("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").

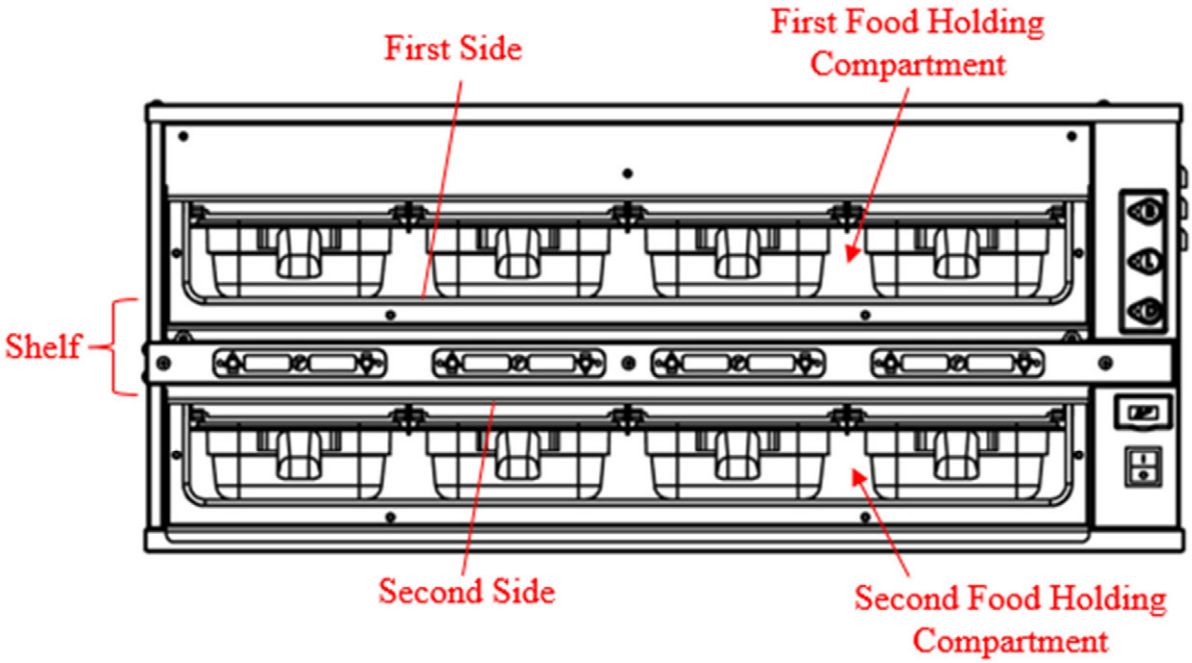
297. Based on the food product types assigned to the pan locations in the different zones, the controller independently controls the heating elements (*e.g.*, second and fourth heating elements) of each food holding zone to achieve the zone's set food holding temperature.

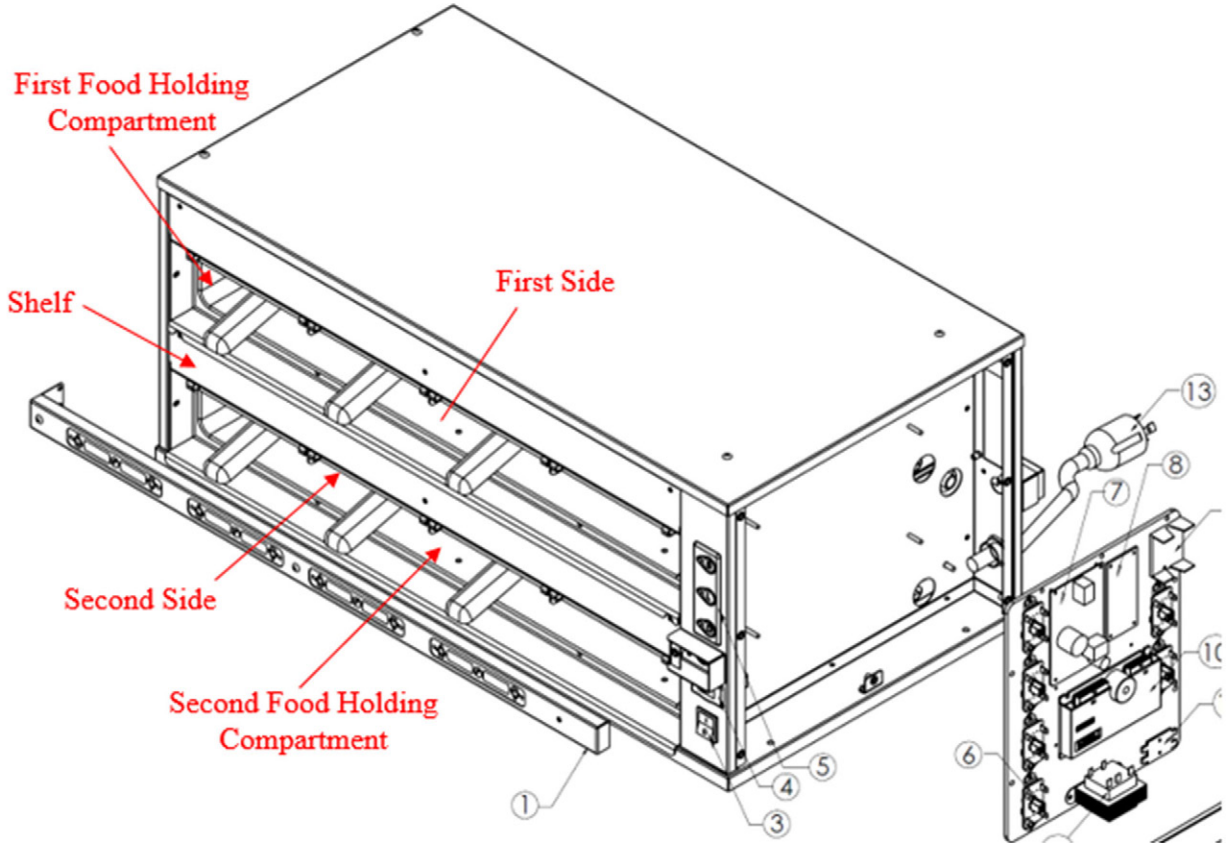
21.i.1: wherein the shelf is located between the first and second food holding compartments, the shelf comprises a first side and a second side, the first side facing into the first food holding compartment, the second side facing into the second food holding compartment

298. The POSA would recognize that the IRHS Documents disclose that "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."

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

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





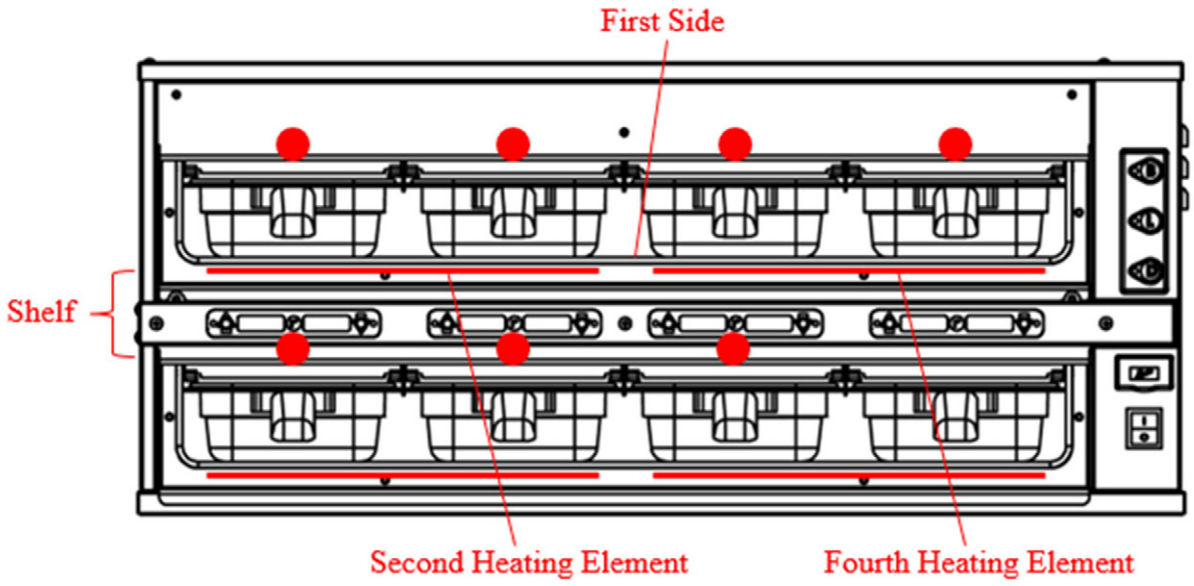
EX1005: 8, 20 (annotated).

21.i.2: the second and fourth heating elements are disposed in the shelf and in thermal communication with the first side

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

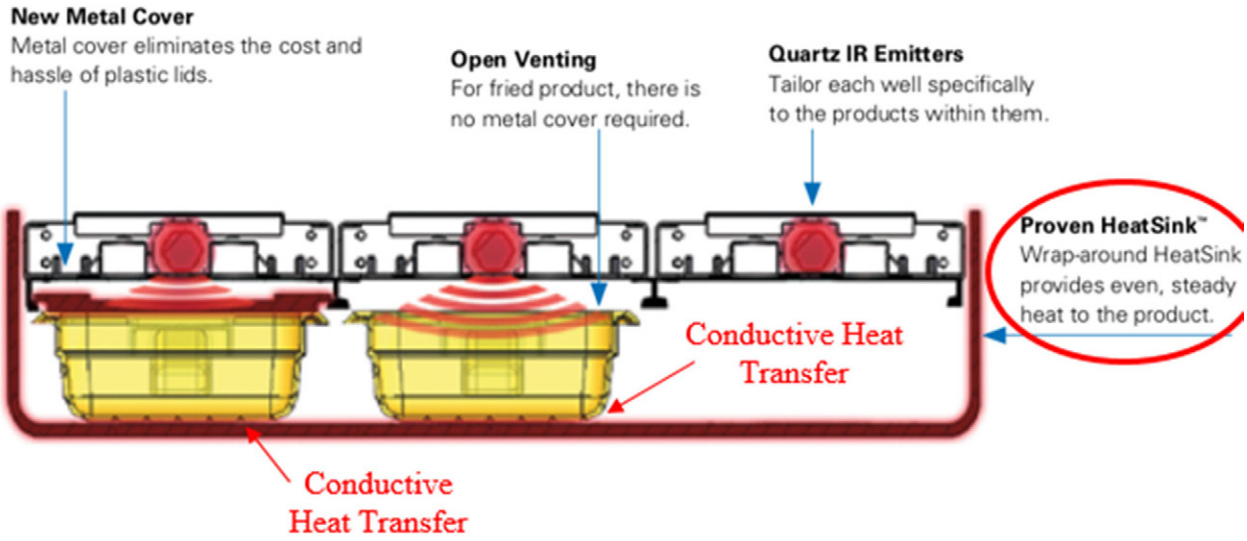
301. As annotated below using the IRHS24 Holding Unit, the second heating element (*i.e.*, the lower heating element of the first food zone) and fourth heating element (*i.e.*, the lower heating element of the second food zone) are disposed in the shelf, below the planar surface forming the first side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

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



EX1005: 8 (annotated).

302. The second and fourth heating elements are affixed to the HeatSink associated with the first food holding compartment that provides heat to the pans from underneath the pans. EX1007: 51 ("[p]revious generations of the Duke holding units contained only HeatSink, heating from below").



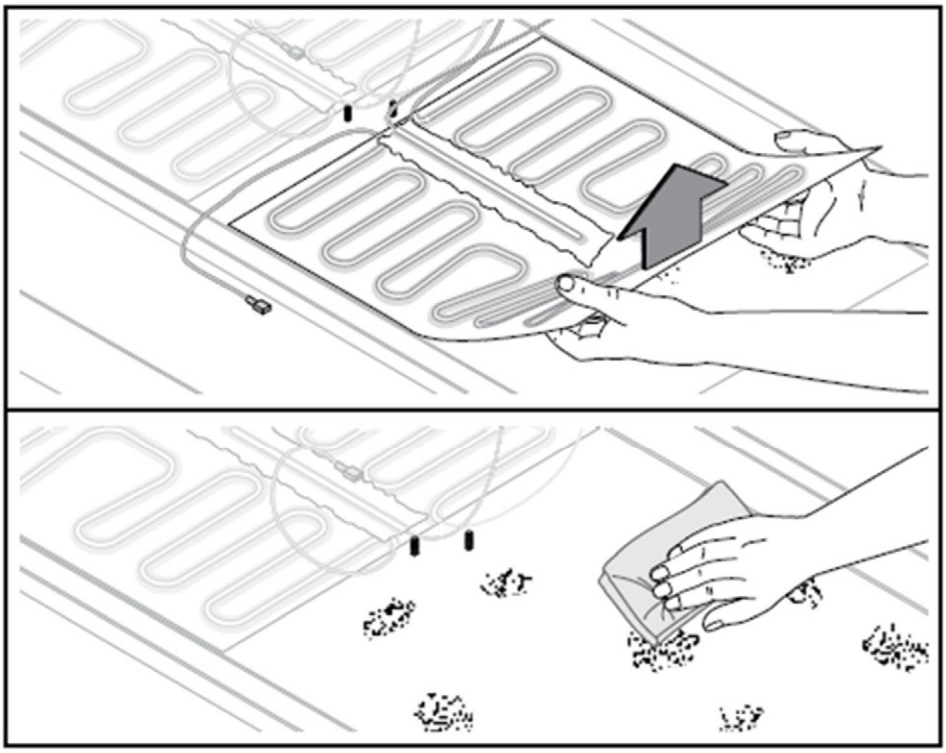
EX1007: 53 (annotated).

HEAT ELEMENTS

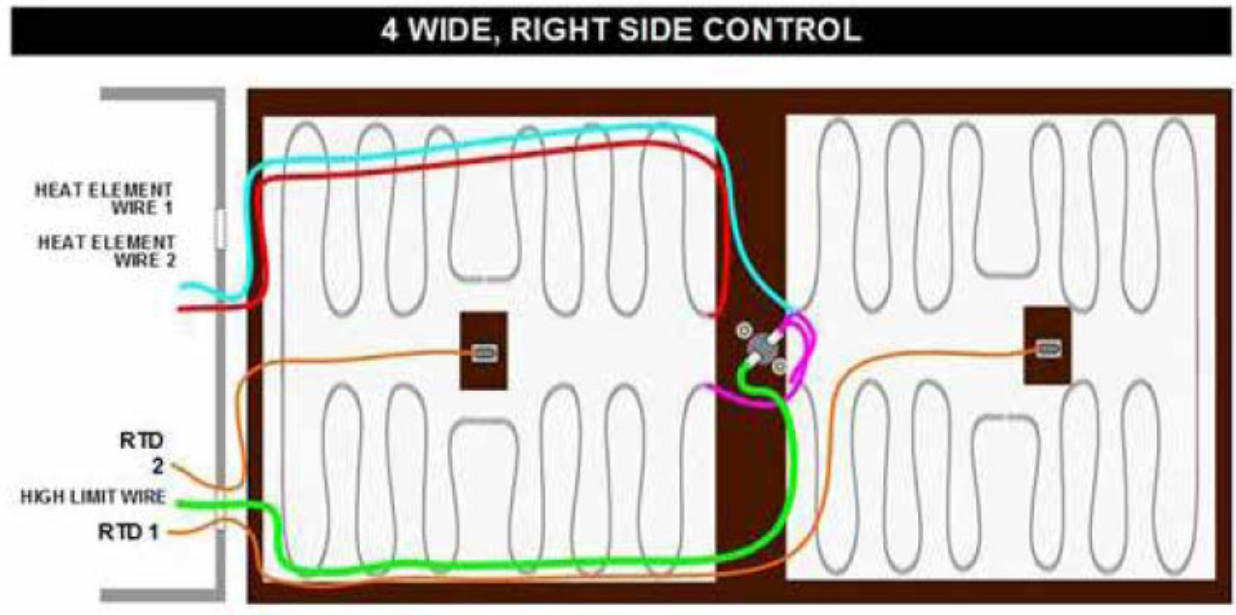
The Heat Elements provide the heating required to keep the heating wells at proper operating temperatures. The quantity varies depending on model and are affixed to the bottom of each Heat Sink.

EX1008: 21.

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



EX1008: 22.



EX1008: 58.

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

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

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

305. As explained in Paragraphs 172-184 above (1.f.2), the first/upper compartment's lower heating elements (*e.g.*, the second and fourth heating elements) are independently controllable from one another via the controller. EX1005: 16 ("[t]his new technology allows you to precisely control the environment in each pan, allowing customized settings for each food product" and "each food product has a tailored HeatSink temperature"), 25; EX1006: 1 ("[z]oned bottom heat"); EX1007: 53 ("Precise holding for each product in an optimized environment tailored to that product" and "Total well independence allows freedom in product placement in the IRHS").

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

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

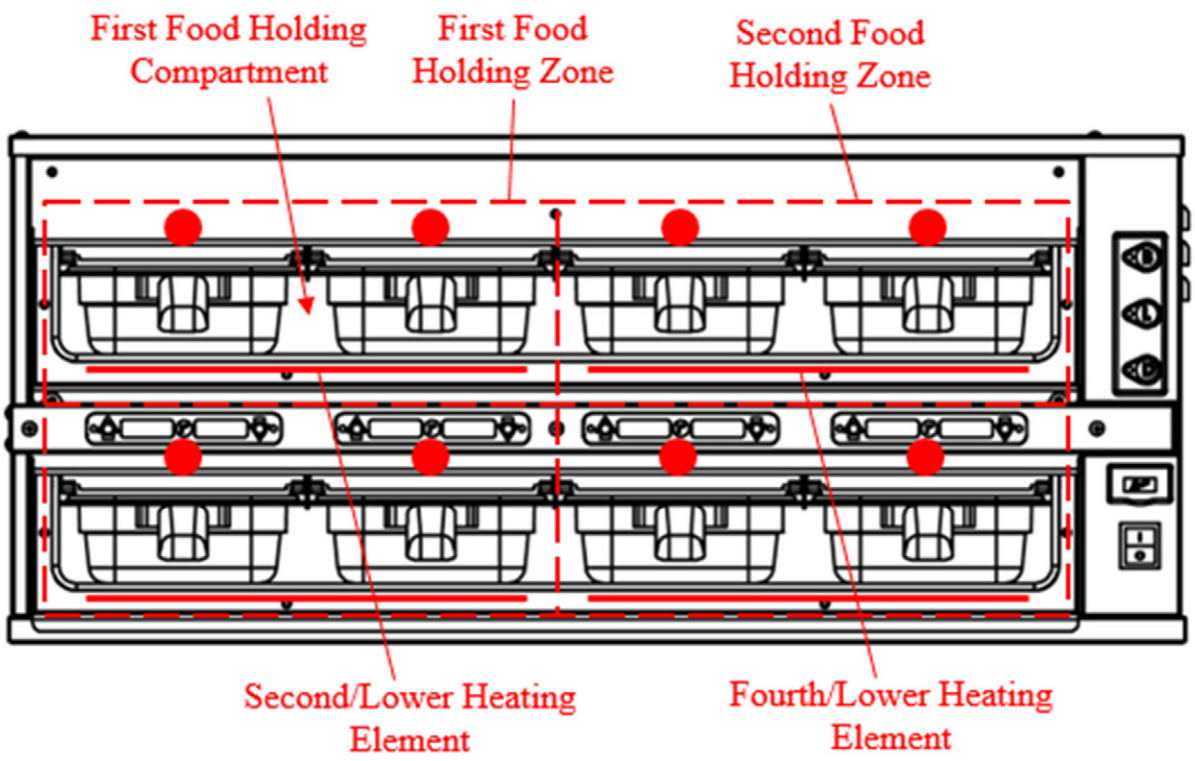
308. The IRHS Documents expressly teach the POSA to customize the temperature settings by food type and teach holding zones having different food

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

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



EX1007: 12.



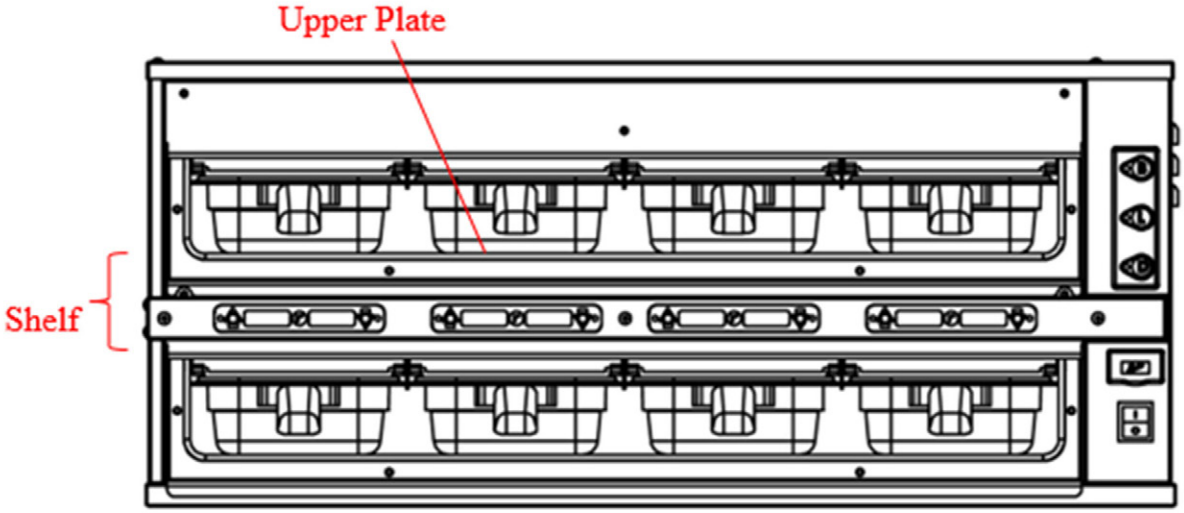
EX1005: 8 (annotated).

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

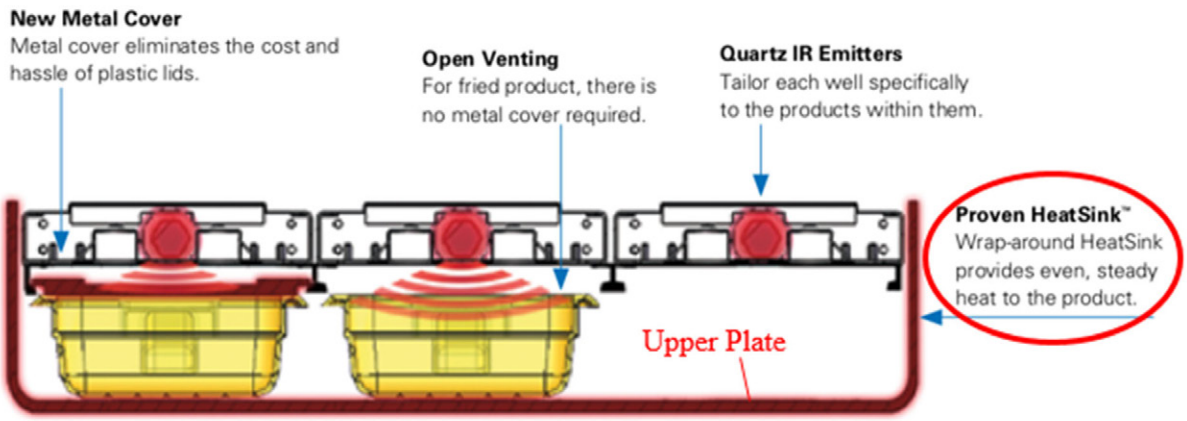
21.j.1: wherein the shelf comprises an upper thermally conductive plate, a lower thermally conductive plate, a fifth heating element, and a sixth heating element

311. The POSA would recognize that the IRHS Documents disclose that "the shelf comprises an upper thermally conductive plate, a lower thermally conductive plate, a fifth heating element, and a sixth heating element"

312. As annotated below using the IRHS24 Holding Unit, the shelf has an upper plate that forms the first planar surface of the HeatSink and is made of aluminum, a thermally conductive material. EX1006: 1 ("[a]nodized aluminum HeatSink"); *see also supra* Paragraphs 134-137 (Claim 1.c.3).

