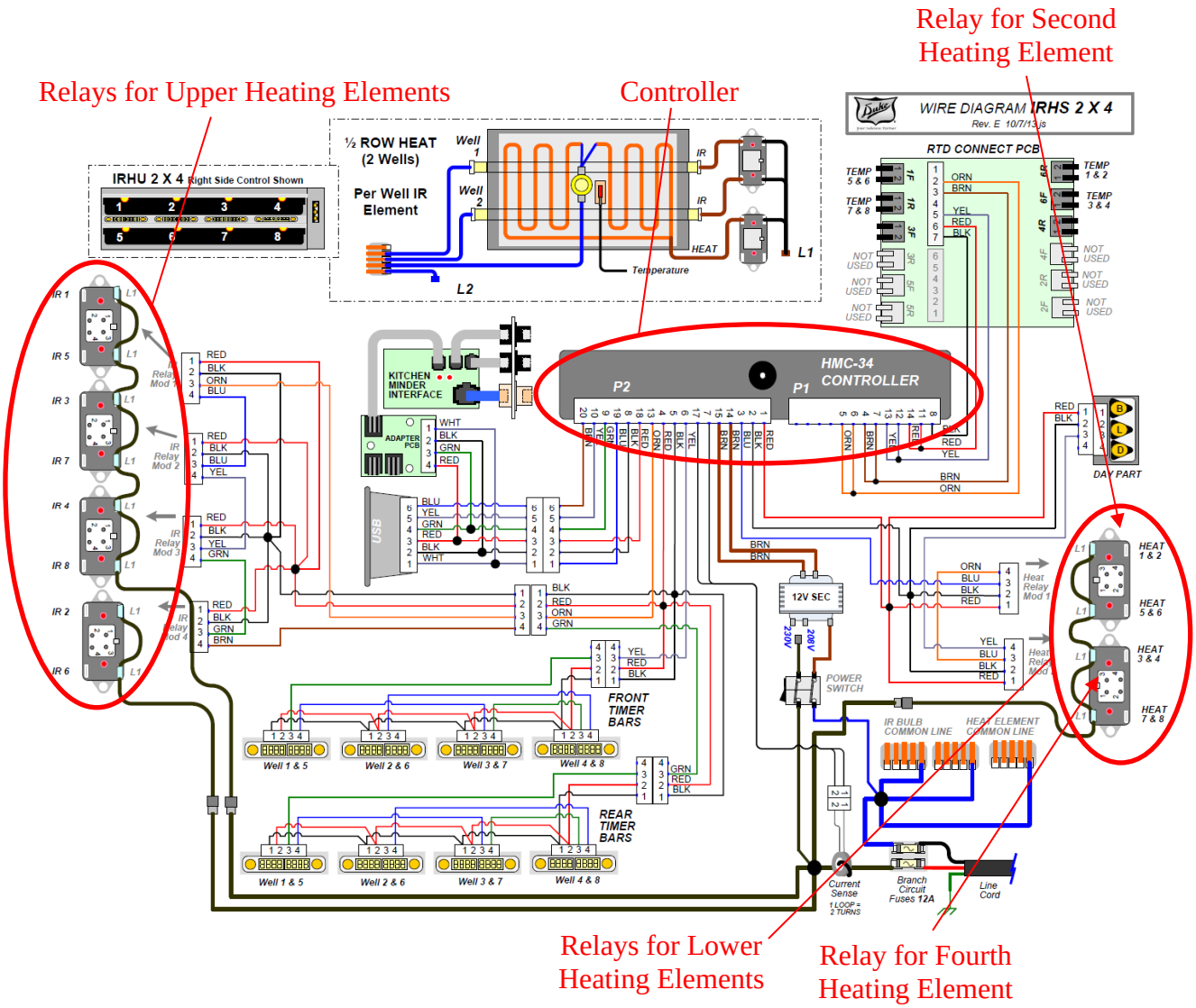


EX1007: 52.

21.h: 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

291. 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."

292. For example, as shown in the wiring diagram, the IRHS24 Holding Unit is disclosed as having a controller operatively connected to the 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.

293. As explained in Paragraphs 139-163 and 166-169 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.

294. 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").

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

296. 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