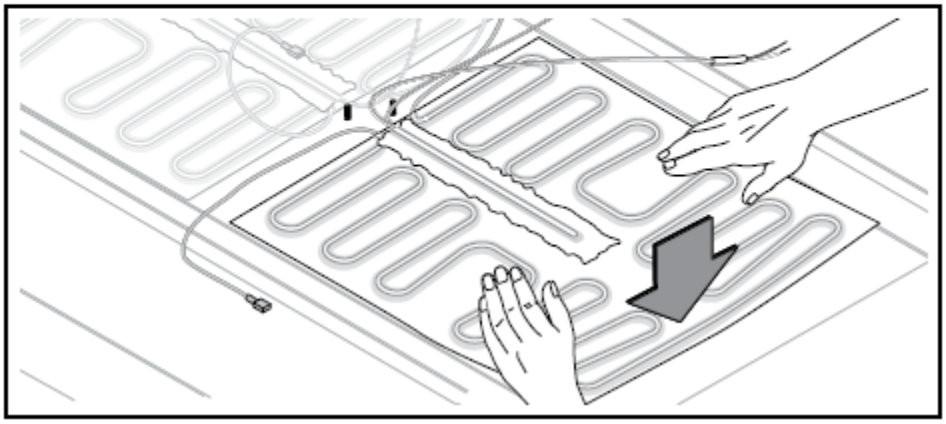


EX1005: 8 (annotated).



EX1007: 53 (annotated).

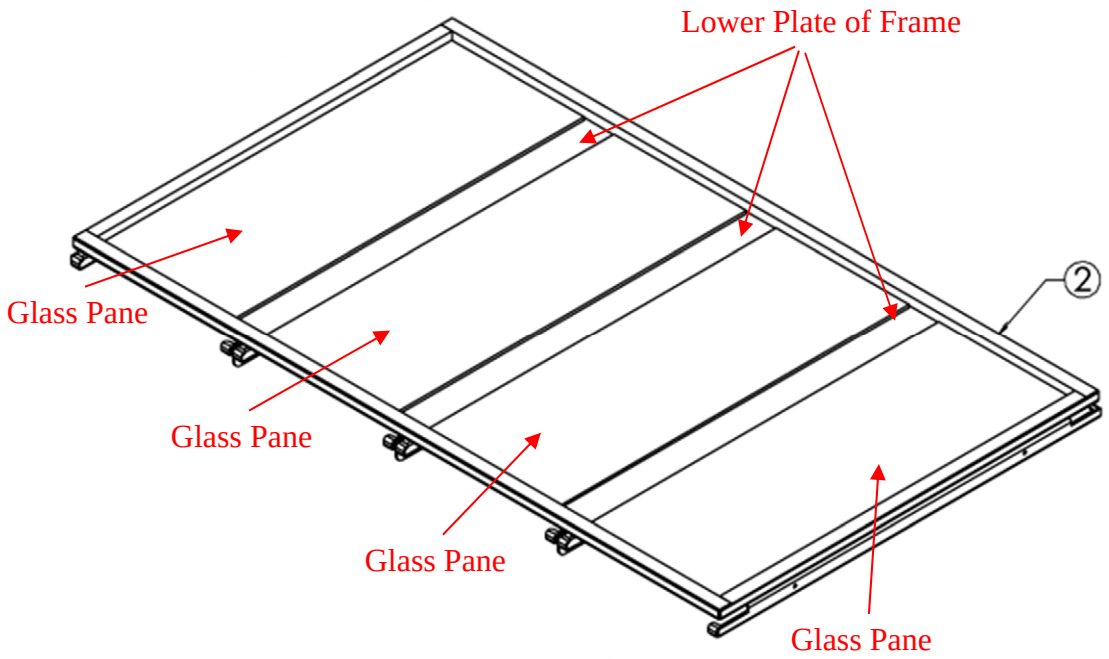
14. Peel the adhesive tape cover off the replacement Heat Element and press in place on the heat sink, ensuring all air bubbles are smoothed out.



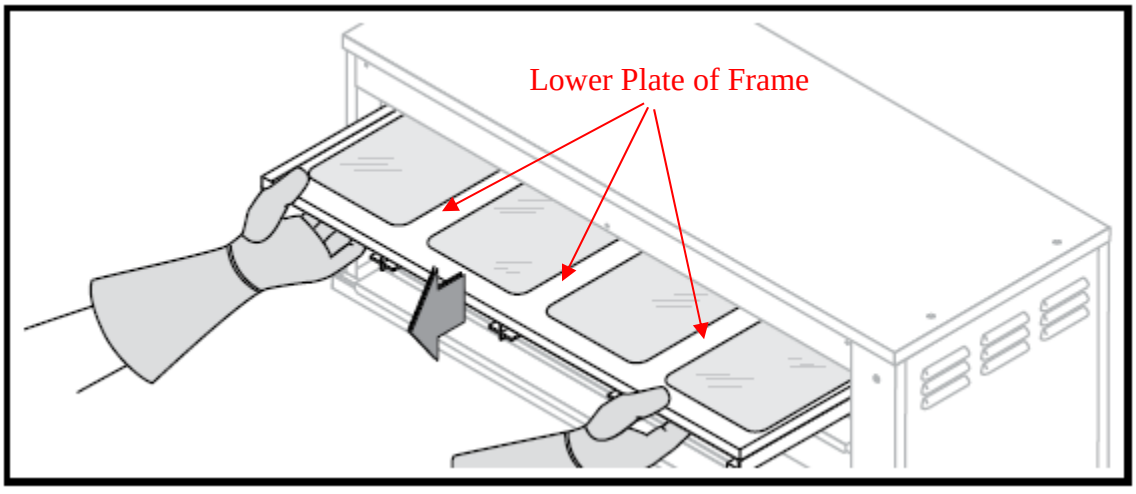
EX1008: 23.

313. The shelf comprises a glass support frame including a flat sheet metal plate with IR window cutouts. EX1005: 14 ("[f]ully clean upper glass surfaces by hand, as well as lower heat sink surfaces" and "fried food product can accumulate and bake on to the upper glass surfaces of the compartments"), 19-20 (Ref. No. 2 – "IR GLASS FRAME – 4 WIDE" and the table stating there are two of these for the

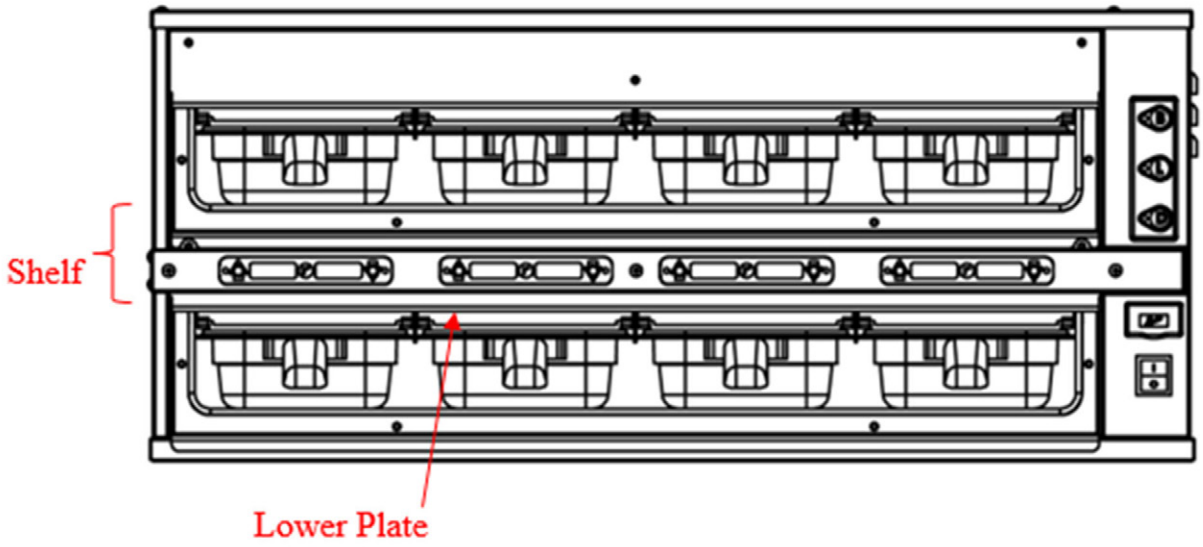
IRHS24). The sheet metal plate spans the shelf's width/depth, forms the shelf's bottom surface, carries the glass panes, and supports the lid support shelves.



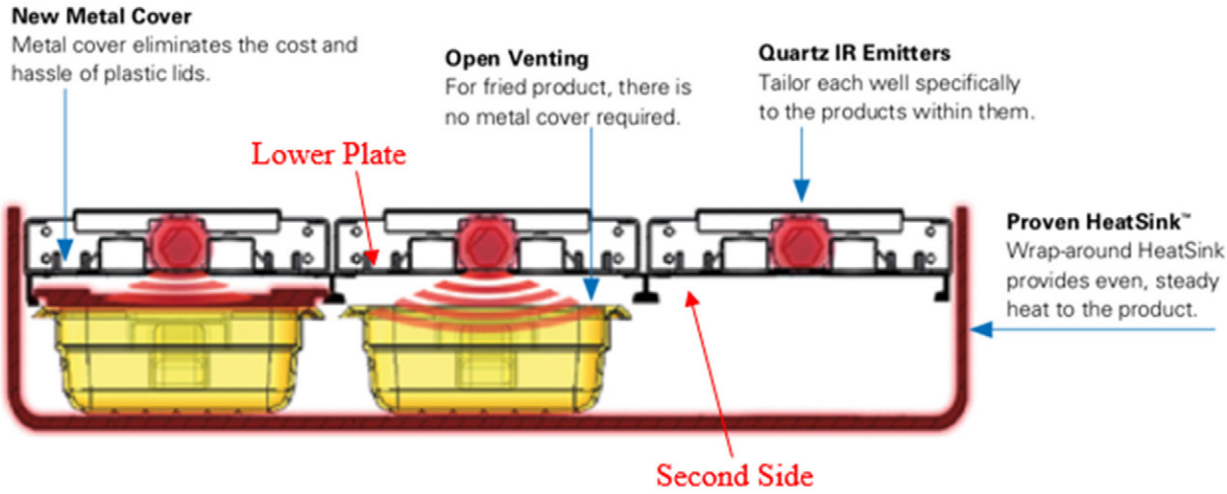
EX1005: 19 (annotated).



EX1008: 25 (annotated).



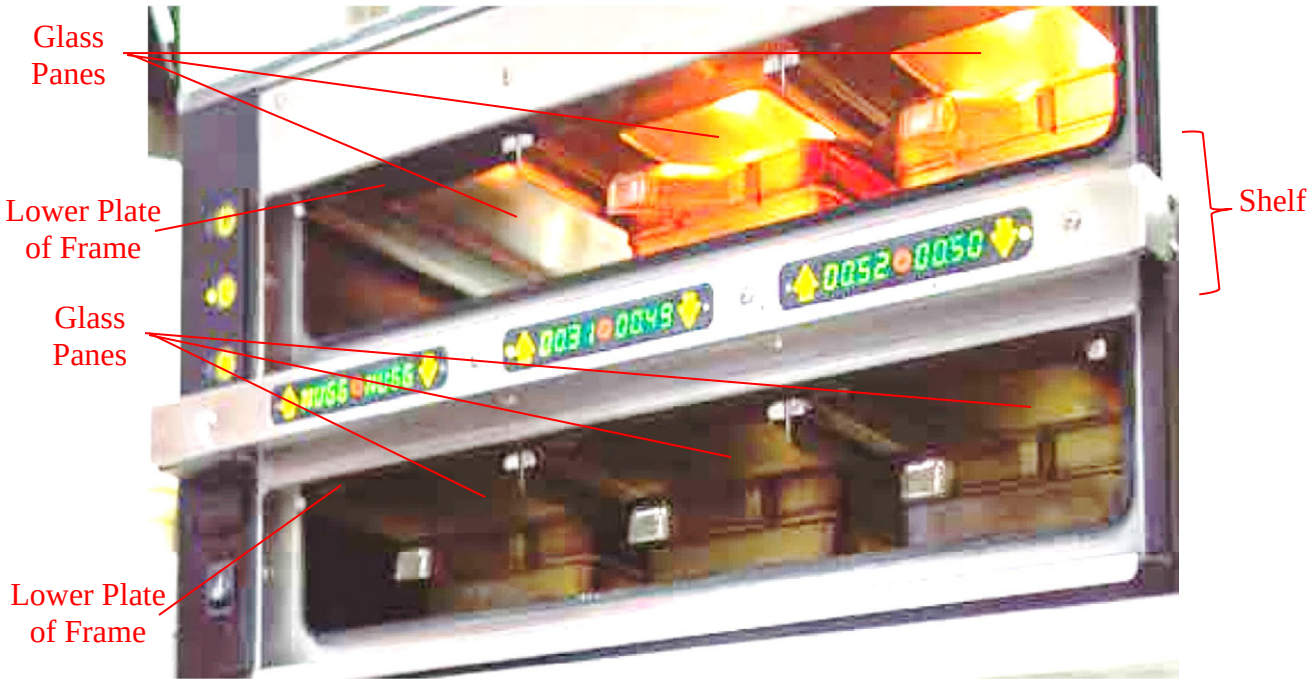
EX1005: 8 (annotated).



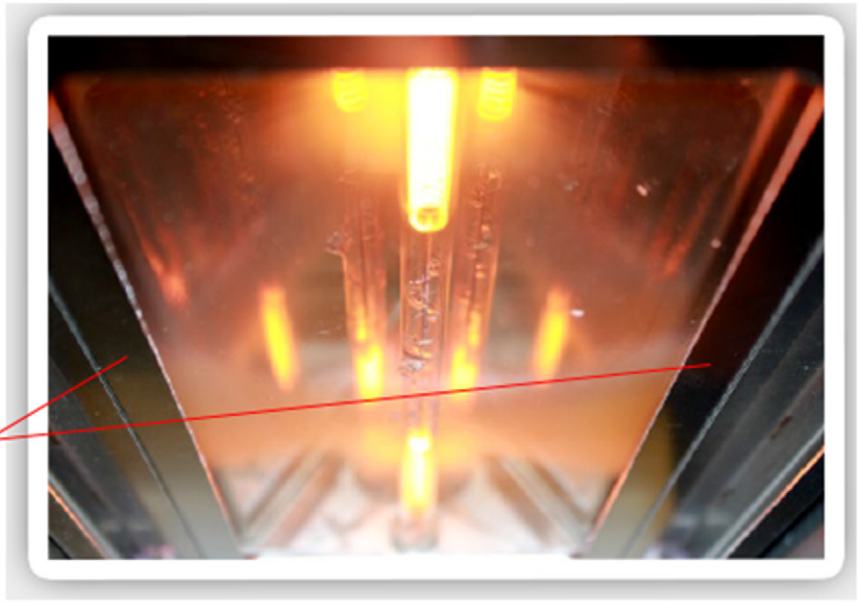
EX1007: 53 (annotated).



EX1007: 32 (annotated).



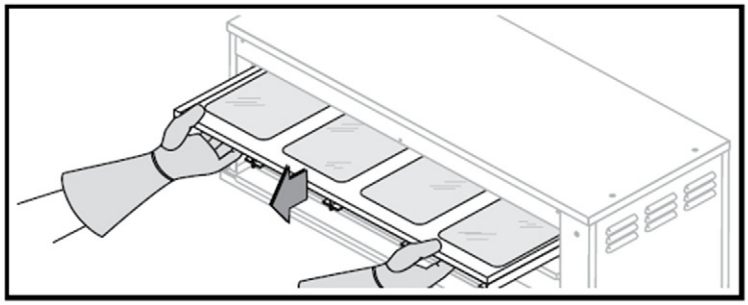
EX1007: 36 (annotated).



EX1007: 11 (annotated).

314. The sheet metal plate is made of thermally conductive material. EX1008: 25, 27 (warning to "make sure the glass has cooled off sufficiently to avoid burns").

NOTE: Make sure the glass has cooled off sufficiently to avoid burns to bare skin. Use gloves if necessary.

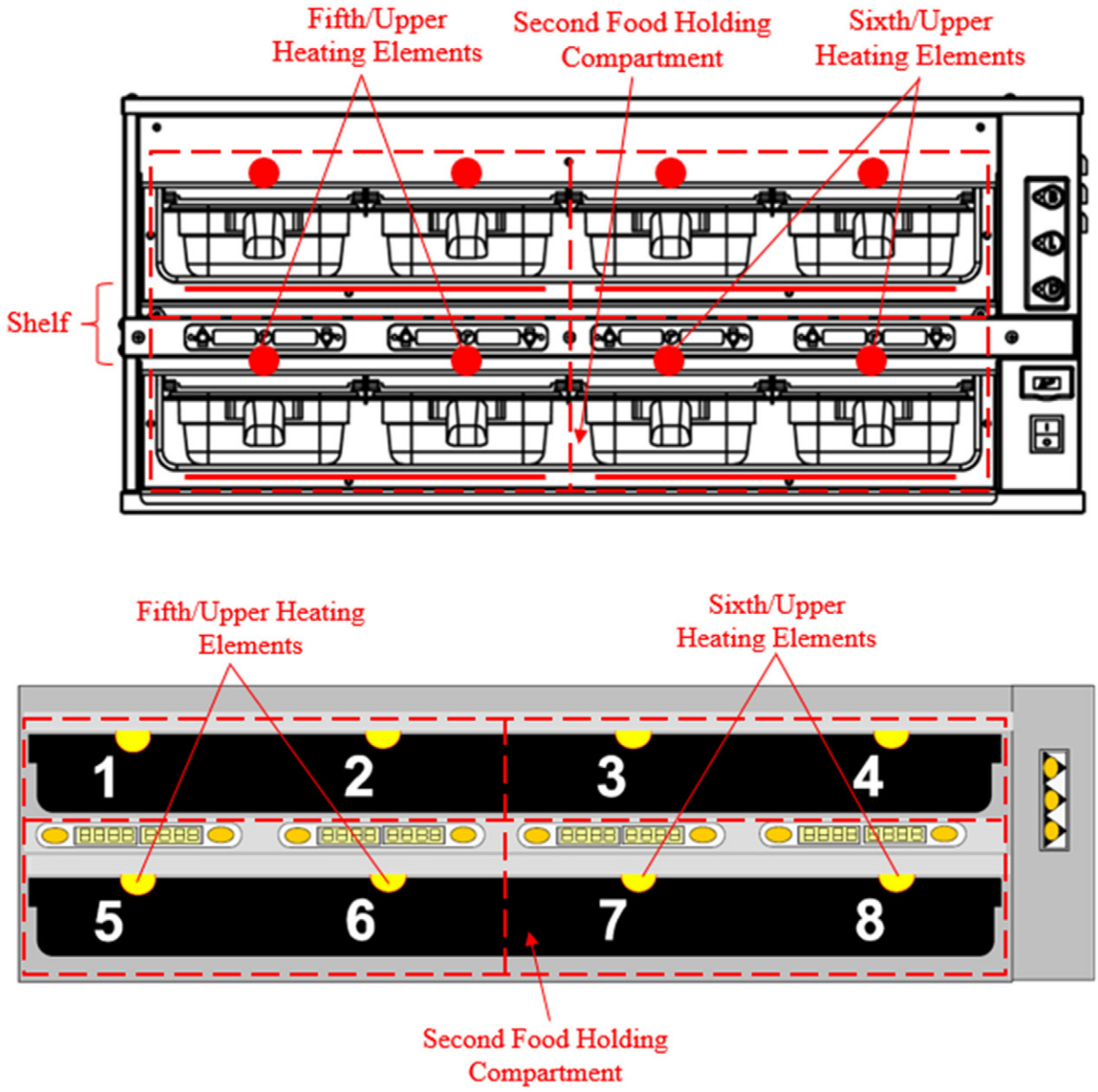


EX1008: 27 (annotated).

315. Moreover, it would have been obvious to make the plate out of stainless steel or another thermally conductive metal, as taught by the IRHS Documents. EX1005: 13 ("Stainless Steel"); EX1006: 1 ("Stainless steel"); EX1007: 58 ("Standard Stainless"). The IRHS Documents teach stainless steel is good material for constructing components of the IRHS24 Holding Unit, providing durable construction, easier cleaning, and rust resistance. EX1005: 13 ("metal will not corrode" and "[r]outine cleaning of stainless steel can be done with soap and water"); EX1007: 53 ("built to last with heavy, durable construction" and "no cracks with the new stainless steel faceplate"). There would have been a

reasonable expectation of success given the IRHS Documents teach stainless steel construction.

316. As annotated below using the IRHS24 Holding Unit, the IRHS Documents disclose that the shelf further includes fifth and sixth heating elements in the form of IR bulbs for heating the zones of the second/lower compartment.

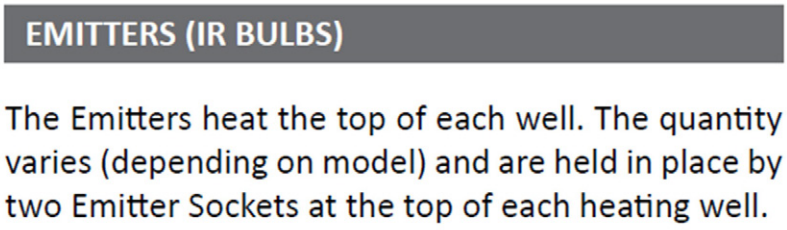


EX1005: 8, 25 (annotated).

21.j.2: the fifth and sixth heating elements being disposed between the upper thermally conductive plate and the lower thermally conductive plate

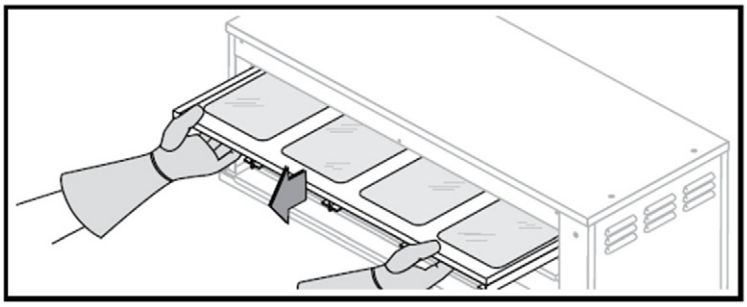
317. The POSA would recognize that the IRHS Documents disclose that "the fifth and sixth heating elements [are] disposed between the upper thermally conductive plate and the lower thermally conductive plate"

318. The IRHS Documents disclose that the fifth and sixth heating elements (IR bulbs) are disposed between the upper and lower plates.



5. Slide the IR glass frame assembly out of the liner deck assembly below the Emitter to be replaced.

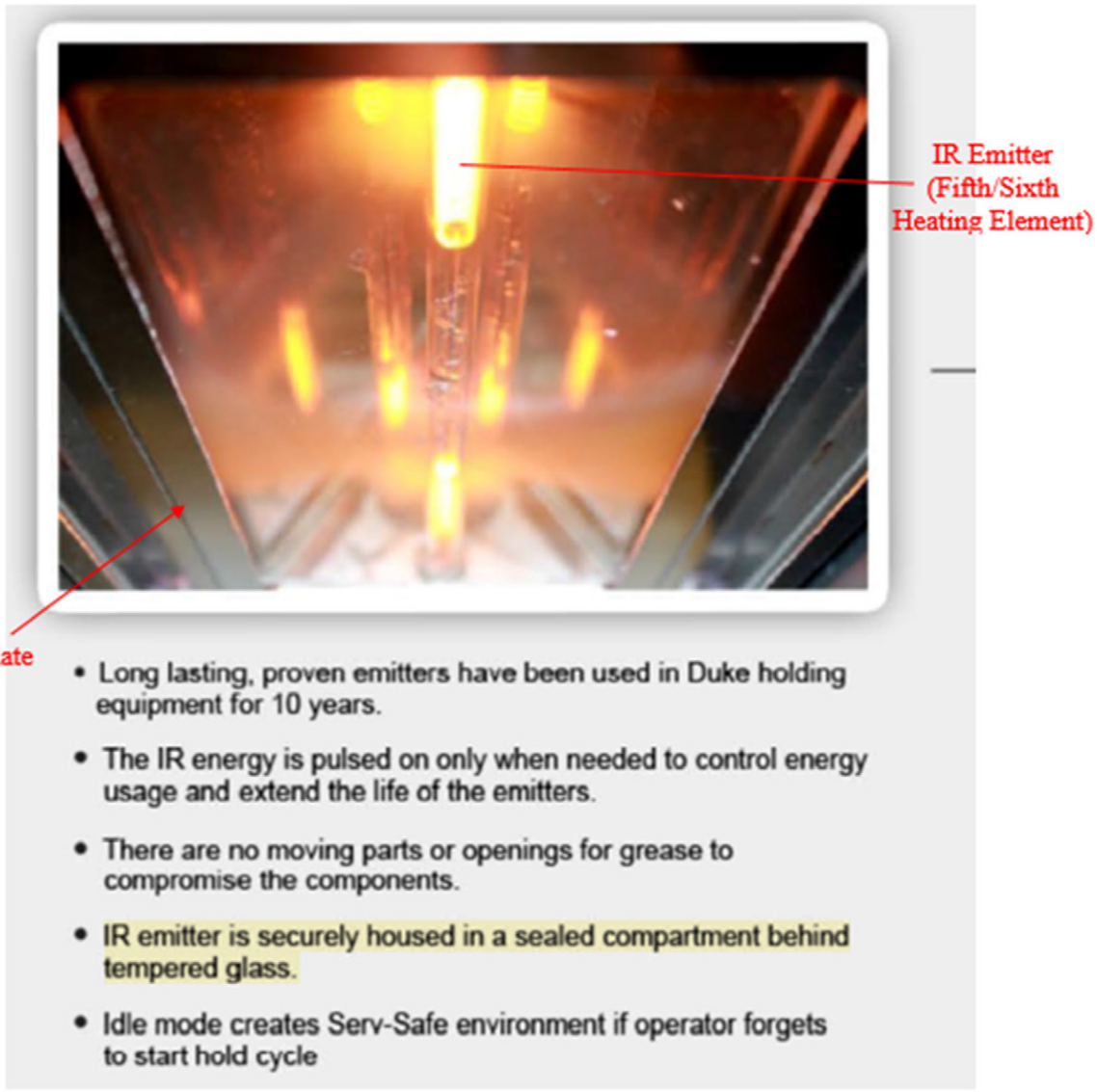
NOTE: Make sure the glass has cooled off sufficiently to avoid burns to bare skin. Use gloves if necessary.



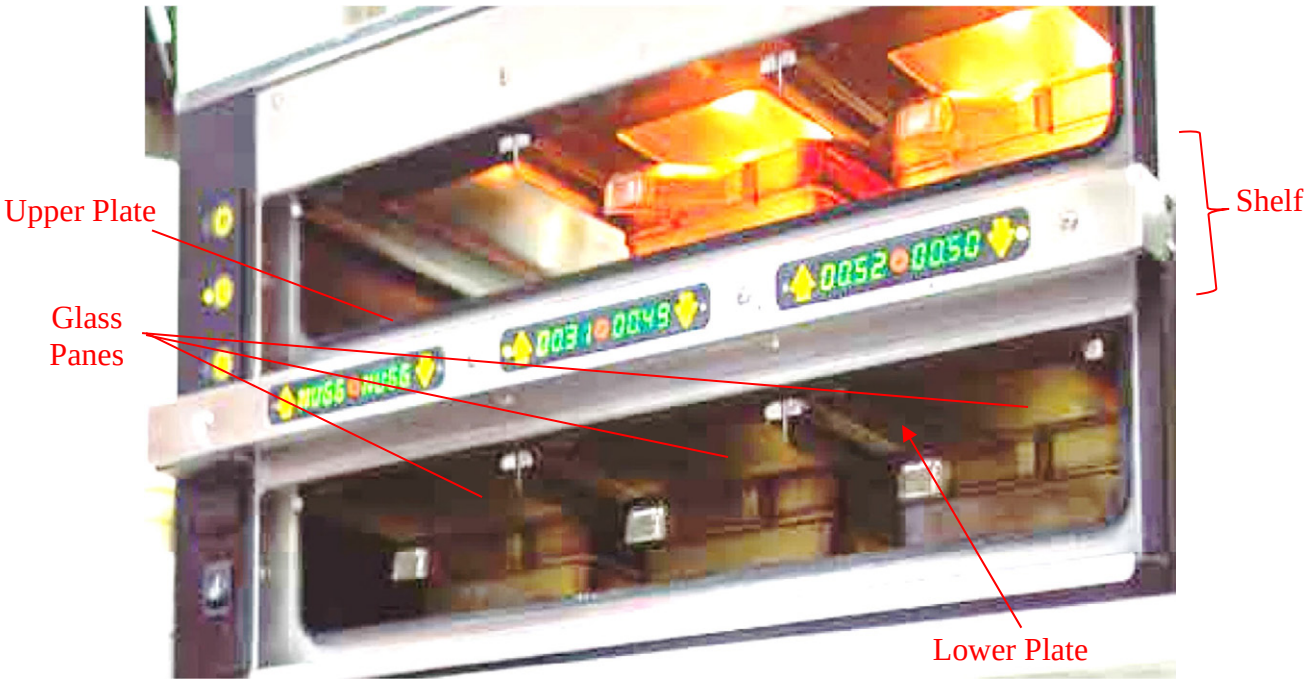
6. The Emitter Sockets are spring-loaded. Push the Emitter towards the rear socket until the Emitter is free from the front socket and carefully remove.

EX1008: 27 (annotated).

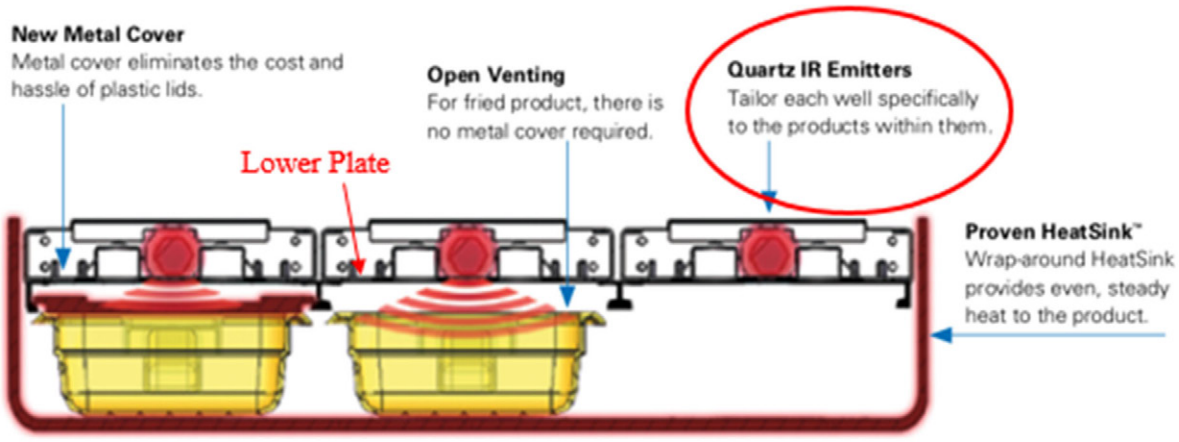
319. As shown in the images below, the IR bulbs are disposed above the IR glass support frame's sheet metal plate and below the HeatSink (upper plate).



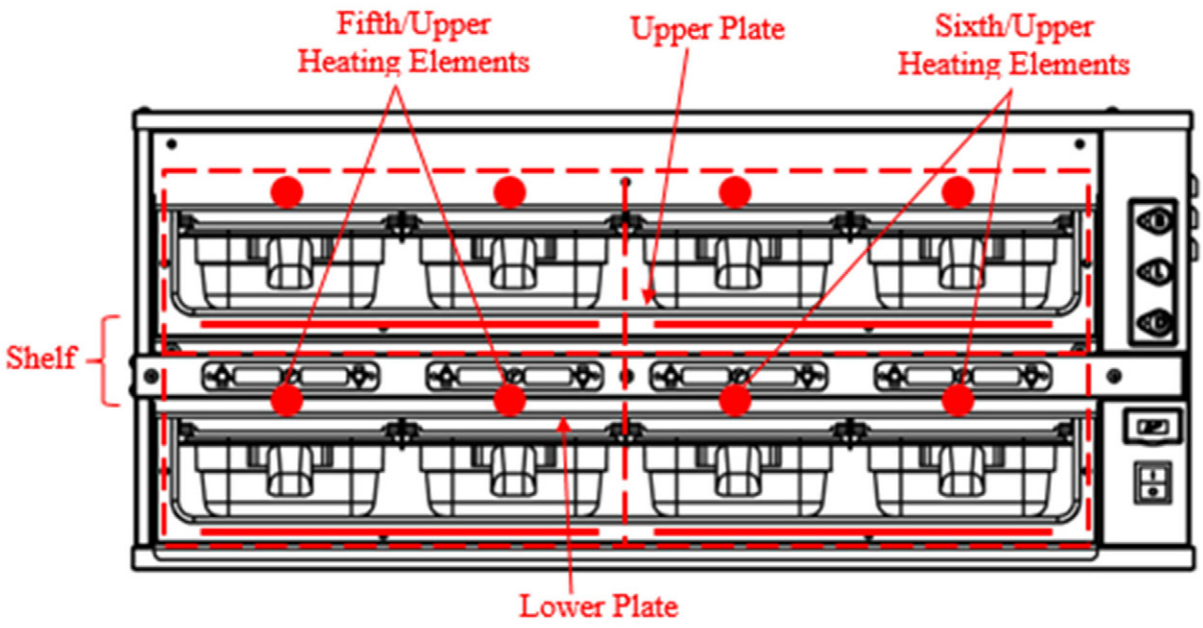
EX1007: 11 (annotated).



EX1007: 36 (annotated).



EX1007: 53 (annotated).



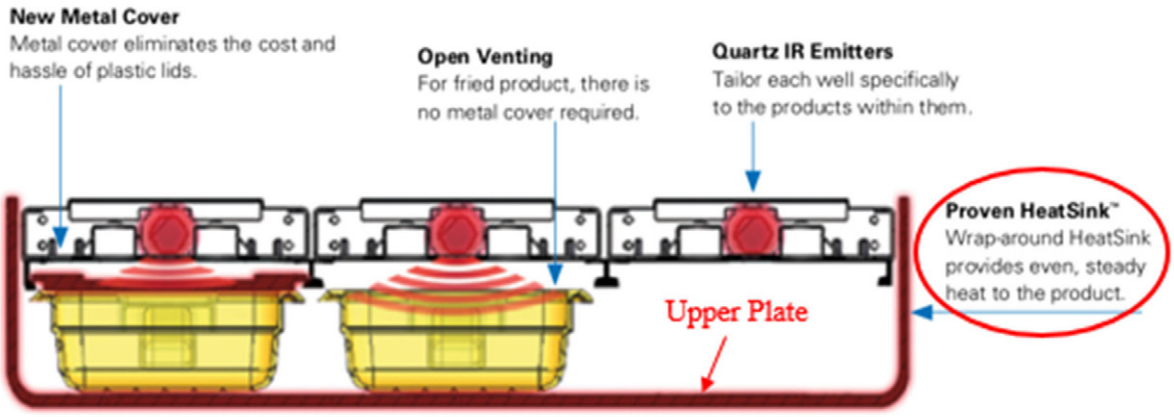
EX1005: 8 (annotated).

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

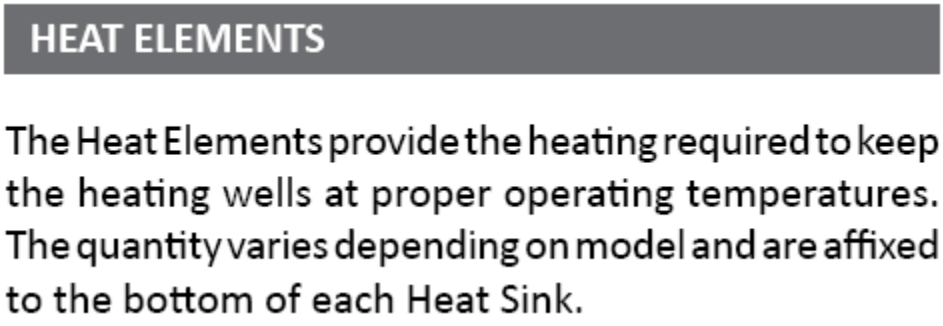
320. The POSA would recognize that the IRHS Documents disclose that "the second and fourth heating elements [are] in thermal communication with the upper thermally conductive plate and the fifth and sixth heating elements [are] in thermal communication with the lower thermally conductive plate."

321. As addressed with respect to claim limitation 21.i.2 (Paragraphs 300-303), the second and fourth lower heating elements are affixed to the HeatSink associated with the upper/first food holding compartment and provide heat to the

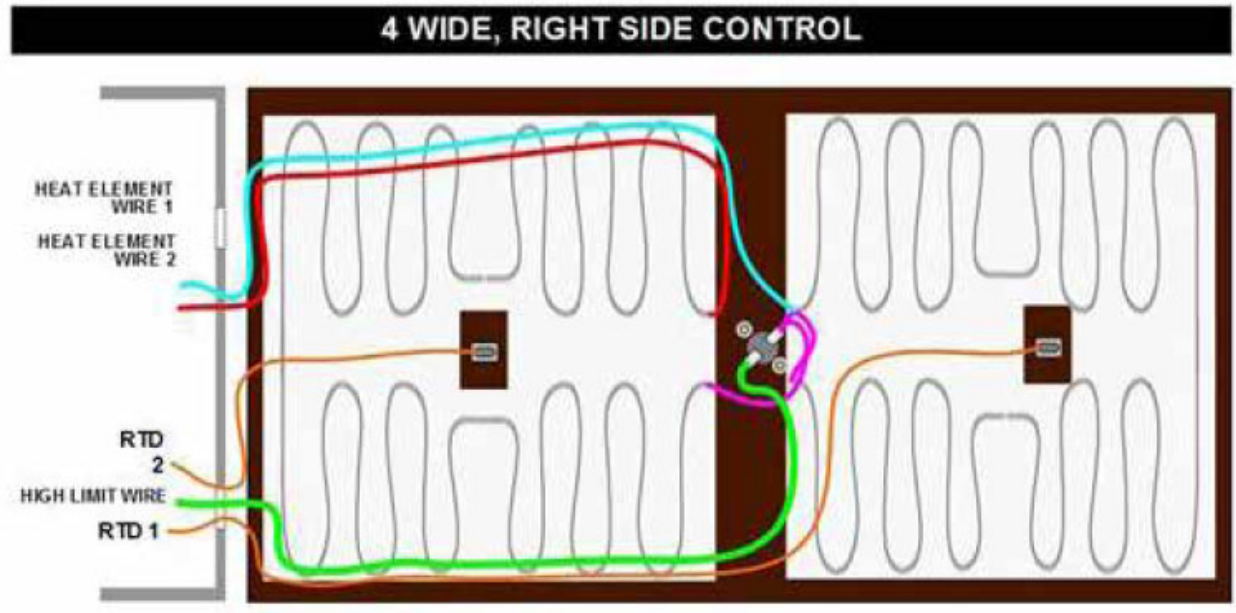
pans from underneath the pans. EX1007: 51 ("[p]revious generations of the Duke holding units contained only HeatSink, heating from below").



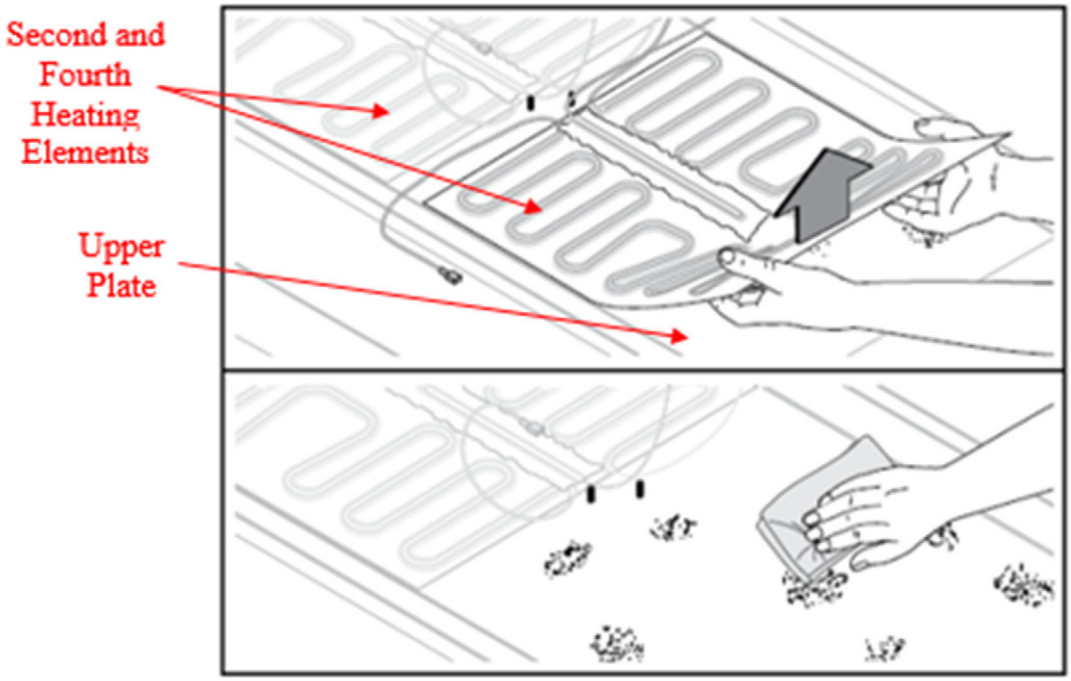
EX1007: 53 (annotated).



EX1008: 21.



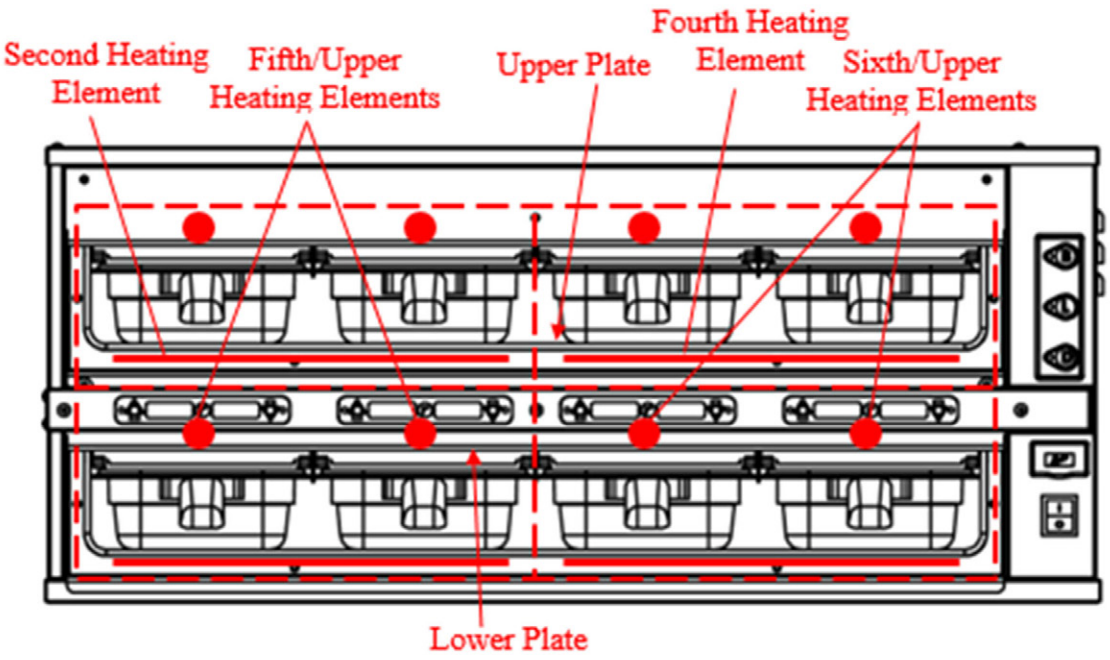
EX1008: 58.



EX1008: 22 (annotated).

322. The POSA understands because the second and fourth lower heating elements are affixed to the upper plate of the HeatSink and heat the upper plate via conduction, the second and fourth lower heating elements are in thermal communication with the upper plate. EX1007: 51, 53; 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]").

323. The lower plate (sheet metal plate of the glass support frame) is disposed directly below the lower compartment's upper IR heating elements (*e.g.*, fifth and sixth heating elements) in the shelf.

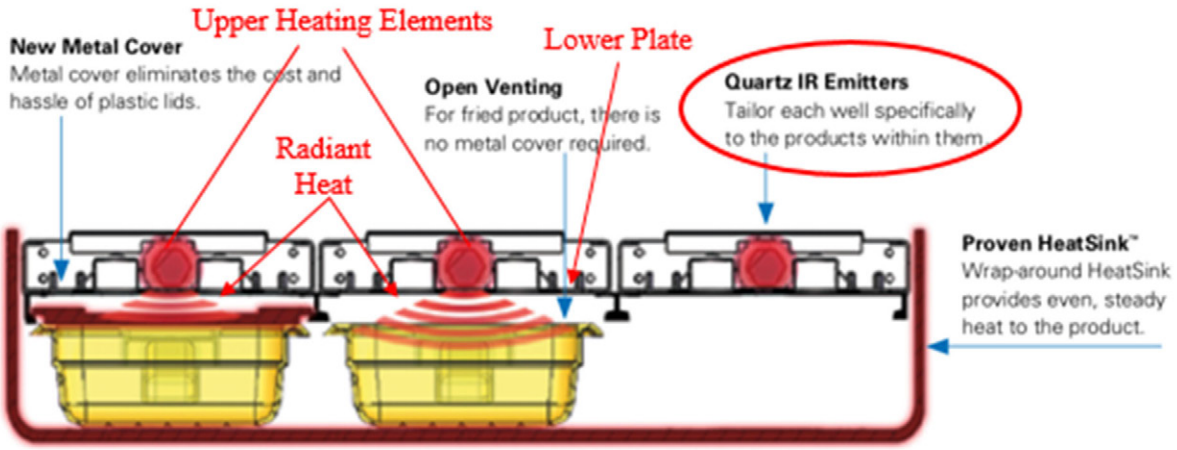


EX1005: 8 (annotated).

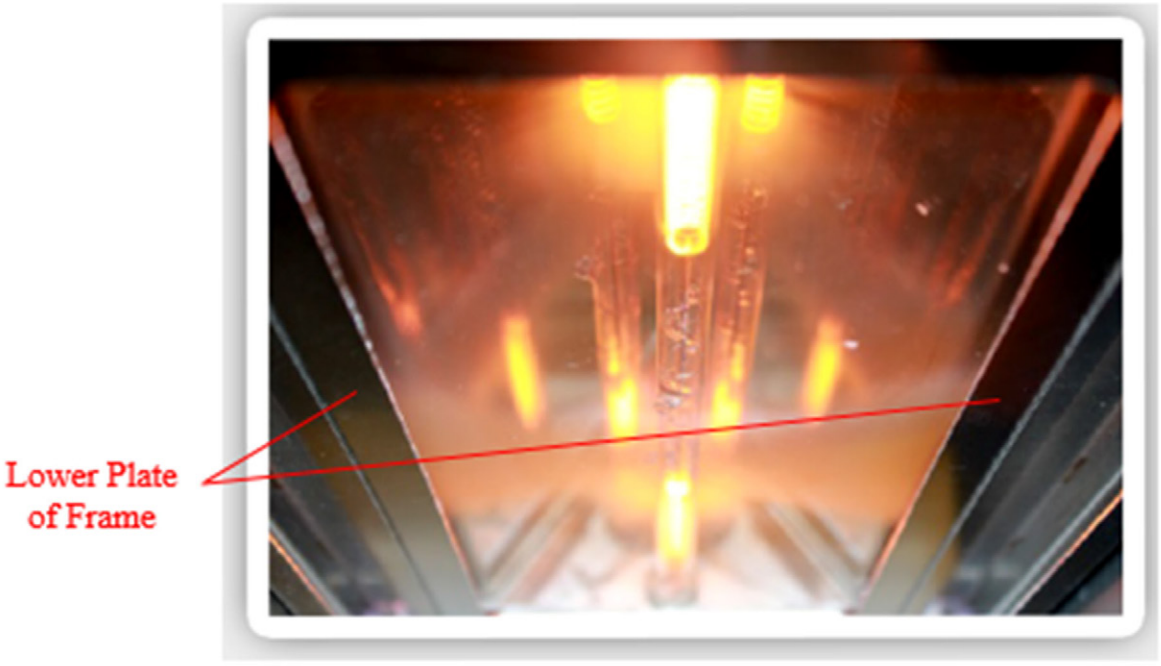
324. These IR heating elements heat the lower plate, and thus, are in thermal communication with the lower plate.

325. The IR heating elements heat the sheet metal plate in various ways. For example, the portions of the sheet metal plate in direct line of sight with the upper IR heating elements receive direct IR heat energy (radiation) from the IR heating elements, heating the sheet metal plate. Moreover, the IR heating elements heat the glass panes, which conduct heat and/or radiate heat to the sheet metal plate of the IR glass support frame. Further, portions of the sheet metal plate are heated from the IR elements indirectly via heat transfer through other structures of the shelf (*e.g.*, reflectors) or otherwise. For example, heat from the IR heating elements transmitted below the sheet metal plate (*e.g.*, at the cover, food, and/or pan) would naturally rise

via convection and heat the sheet metal plate, providing a path of thermal communication from the IR elements to the lower thermally conductive sheet metal plate.

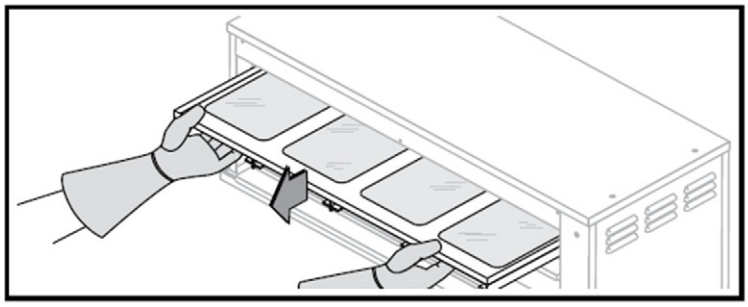


EX1007: 53 (annotated).



EX1007: 11 (annotated).

NOTE: Make sure the glass has cooled off sufficiently to avoid burns to bare skin. Use gloves if necessary.

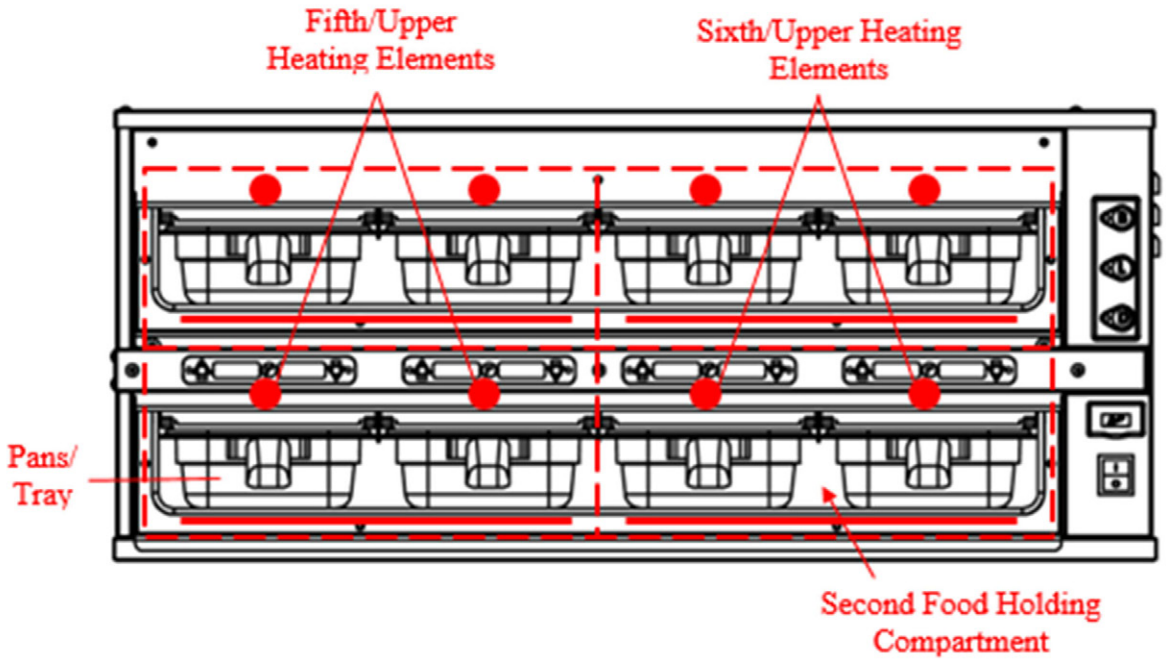


EX1008: 25 (annotated).

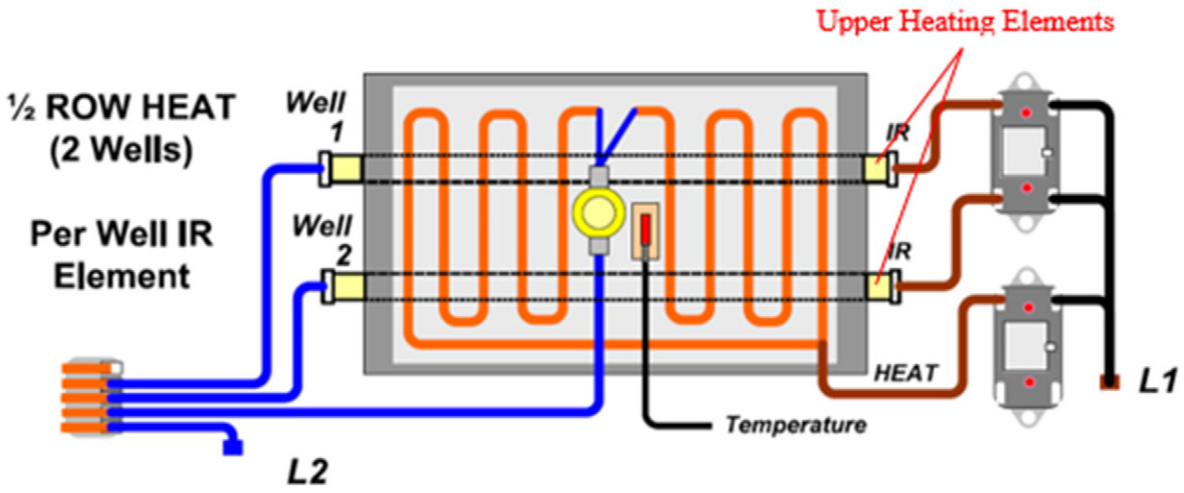
21.j.4: the fifth and sixth heating elements providing heat energy into the second food holding compartment

326. The POSA would recognize that the IRHS Documents disclose that "the fifth and sixth heating elements provid[]heat energy into the second food holding compartment."

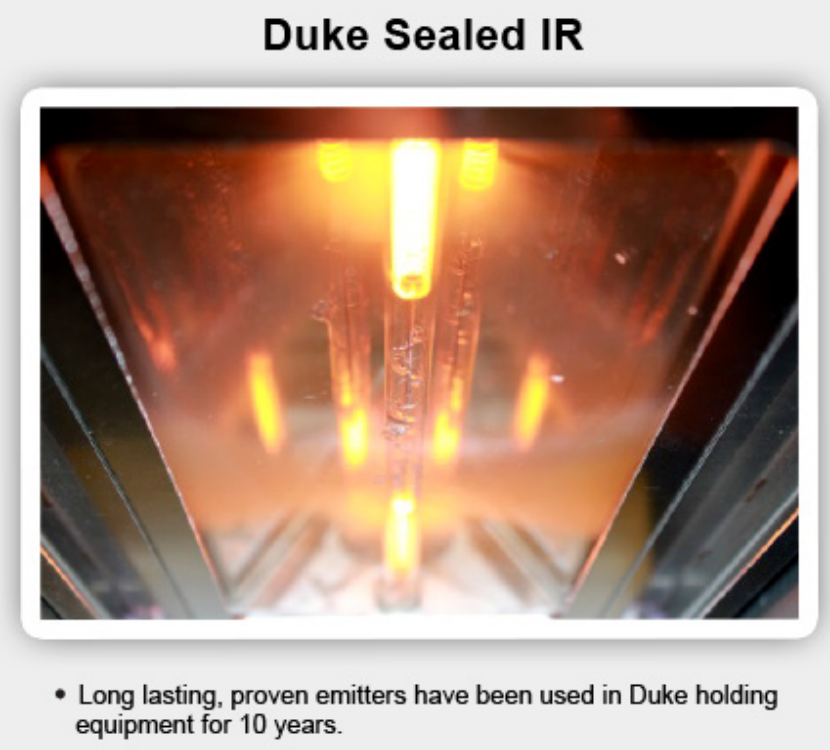
327. As disclosed by the IRHS Documents, the fifth and sixth upper heating elements are IR bulbs that provide infrared radiant heat to the food pans/trays in the second/lower compartment. EX1005: 20 (ref. no. 17 – "BULB – IR"); EX1007: 51 ("top-down InfraRed heat"); Paragraphs 139-163 (1.d.2).



EX1005: 8 (annotated).

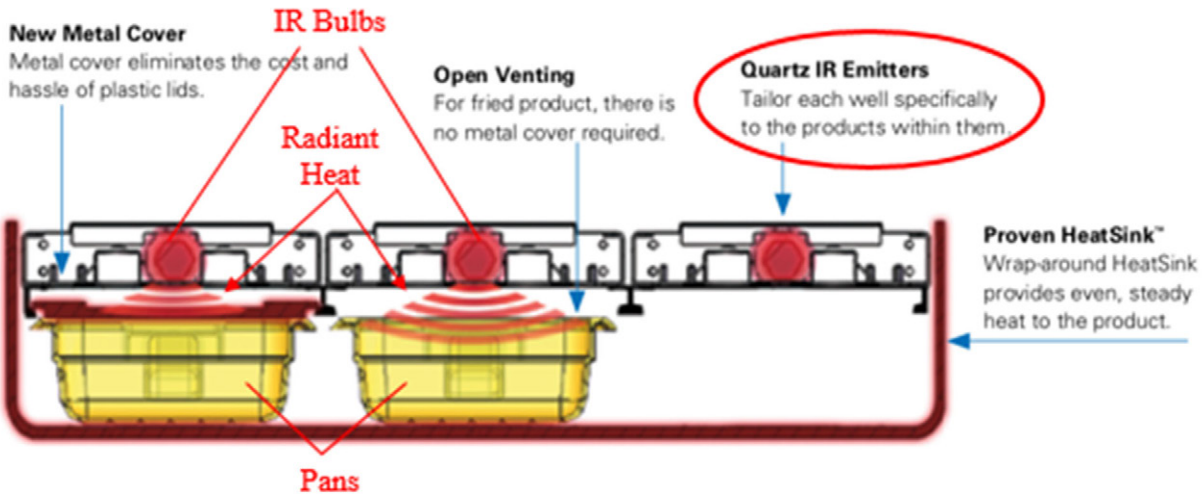


EX1005: 25 (annotated).





EX1007: 11 and 36.



EX1007: 53 (annotated).

328. Accordingly, each limitation of Claim 21 is disclosed within the IRHS Documents.

329. 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 21—to arrive at the food holding bin as claimed in Claim 1.

T. Claim 23:
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

330. 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 21.

331. 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 23.a.1 is identical in claim scope to the limitation added in Claim 4.a.1.

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

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.

333. 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 23.a.2 is identical in claim scope to the limitation added in Claim 4.a.2.

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

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

335. 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 21.

336. The additional "wherein both the first and second independently controllable heating elements comprise a resistive wire" limitation added in Claim 25 is identical in claim scope to the limitation added in Claim 6.

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

V. 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.

338. 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 21.

339. 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 26 is identical in claim scope to the limitation added in Claim 7.

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

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.

341. 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 21.

342. 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 27 is identical in claim scope to the limitation added in Claim 8.

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

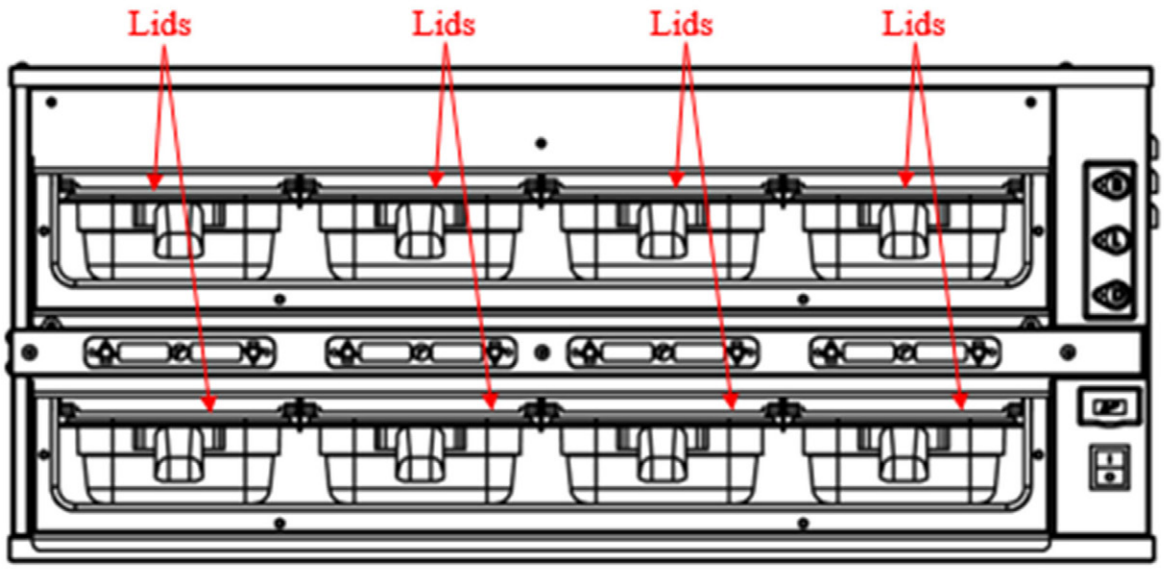
V. GROUND 2: 2, 16, 20, 24, 28, and 29 Would Have Been Obvious Over the IRHS Documents in view of Hartfelder and/or Shei'099

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

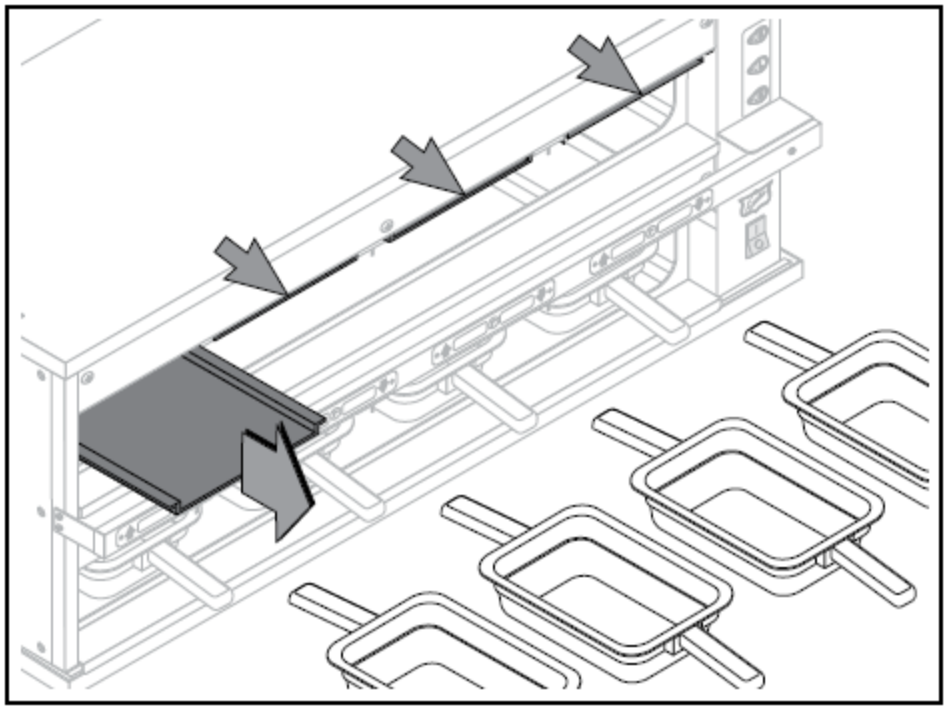
344. Claims 2, 16, 20, 24, 28, and 29 further add limitations pertaining to the inclusion of latches that would secure the covers or lids suspended above each pan holding location (*i.e.*, each food holding bay) in place to prevent them from being inadvertently moved, for example while removing or inserting a food pan into its desired food holding compartment.

345. The IRHS Holding Unit are disclosed as including 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”).

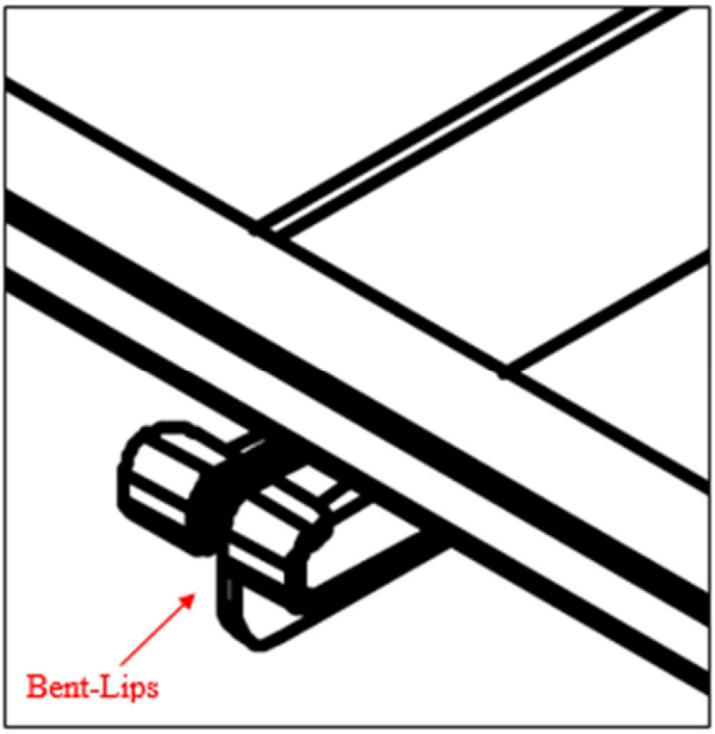


EX1005: 8 (annotated).



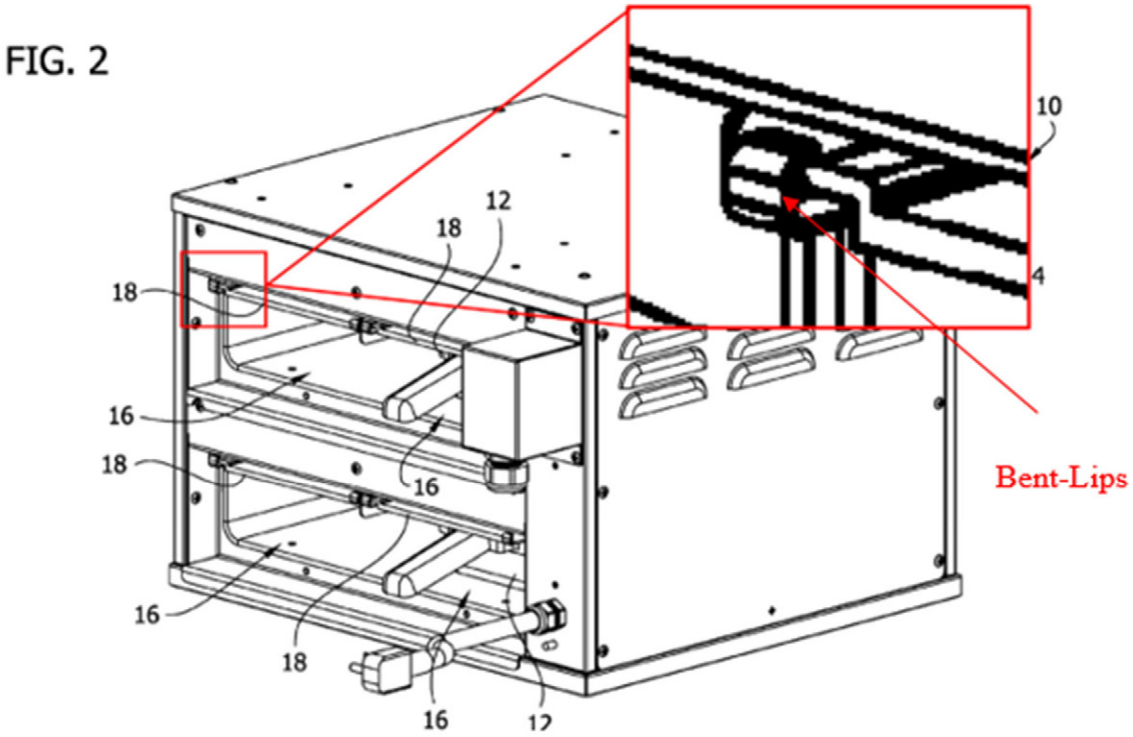
EX1008: 16.

346. Rather than using latches as claimed Claims 2, 16, 20, 24, 28, and 29 of the ’002 Patent, the IRHS Holding Unit are disclosed as having bent-lips on its lid support rails for retaining its lids. EX1005: 19.



EX1005: 19 (enlarged, annotated).

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



EX1011: Fig. 2 (enlarged).

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

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

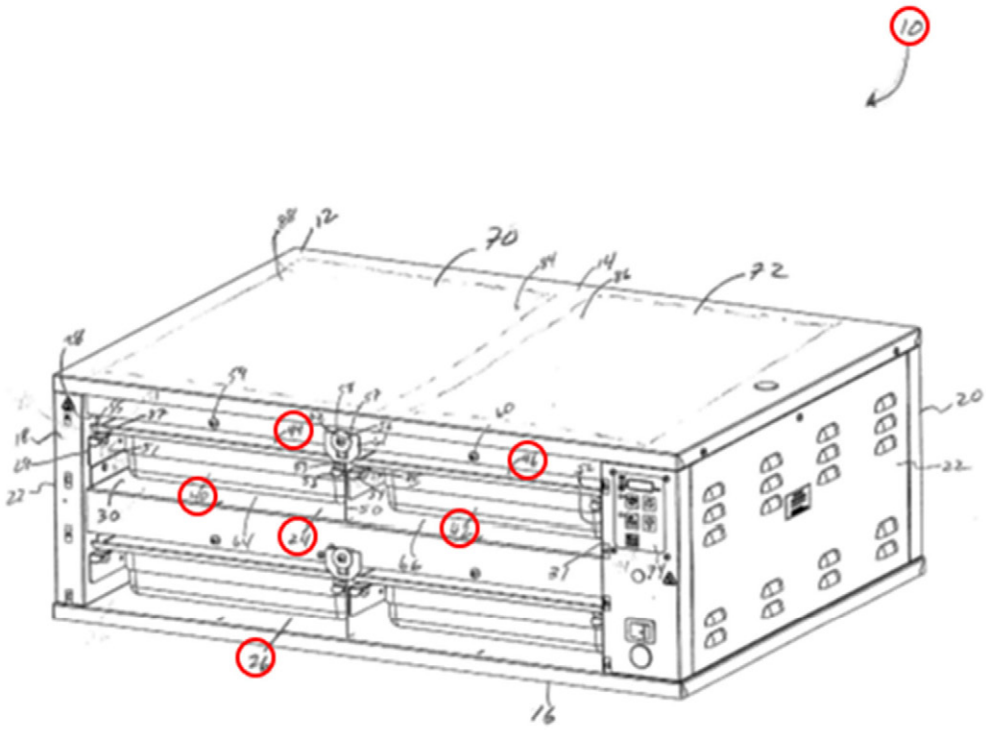


FIGURE 1

EX1013: Fig. 1 (annotated).

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

the movement of cover 44 is arrested, cover 44 is retained upon within sub-compartment 64 while tray 40 is withdrawn"), Fig. 9.

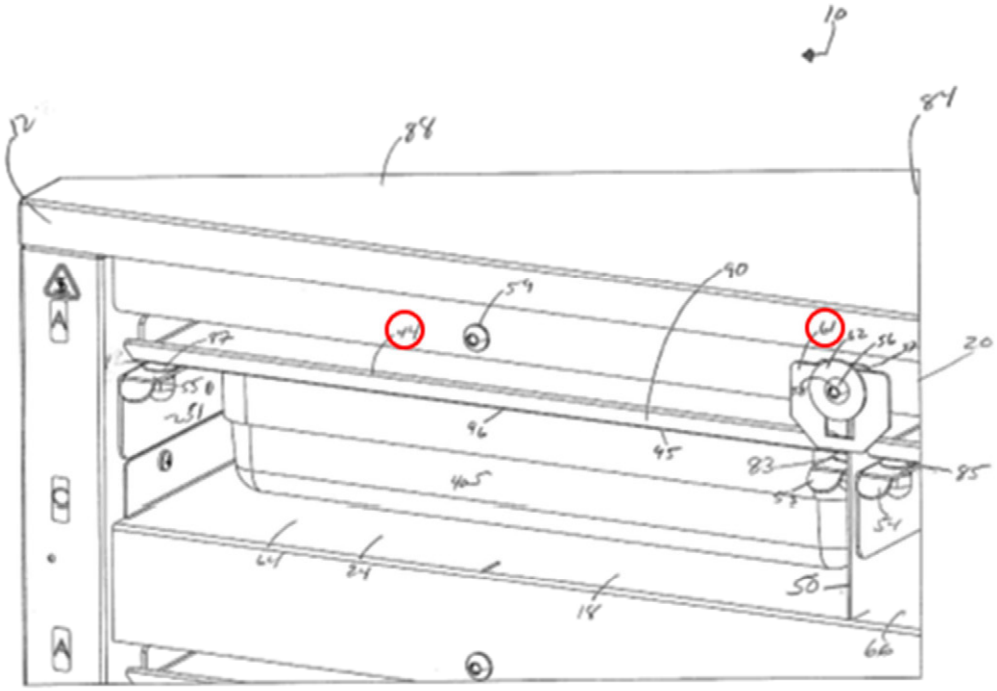


FIGURE 9

EX1013: Fig. 9 (annotated).

351. Shei'099 (EX1017) discloses similar stops (88) (*i.e.*, a latch) between pairs of covers (80) where the stops are biased by gravity to a cover-retaining position (to retain both covers) and pivotable to the left or right to selectively permit insertion/removal of either of the covers. EX1017: 6:9-32.

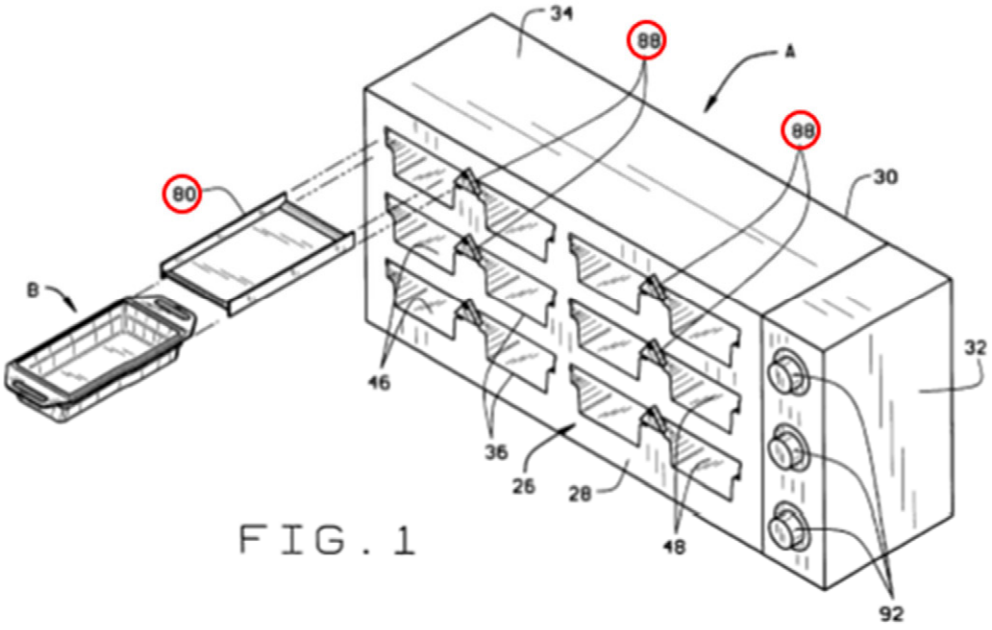


FIG. 1

EX1017: Fig. 1 (annotated).

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

353. The stop members (61) or stops (88) would prevent the lids, which are in contact with the pans, from moving with the pans as the pans are inserted into and removed from the compartments. EX1013: ¶[0058] ("[a]s best shown in FIG. 9, when tray 40 is withdrawn from sub-compartment 64 of heating compartment 24, front turned-up edge 90 of cover 64, acting as an engagement edge, engages stop member 61. The engagement of engagement edge 90 with stop member 61 arrests the movement of cover 44. As the movement of cover 44 is arrested, cover

44 is retained upon within sub-compartment 64 while tray 40 is withdrawn"); EX1017: 6:19-22. This would maintain lid position for covering the pans.

354. Replacing the existing bent-lips with Hartfelder's stop members would make the IRHS Holding Unit easier to clean and easier to manufacture (*e.g.*, simpler lid shelf manufacturing, and one stop member for two lids instead of two bent-lips for each lid).

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

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

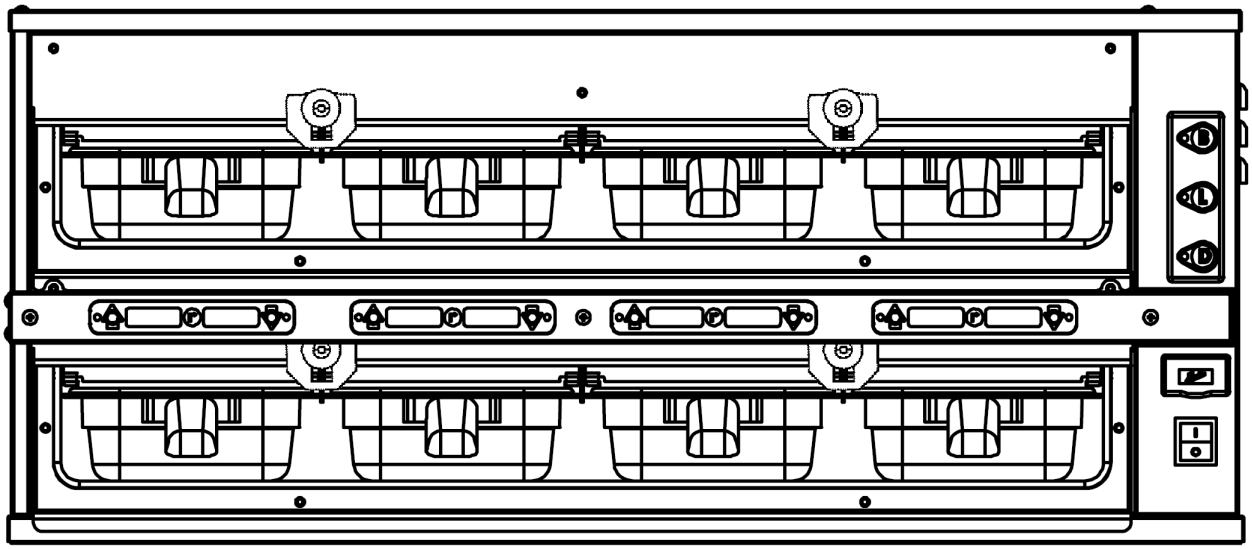
357. Modifying the IRHS Holding Unit to use Hartfelder's stop members or Shei'099's stops instead of or in addition to the bent-lips would have been nothing more than using a known technique/alternative (the stop members of Hartfelder or Shei'099 to retain lids) to improve a similar device (the IRHS Holding Unit) in the same way with predictable results (retaining lids in place while moving food pans into and out of the food holding compartments).

358. There would have been a reasonable expectation of success in making this modification given (1) the similarities between the IRHS Holding Unit and

Hartfelder's and Shei'099's food warming apparatus (specifically, that the IRHS Holding Unit and Hartfelder's and Shei'099's food warming apparatus each included compartments for warming trays/pans of food with lids covering the trays/pans), and (2) the stop member of Hartfelder or stop of Shei'099 would perform the same function in the same way in the IRHS Holding Units. EX1013: ¶[0058].

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

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



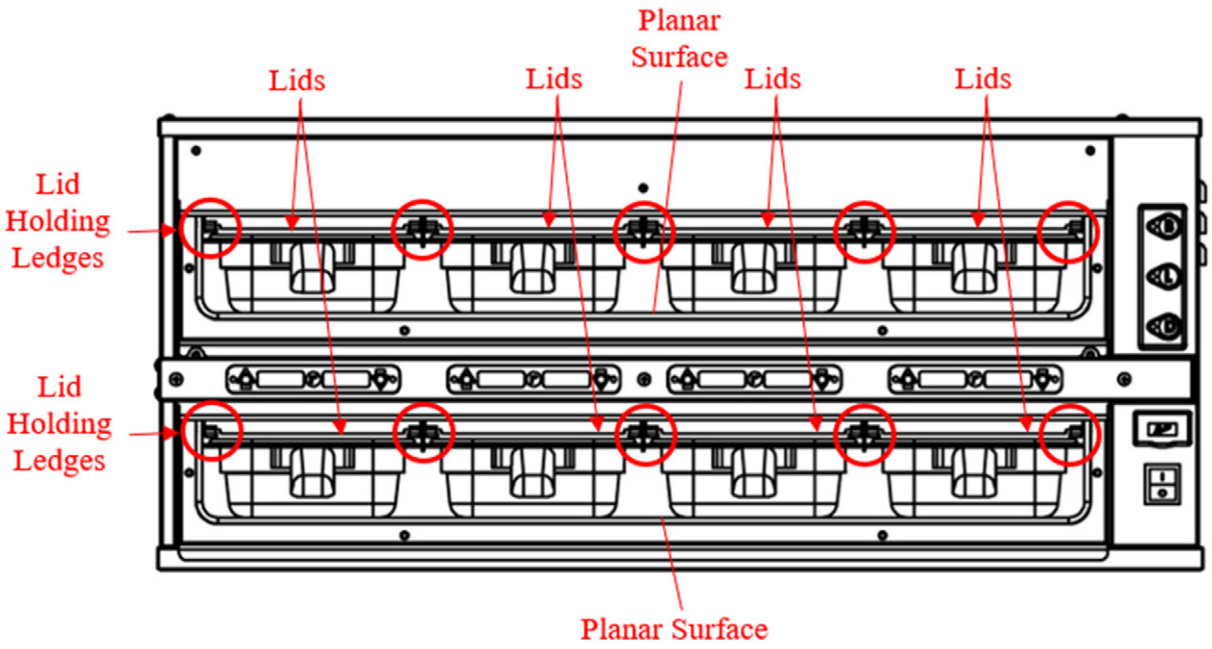
EX1005: 8 (modified).

B. Claim 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

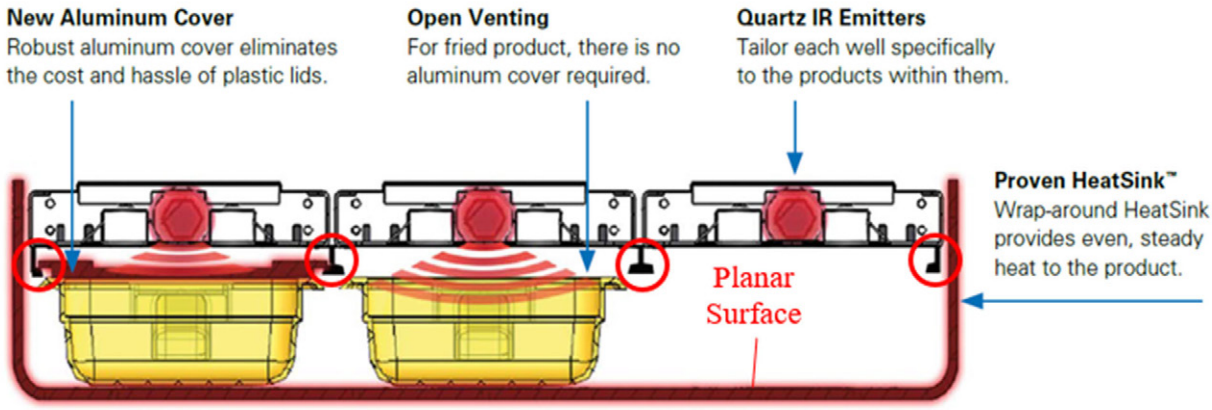
361. As discussed above, the POSA would have found it obvious to combine the teachings and disclosures of the IRHS Documents to arrive at the claimed food holding bin of Claim 1.

362. As described in Paragraphs 236-240 above with respect to Claim 9, the IRHS Documents disclose the IRHS Units—including the IRHS24 Holding Unit—as including covers or lids suspended above each pan holding location. EX1005: 4 ("robust aluminum Heat Sink Cover for broiled foods"), 8, 20-21 (ref. no. 18); EX1007: 53 ("[m]etal cover eliminates the cost and hassle of plastic lids"), 56, 58 ("[c]over allows better heat transfer and greater seal assurance; critical to maintaining food quality with extended hold times").

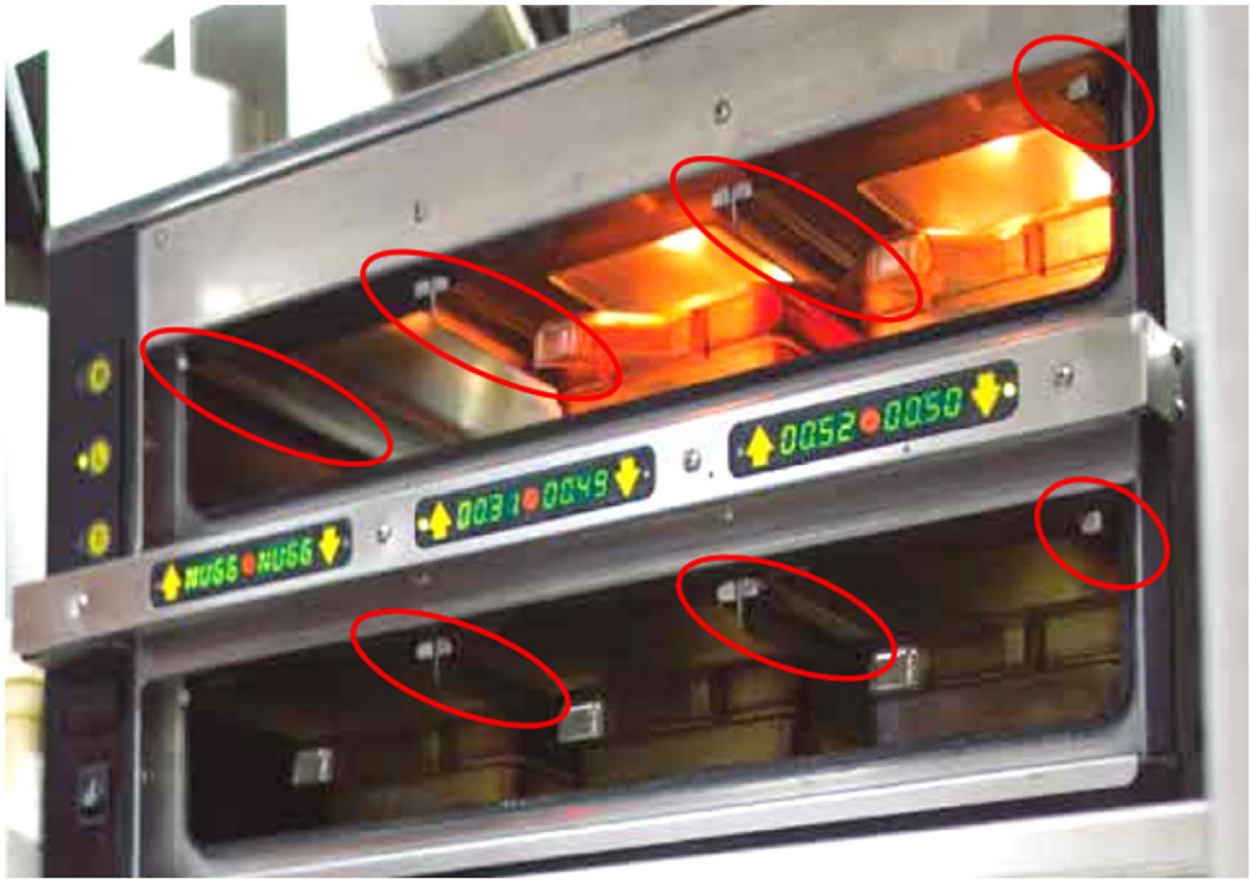
363. The IRHS Holding Units have lid-holding ledges for suspending the covers above the pan holding locations. The lid-holding ledges are elevated above the planar surfaces.



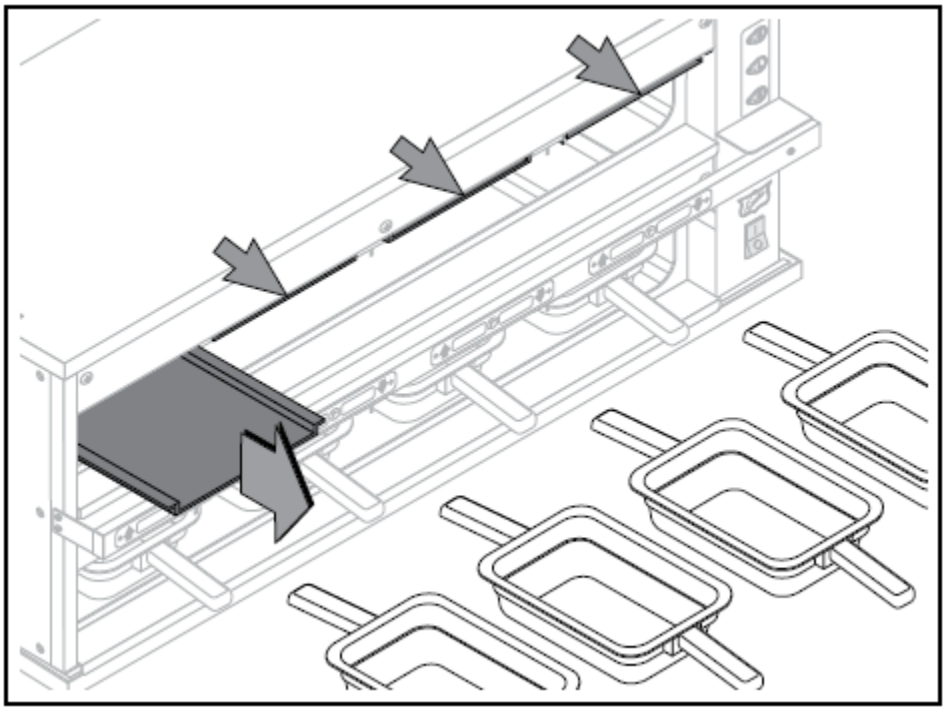
EX1005: 8 (annotated).



EX1007: 53 (annotated).

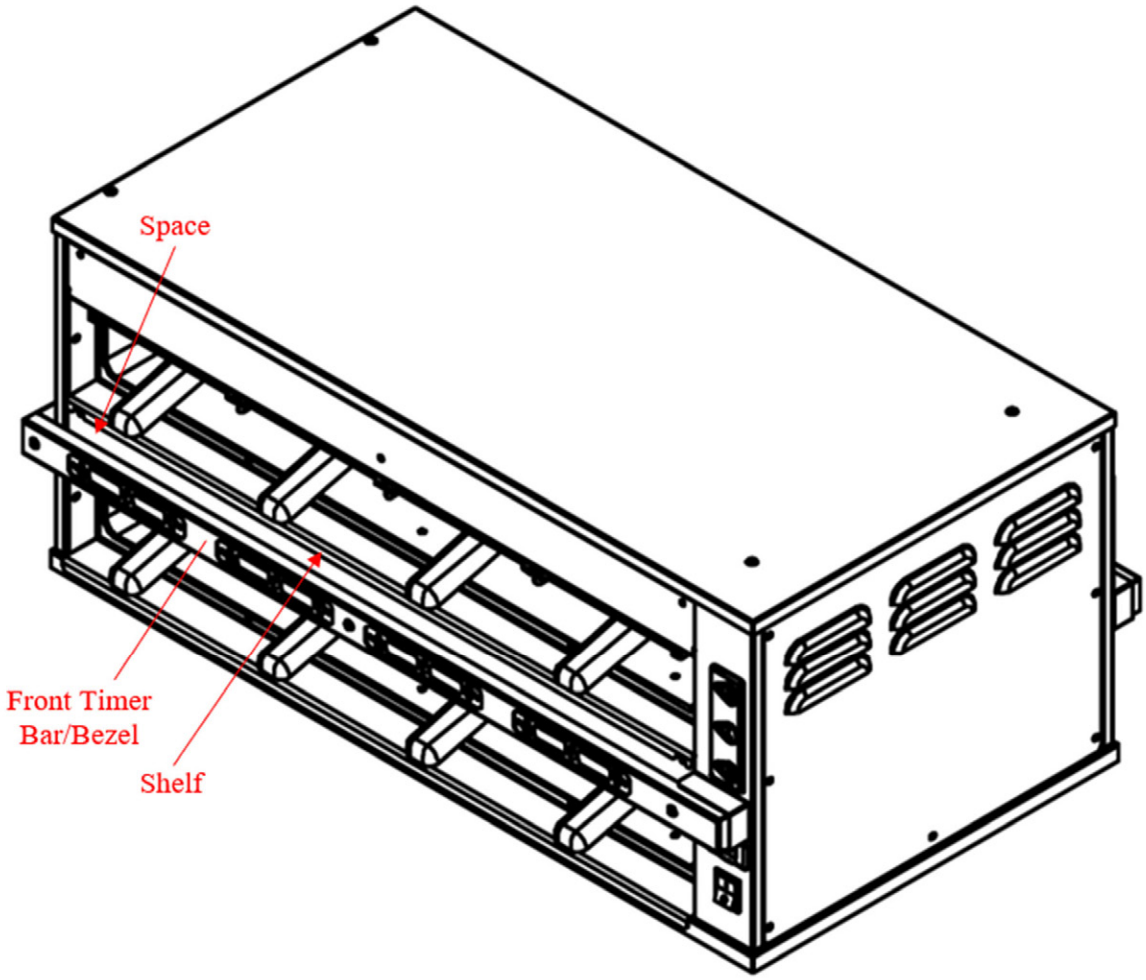


EX1007: 36 (annotated).

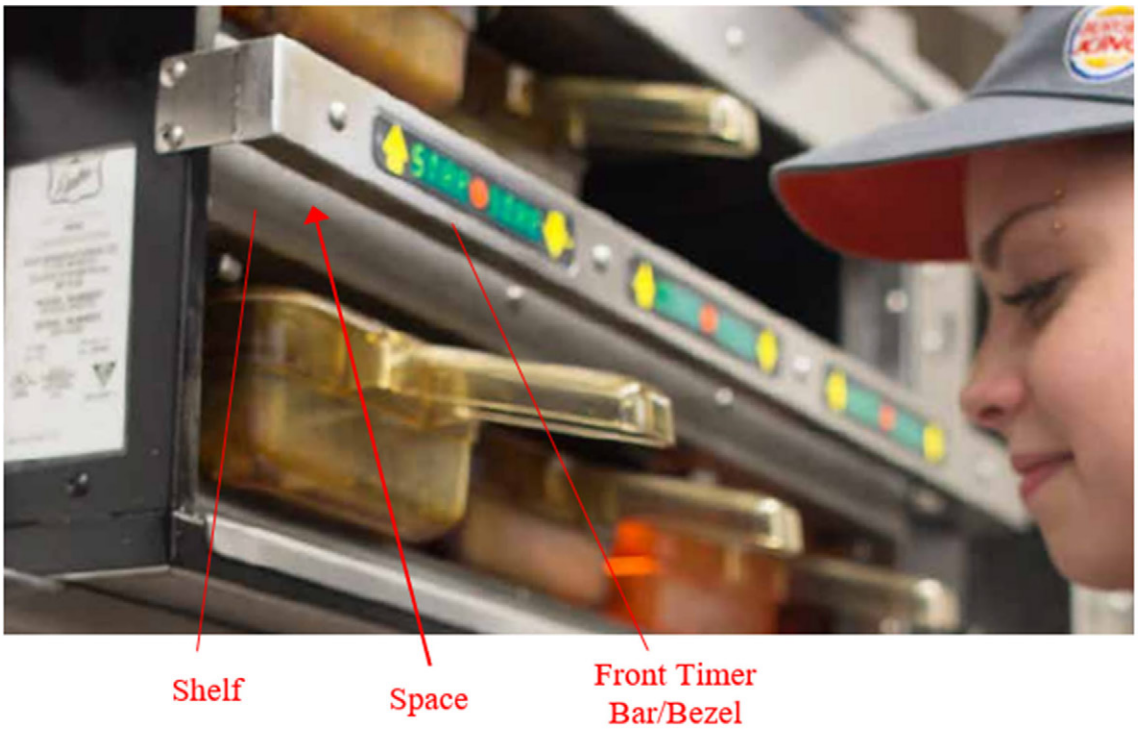


EX1008:16.

364. As described in Paragraphs 185-187 with respect to claim limitation 1.g, the IRHS24 Holding Unit also has a front timer bar (first bezel) set forward from the shelf thereby creating a space between the timer bar and the shelf.

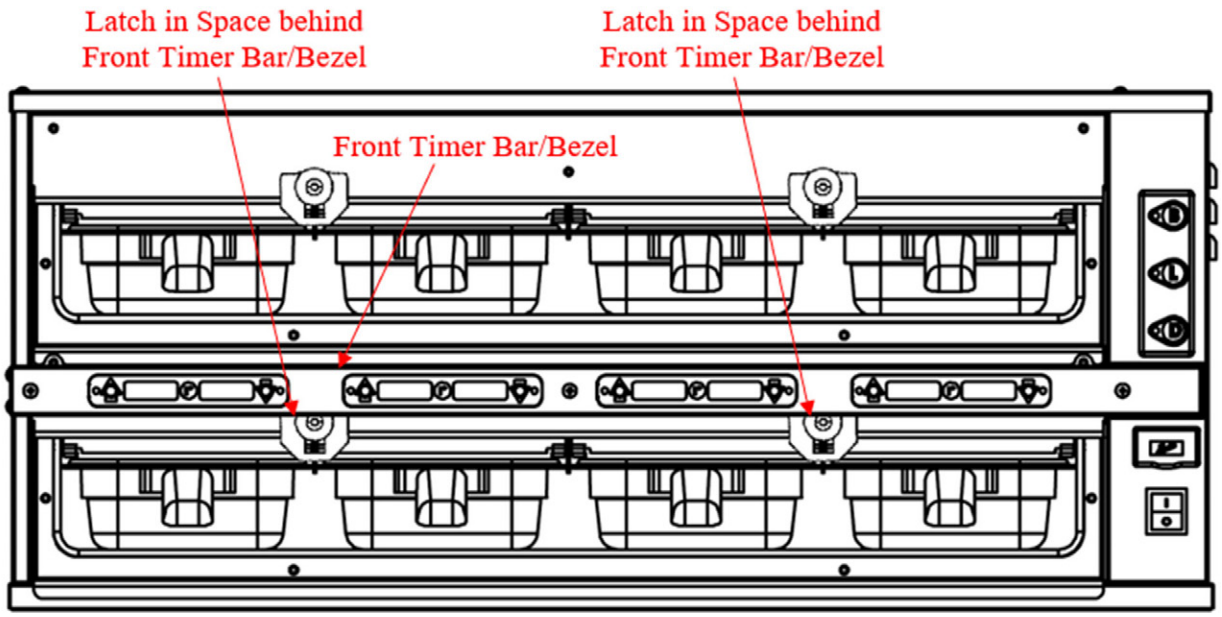


EX1005: 8 (annotated).



EX1007: 28 (annotated).

365. Modifying the IRHS Holding Units in view of Hartfelder and Shei'099 as discussed in Paragraphs 344-360 would result in the stop members (61) or stops (88) (*i.e.*, latches) being placed in the space between the front timer bar and the front face (*e.g.*, the portion of the front face formed by the shelf) as demonstrated by the modified IRHS24 Holding Unit below:



EX1005: 8 (modified, annotated).

366. This location is the same as taught by Hartfelder and/or Shei'099 and would be the natural location so as to be positioned to engage and retain the lids. EX1013: Figs. 1 and 9; EX1017: Fig. 1.EX1013:

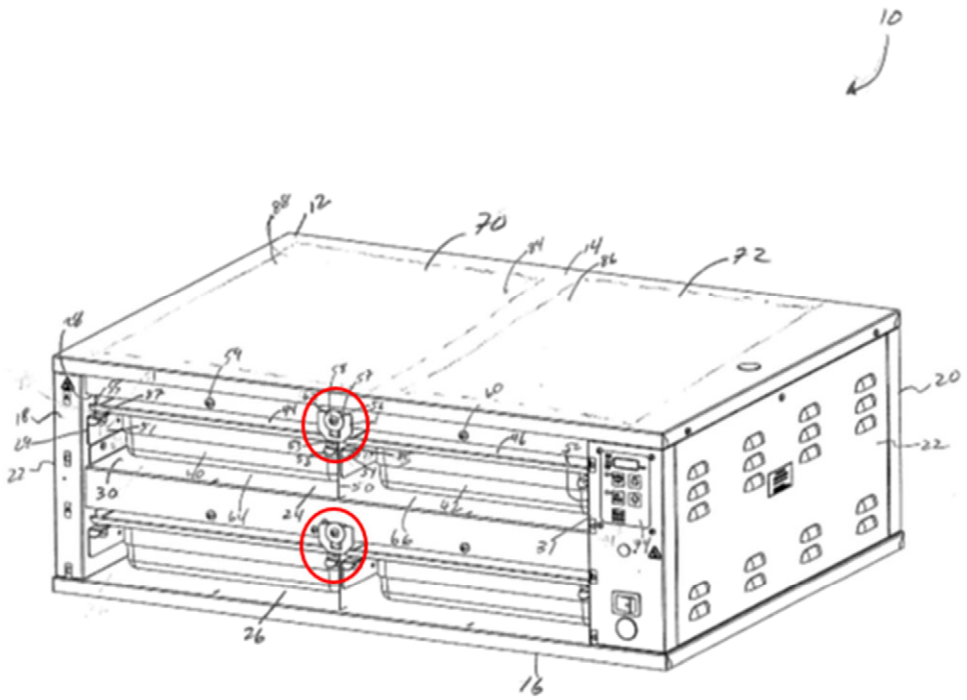
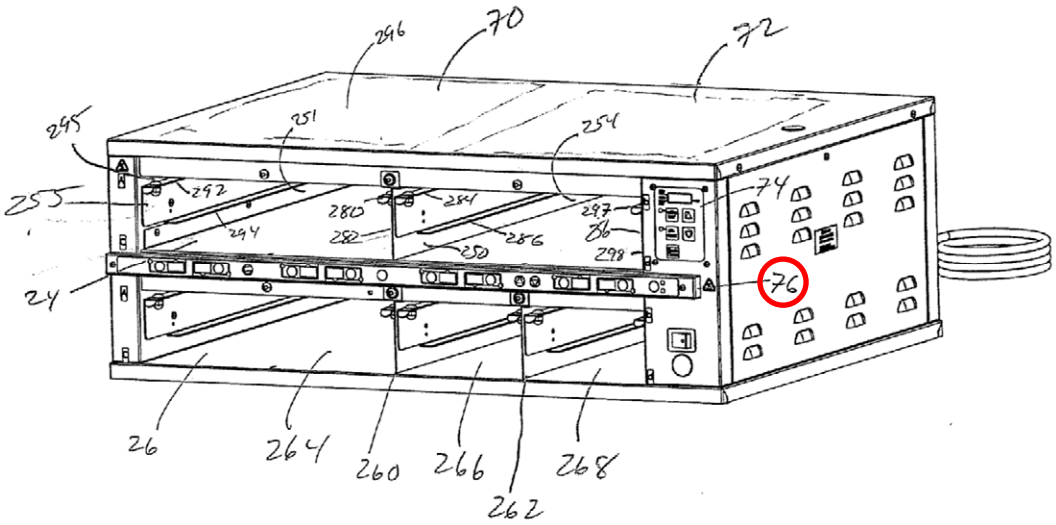


FIGURE 1



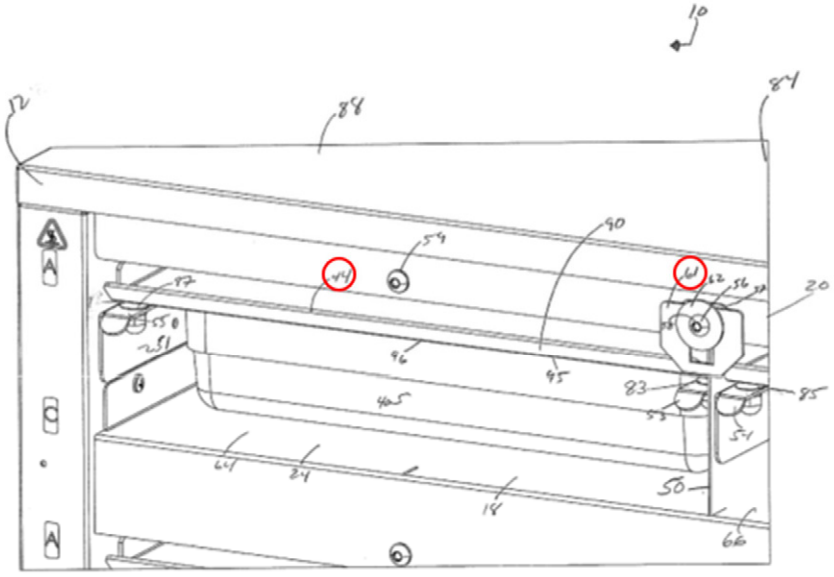


FIGURE 9

Figs. 1, 3, and 9 (annotated).

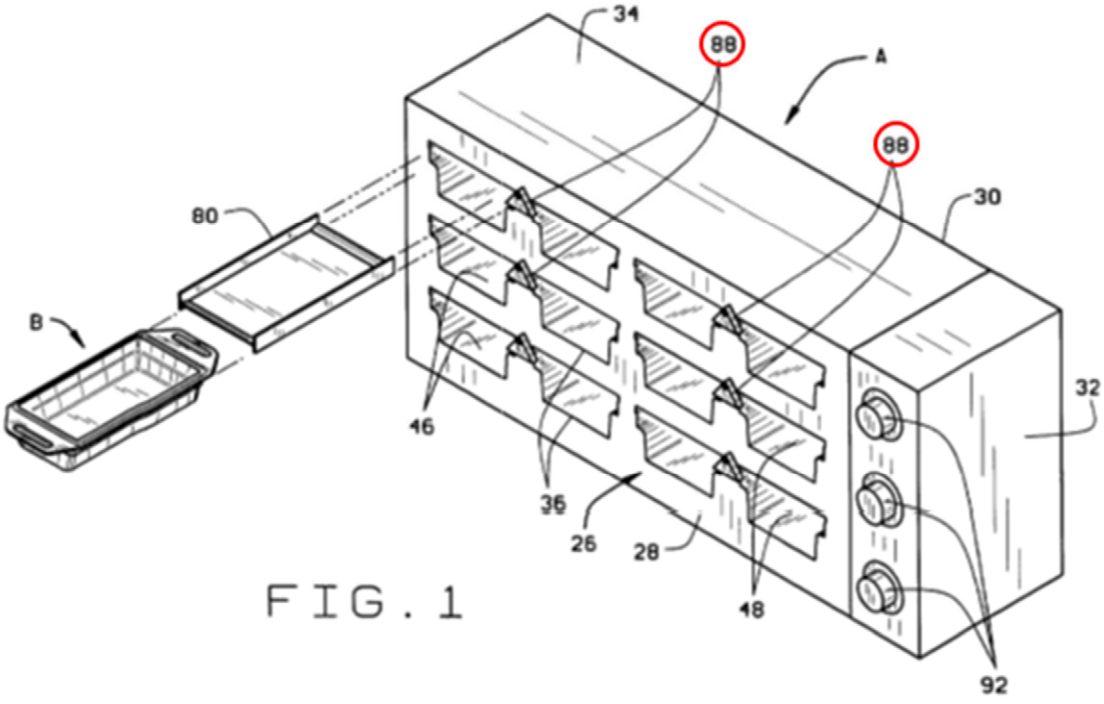


FIG. 1

EX1017: Fig. 1 (annotated).

367. For example, Hartfelder teaches this position of the stop members (61) in the presence of a control bar (76). EX1013: ¶[0039] ("controls and indicators may be arranged in on interface bar 76"), Figs. 3-5. While Hartfelder does not depict the stop members (61) within the same figures as the control bar (76), the fact that both features were addressed in the same reference suggests that such arrangements would be both compatible and desirable.

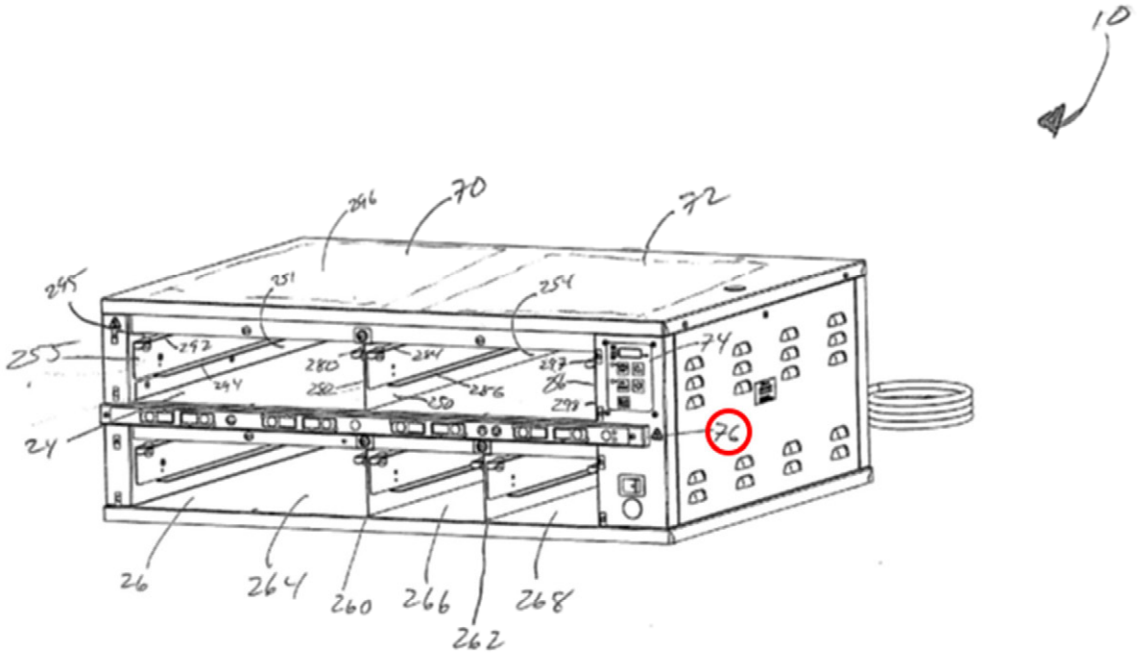
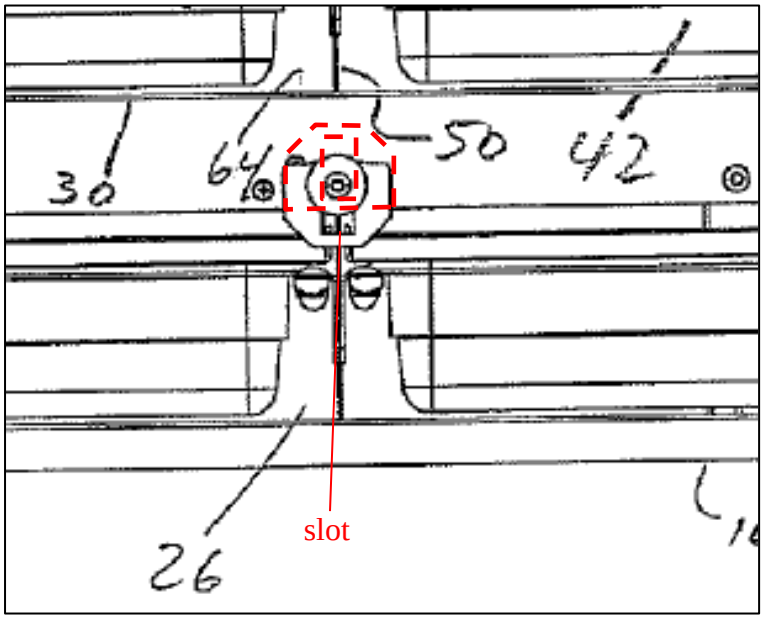


FIGURE 3

EX1013: Fig. 3 (annotated).

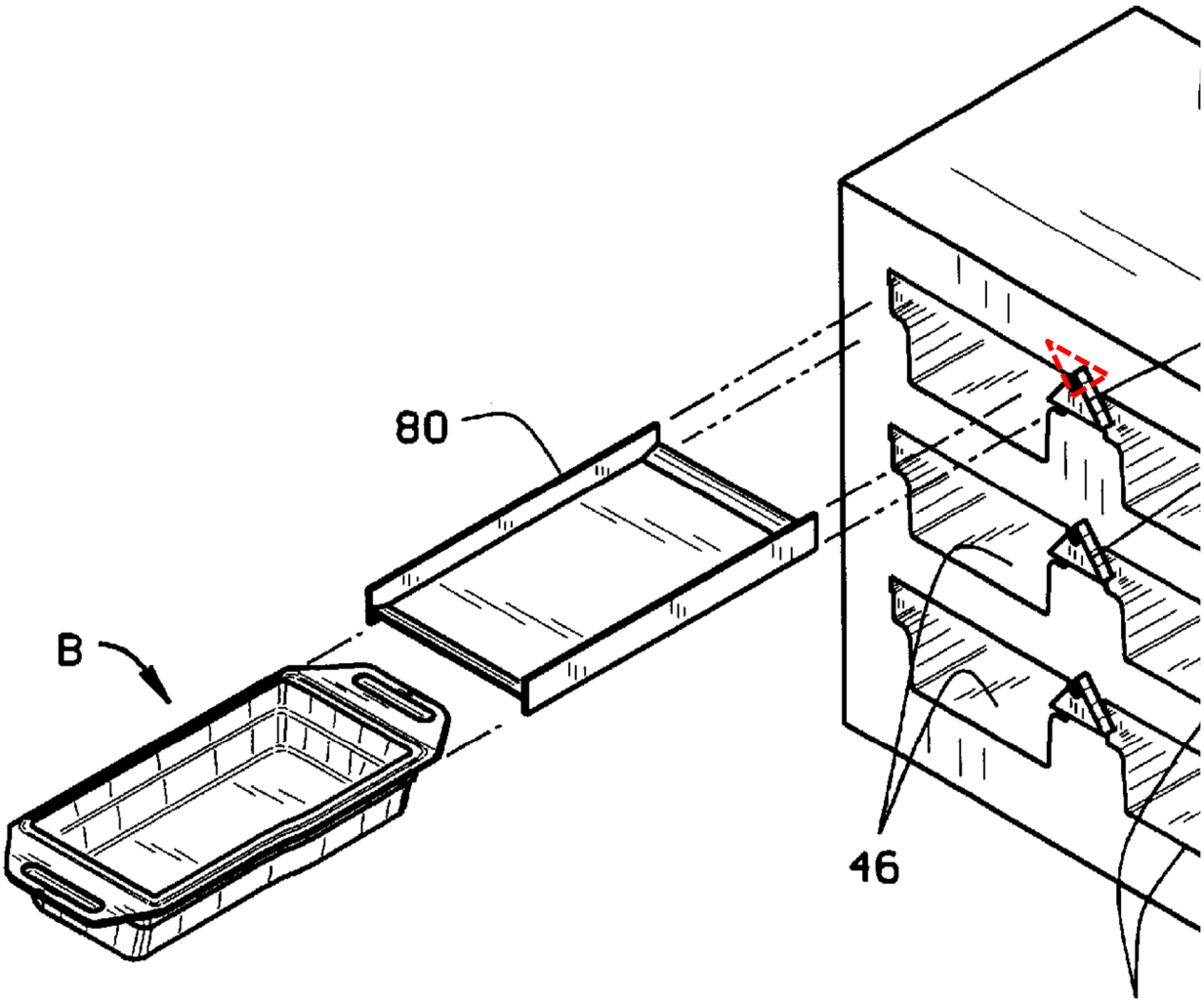
368. The POSA would understand that Hartfelder's stop members (61) are moveable between locked and unlocked positions.

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



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

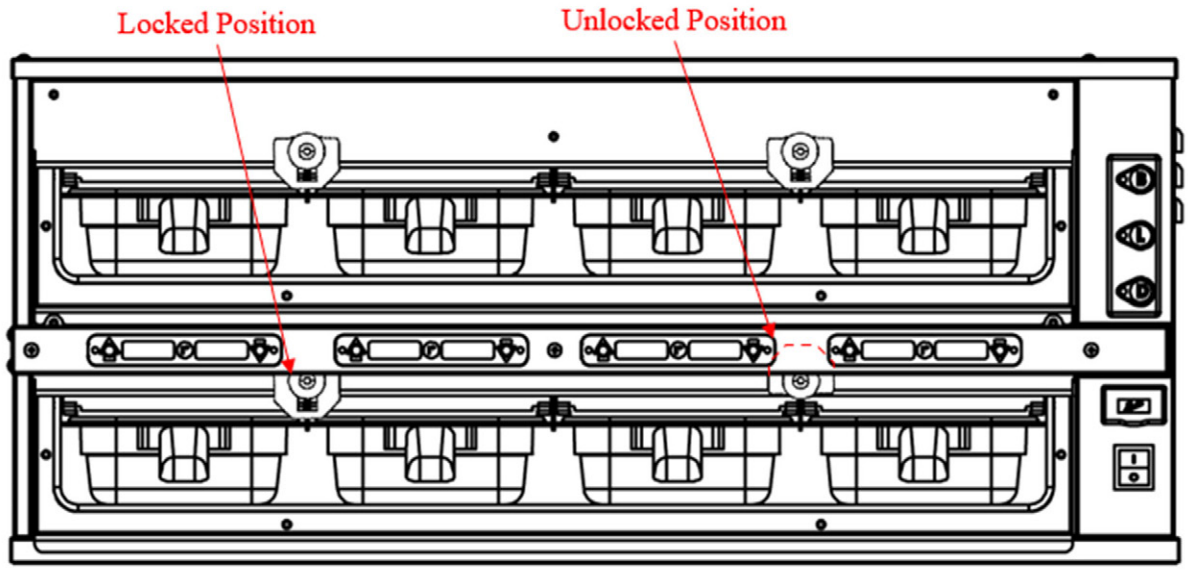
370. Likewise, Shei'099's stops (88) rotate between locked and unlocked positions. EX1017: 6:9-32.



EX1017: Fig. 1 (enlarged, annotated).

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

372. In the modified IRHS Holding Unit, latches would have been in the space behind the timer bar and would each rotate in the space between their locked and unlocked positions to release lids held on lid holding ledges as shown in the modified rendering of the IRHS24 Holding Unit below.



EX1005: 8 (modified, annotated to show combination).

373. Accordingly, the POSA would have found it obvious to combine the teachings and disclosures of the IRHS Documents with the teachings of Hartfelder and/or Shei'099 to arrive at the food holding bin as claimed in Claim 2.

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

374. 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.

375. Modifying the IRHS Holding Units in view of Hartfelder and Shei'099 as discussed in Paragraphs 344-360 would result in the rotatable stop members (61) or stops (88) (*i.e.*, latches) disposed adjacent to the food holding bays. EX1013: ¶[0058]; EX1017: 6:9-32.

376. This location is the same as taught by Hartfelder and/or Shei'099 and would be the natural location so as to be positioned to engage and retain the lids. EX1013: Figs. 1 and 9; EX1017: Fig. 1

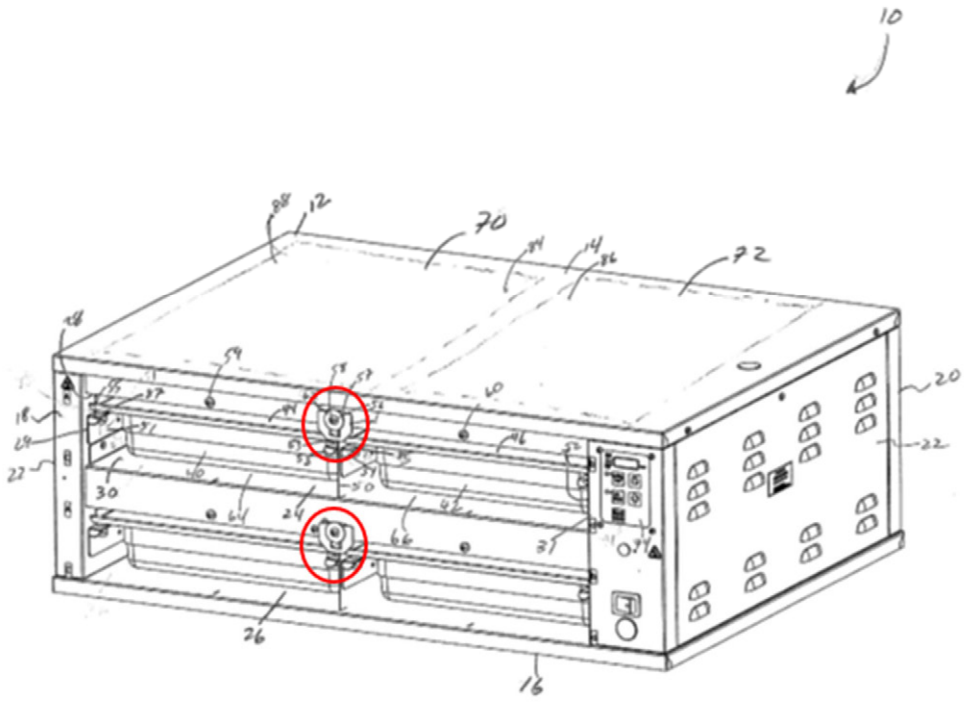


FIGURE 1

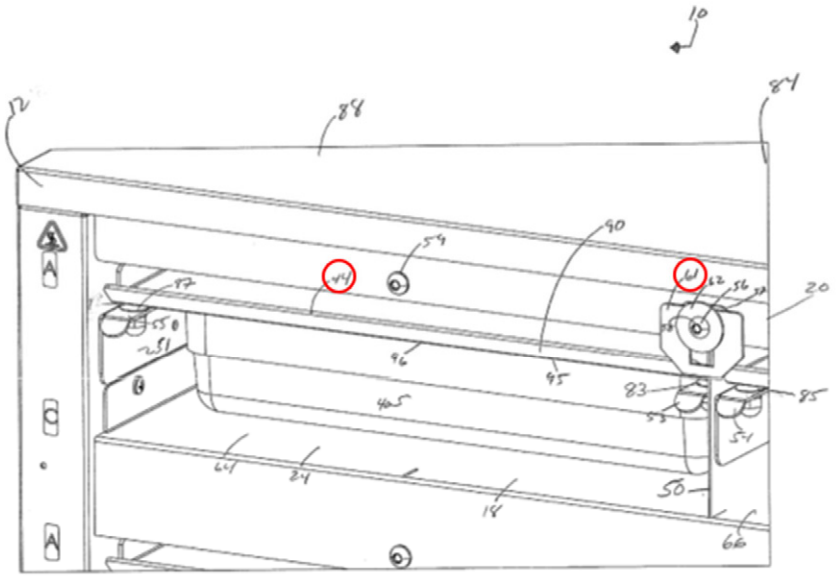


FIGURE 9

EX1013: Figs. 1 and 9 (annotated).

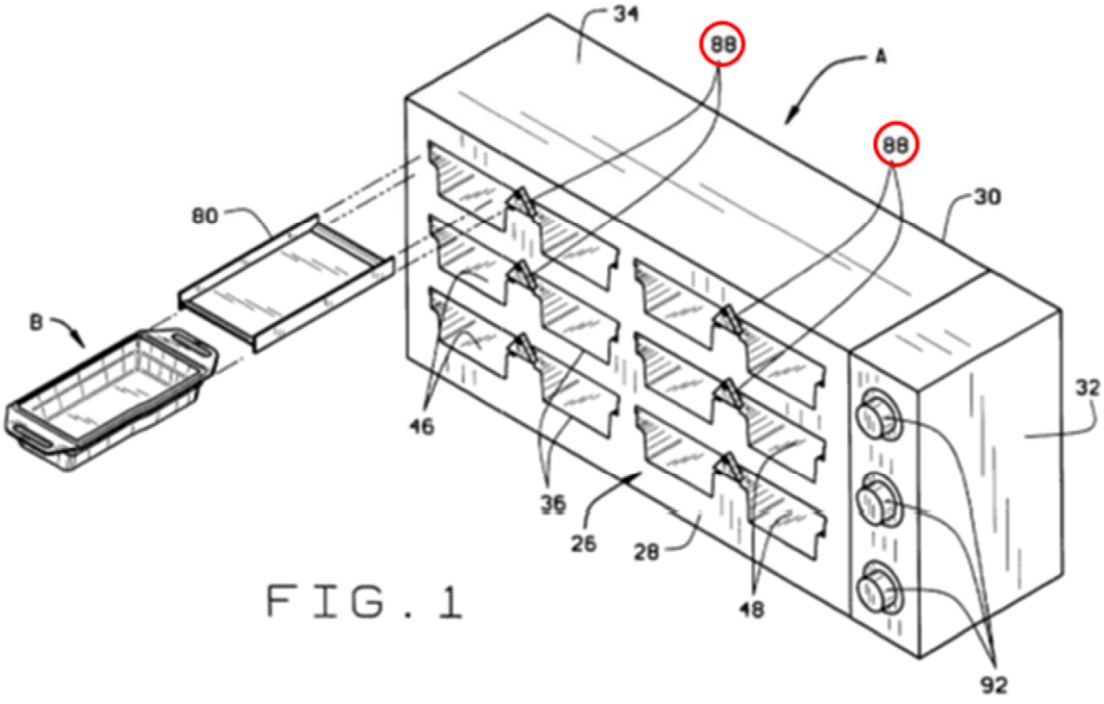


FIG. 1

EX1017: Fig. 1 (annotated).

377. For example, Hartfelder teaches this position of the stop members (61) in the presence of a control bar (76). EX1013: ¶[0039] ("controls and indicators may be arranged in on interface bar 76"), Figs. 3-5.

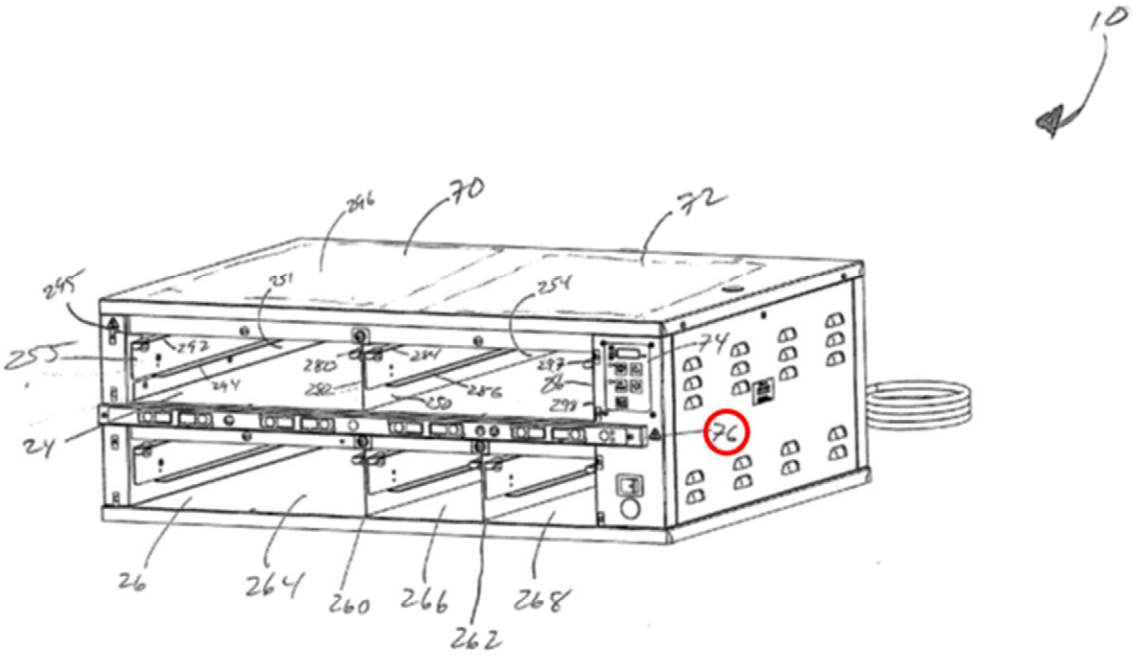
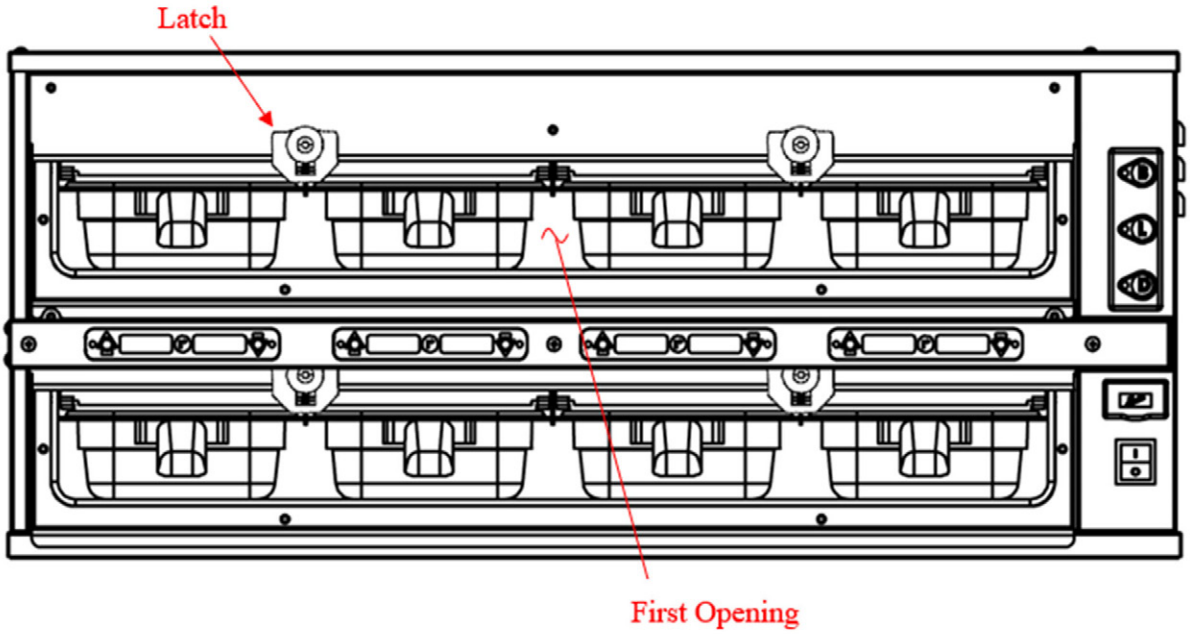


FIGURE 3

EX1013: Fig. 3 (annotated).

378. Accordingly, modifying the IRHS Holding Unit in view of Hartfelder and Shei'099 would result in the IRHS Holding Unit having rotatable latch(es) adjacent the first opening as shown in the modified rendering of the IRHS24 Holding Unit below. The latches are rotateable between locked/(first) and

unlocked/(second) positions. EX1013: Fig. 9; EX1017: 6:9-32, Fig. 1; EX1016: ¶[0043], Fig. 1.



EX1005: 8 (modified, annotated to show combination).

379. Accordingly, the POSA would have found it obvious to combine the teachings and disclosures of the IRHS Documents with the teachings of Hartfelder and/or Shei'099 to arrive at the food holding bin as claimed in Claim 16.

D. Claim 20:

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

380. 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.

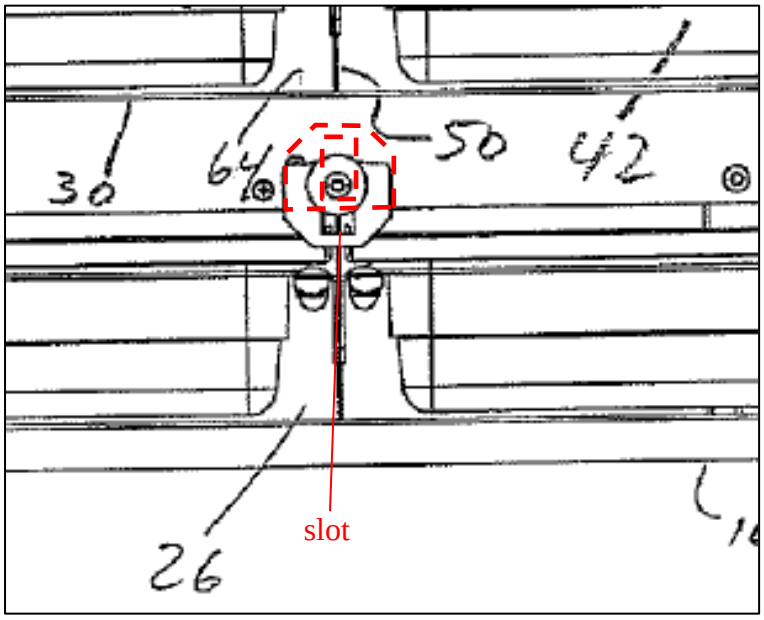
381. The additional "wherein each food holding bay further comprises a dedicated lid holding shelf elevated above the substantially planar bottom surface in the first food holding compartment, the dedicated lid holding shelf being configured to receive and store a lid for a food holding tray" limitation added in Claim 20 is identical in claim scope to the limitation added in Claim 9.

382. Accordingly, this limitation is disclosed by the IRHS Documents as explained in Paragraphs 236-240 above.

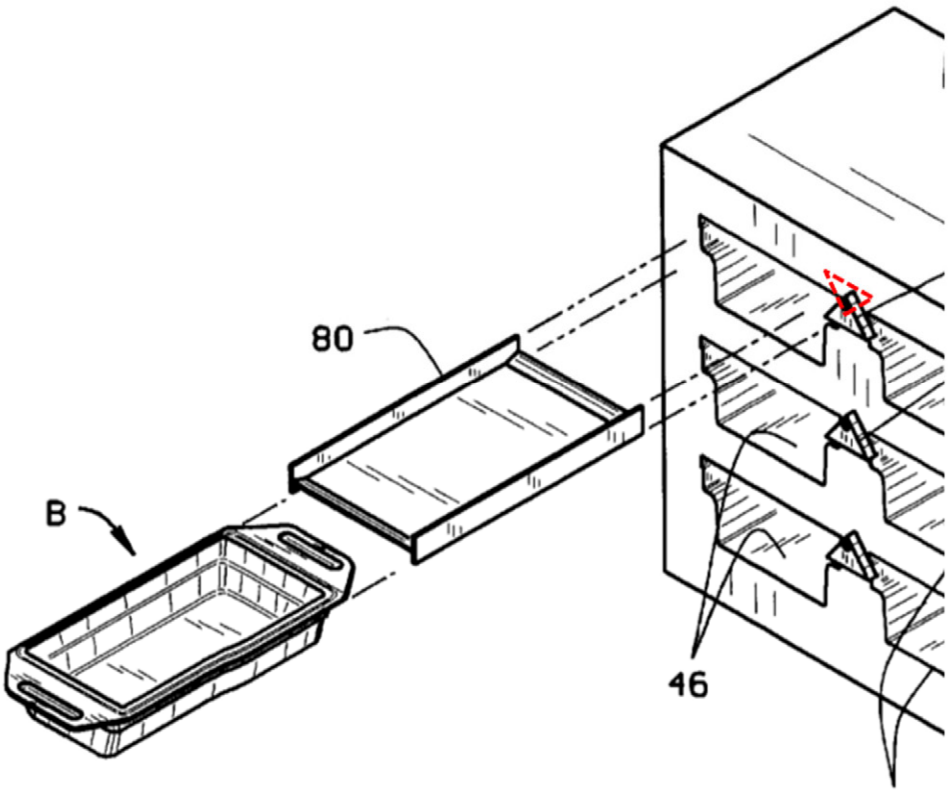
20.b.1: wherein a rotatable latch disposed adjacent the first opening is rotatable between a locked position in which the latch prevents a lid from being removed from the lid holding shelf, and an unlocked position in which the latch allows removal of a lid from the lid holding shelf,

383. As explained in Paragraphs 361-379 above with respect to Claims 2 and 16, modifying the IRHS Holding Units in view of Hartfelder and Shei'099 as discussed in Paragraphs 344-360 would result in rotatable stop members (61) or stops (88) (*i.e.*, latches) disposed adjacent to the food holding bays.

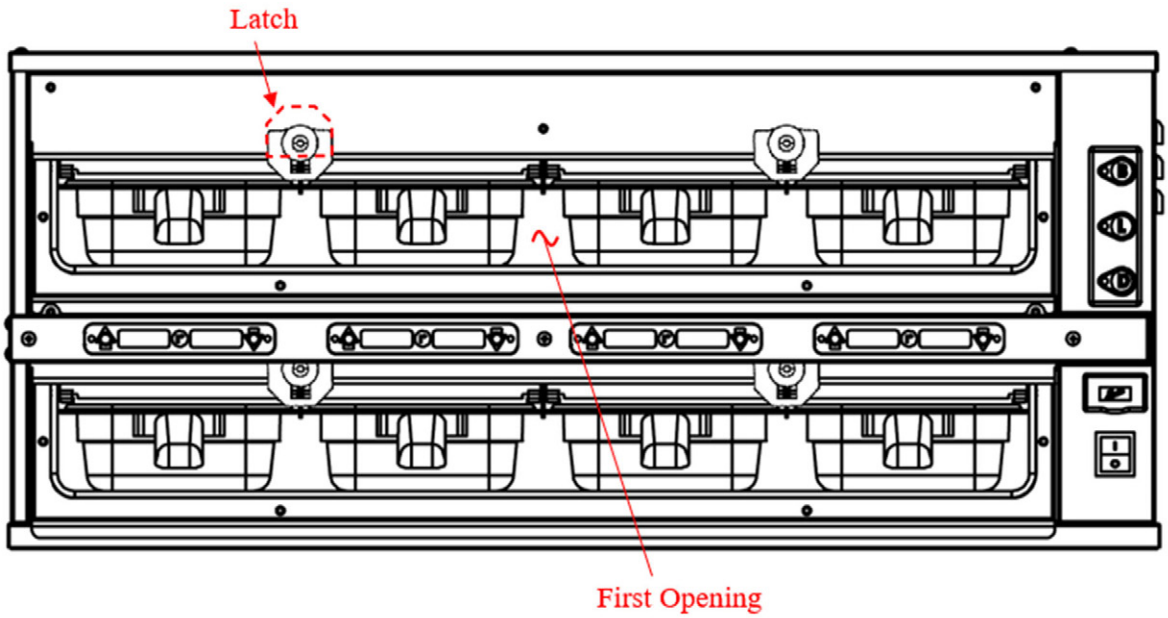
384. The resulting latch would be moveable (rotatable) between a locked position and unlocked position (shown in broken lines). EX1013: Fig. 2; EX1017: 6:9-32, Fig. 1; EX1016: ¶[0043], Fig. 1.



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



EX1017: Fig. 1 (enlarged, annotated to show rotation of Shei'099 stops (88)).



EX1005: 8 (modified, annotated to show combination).

385. In the locked position, the latches would have been positioned (via gravity in an at-rest position) to block/prevent removal of the lid from the lid holding shelf. EX1013: ¶[0058] ("[a]s best shown in FIG. 9, when tray 40 is withdrawn from sub-compartment 64 of heating compartment 24, front turned-up edge 90 of cover 64, acting as an engagement edge, engages stop member 61. The engagement of engagement edge 90 with stop member 61 arrests the movement of cover 44. As the movement of cover 44 is arrested, cover 44 is retained upon within sub-compartment 64 while tray 40 is withdrawn"); EX1017: 6:19-21 ("[t]he free apices of the stops 88 lie beyond the ends of the vertical legs 82 for the covers 80 and retain the covers 80 in the upper regions of the heat sinks 46").

386. In the unlocked position, the latches would have been rotated (e.g., 45-degrees, 180-degrees (as annotated above)) to allow removal of the lid from the lid holding shelf. EX1013: Fig. 2; EX1017: 6:9-32 ("the stop 88 … 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. 1; EX1016: ¶[0043], Fig. 1.

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

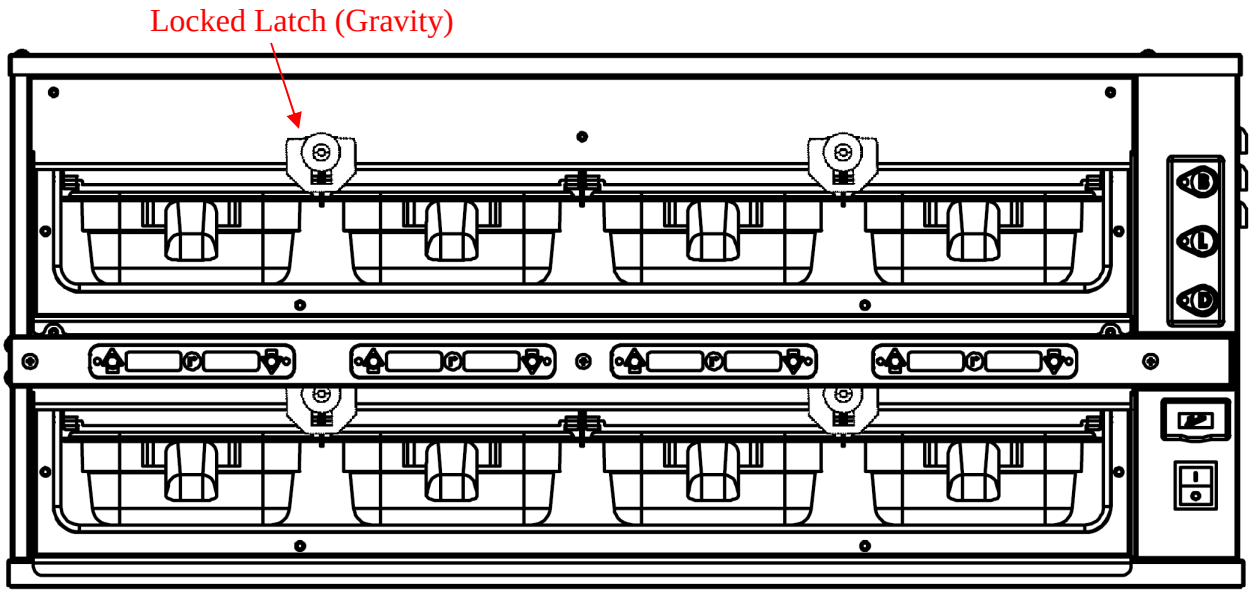
387. As explained in Paragraphs 361-370 with respect to Claim 2, Hartfelder's stop members (61) and Shei'099's stops (88) (*i.e.*, latches) are

rotatable between a locked position and unlocked position (shown in broken lines). EX1013: Fig. 2; EX1017: 6:9-32, Fig. 1; EX1016: ¶[0043], Fig. 1.

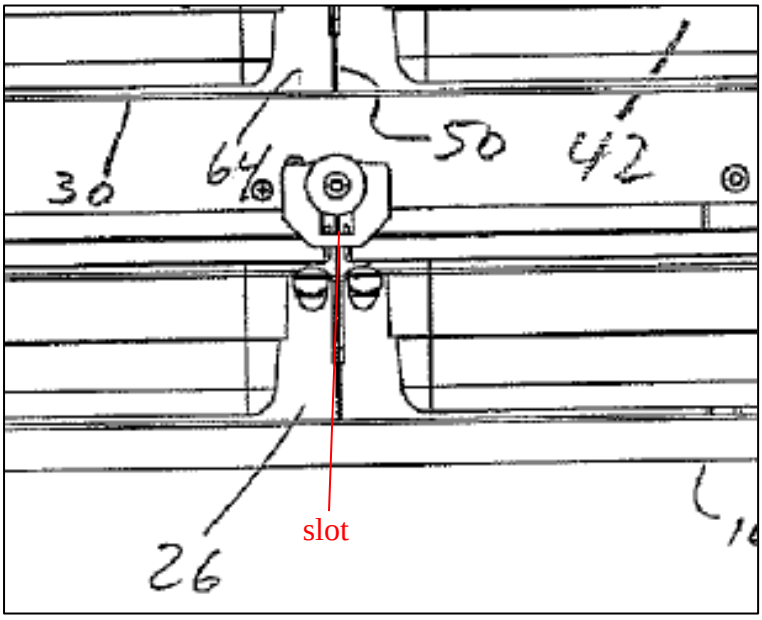
388. In application, gravity biases Hartfelder's stop member (61) and Shei'099's stop (88) (*i.e.*, latches) into the locked position by pulling and/or rotating the latch until the latch's center of gravity is disposed below the fastener. EX1013: Fig. 9; EX1017: 6:9-32 ("Once the cover 80 is fully within the heat sink 44, the stop 88 is released, and it assumes its normal position, blocking the end of the opening 36 and thereby retaining the cover 80 in the heat sink 46"), Fig. 1; EX1016: ¶[0043], Fig. 1. For Hartfelder's stop member (61) (latch), the slot results in the fastener being positioned adjacent the top of the stop member, resulting in most of the mass of the stop member (e.g., center of gravity) being below the fastener, thereby biasing the fastener into the locked position. The mass of the stop member (61) moves the stop member downward relative to the fastener, thereby positioning the fastener at the end of the slot. Similarly, the triangle shape of Shei'099's stop (88) (latch), with the fastener being located at one of the triangle's vertices, results in most of the stop's mass (e.g., center of gravity) being disposed below the fastener (the center of gravity of the stop is spaced apart from the fastener). This arrangement biases the stop toward the locked position.

389. Modifying the IRHS Holding Unit in view of Hartfelder and/or Shei'099 would result in the latch being rotatable and biased into the locked

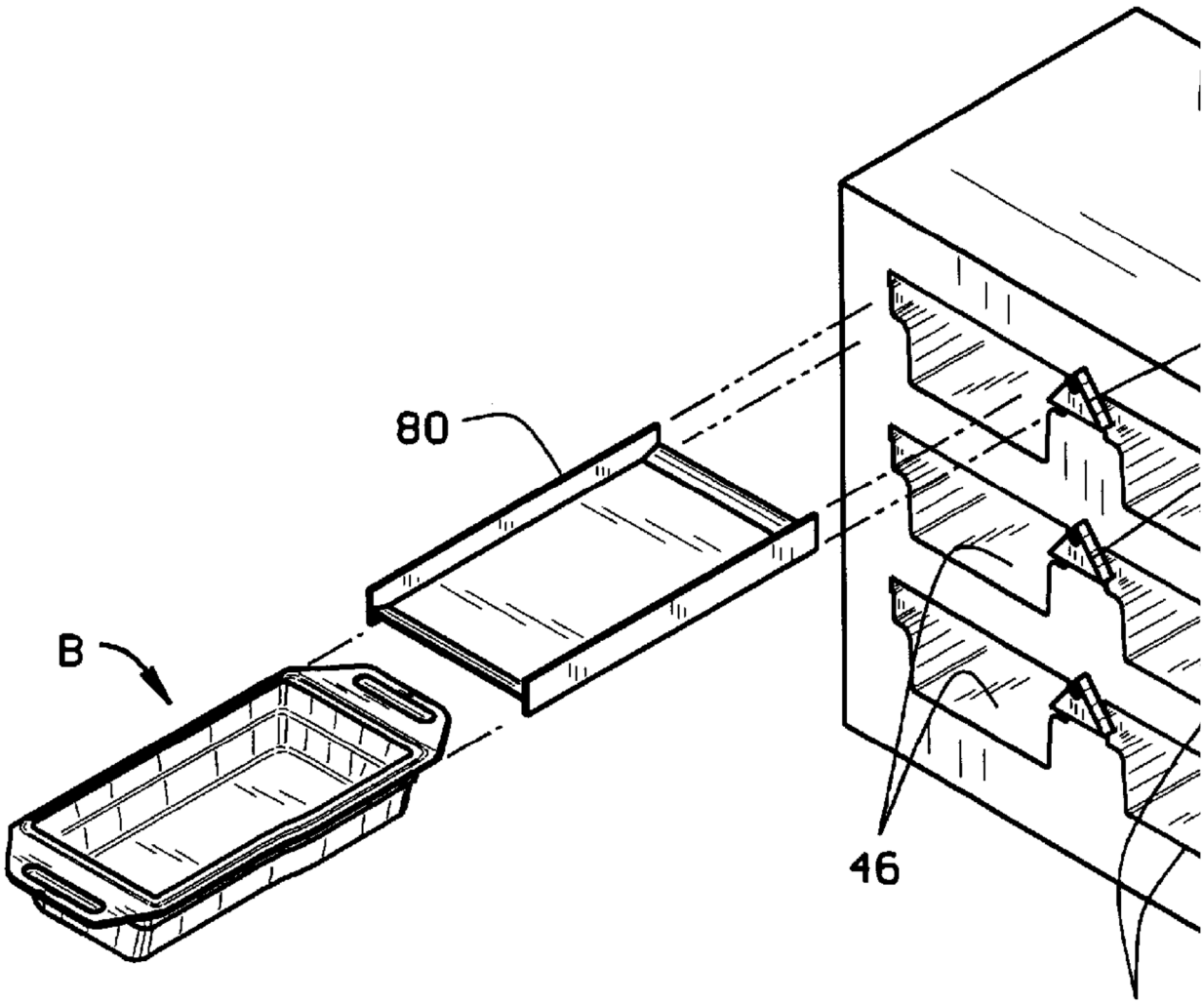
position by gravity as shown in the modified rendering of the IRHS24 Holding Unit below.



EX1005: 8 (modified, annotated to show combination).



EX1013: Fig. 2 (enlarged, annotated).



EX1017: Fig. 1 (enlarged).

390. Accordingly, the POSA would have found it obvious to combine the teachings and disclosures of the IRHS Documents with the teachings of Hartfelder and/or Shei'099 to arrive at the food holding bin as claimed in Claim 20.

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

391. 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 21.

392. The additional "comprising a rotatable latch disposed adjacent the first opening" limitation added in Claim 20 is identical in claim scope to the limitation added in Claim 16.

393. Accordingly, this limitation is disclosed by the IRHS Documents as explained in Paragraphs 374-379 above.

F. Claim 28:

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

394. 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 21.

395. The additional "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" limitation added in Claim 28 is identical in claim scope to the limitation added in Claim 9.

396. Accordingly, this limitation is disclosed by the IRHS Documents as explained in Paragraphs 236-240 above.

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

397. The additional "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" limitation added in Claim 28 is identical in claim scope to the limitation added in claim limitation 20.b.1.

398. Accordingly, this limitation is disclosed by the IRHS Documents as explained in Paragraphs 383-386 above.

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

399. The additional "the latch being biased to the locked position by gravity" limitation added in Claim 28 is identical in claim scope to the limitation added in claim limitation 20.b.2.

400. Accordingly, this limitation is disclosed by the IRHS Documents as explained in Paragraphs 387-390above.

G. Claim 29:

29.a: the food holding bin of claim 21, further comprising: a first bezel is set forward from the shelf by a space

401. 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 21.

402. The additional "a first bezel is set forward from the shelf by a space" limitation added in Claim 29 is identical in claim scope to the limitation added in claim 1.g.

403. Accordingly, this limitation is disclosed by the IRHS Documents as explained in Paragraphs 185-187 above.

29.b: a rotatable latch disposed adjacent the first opening

404. The additional "a rotatable latch disposed adjacent the first opening" limitation added in Claim 29 is identical in claim scope to the limitation added in Claim 16.

405. Accordingly, this limitation is disclosed by the IRHS Documents as explained in Paragraphs 374-379 above.

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

406. The additional "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" limitation added in Claim 29 is identical in claim scope to the limitation added in Claim 9.

407. Accordingly, this limitation is disclosed by the IRHS Documents as explained in Paragraphs 236-240 above.

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

408. The additional "wherein the first independently controllable heating element is adapted to output more heat energy than the second heating element" limitation added in Claim 29 is identical in claim scope to the limitation added in claim limitation 14.g.

409. Accordingly, this limitation is disclosed by the IRHS Documents as explained in Paragraphs 265-269 above.

VI. GROUND 3: Claims 6, 17, and 25 Would Have Been Obvious According to Grounds 1-2 or 4-7 in further view of Veltrop and/or Poole Even to the Extent the IRHS Documents Are Found Not to Sufficiently Teach the Heating Elements Comprising a Resistive Wire

410. Within the claims of the '002 Patent, Claims 6, 17, and 25 recited claim limitations requiring the heating elements comprise a resistive wire.

411. As discussed in Paragraphs 219-224 above (Claim 6), it is my opinion that the POSA would have recognized that each of the IRHS heating elements (including the IR bulbs) comprise a resistive wire. If it is determined that the IRHS Documents do not sufficiently describe the IRHS heating elements as comprising resistive wires, it would have still been obvious for the upper and lower heating elements to include resistive wires in view of Veltrop and/or Poole.

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

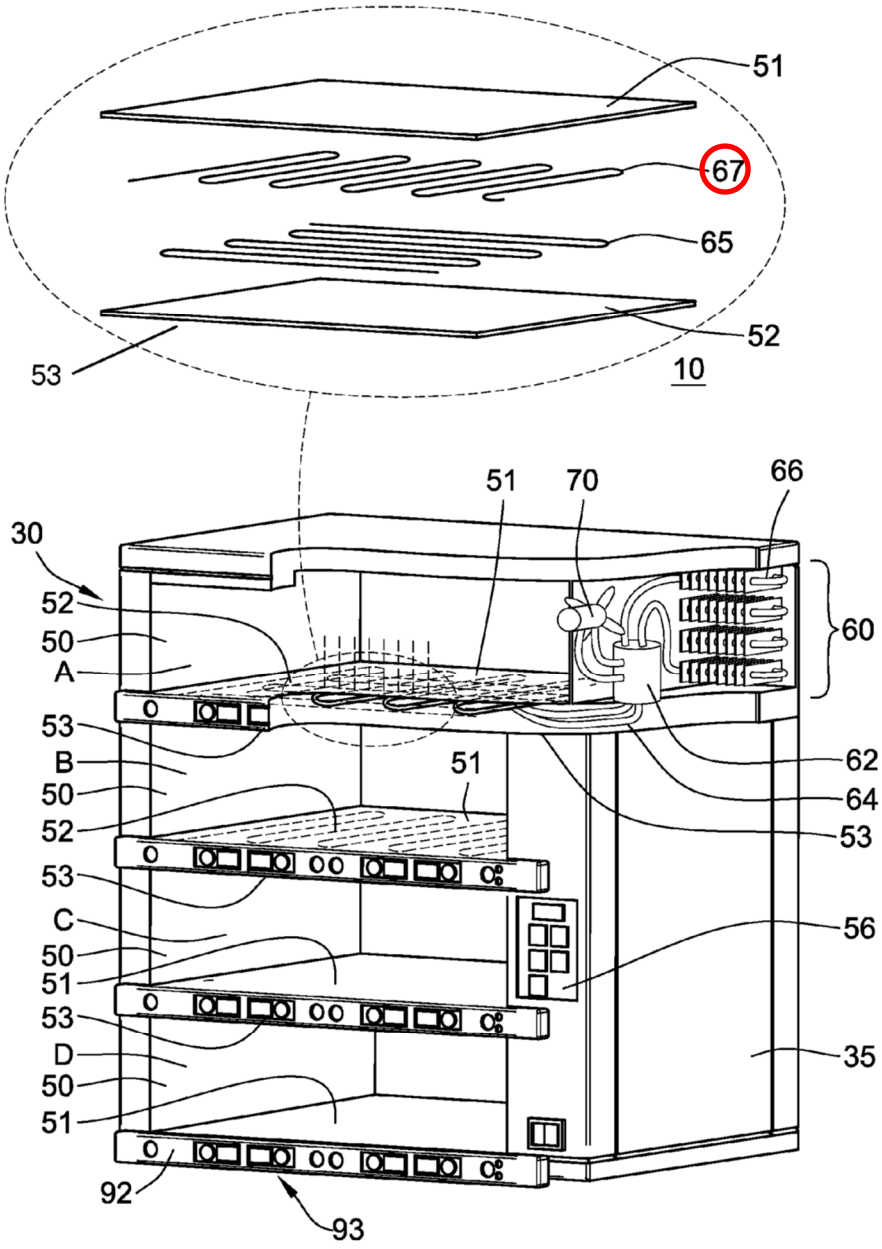
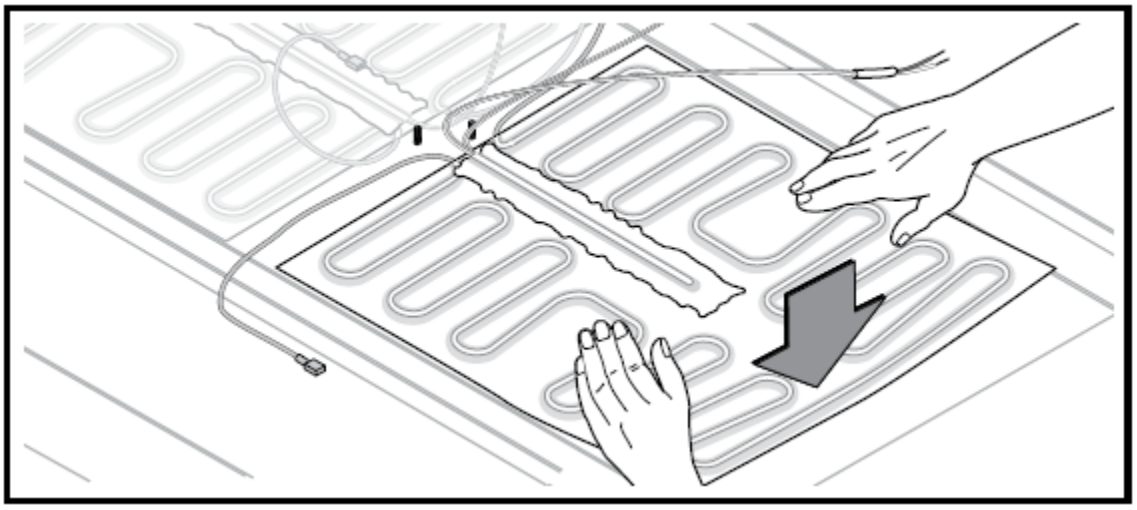


FIG. 2

EX1022: Fig. 2 (annotated).

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

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



EX1008: 23.

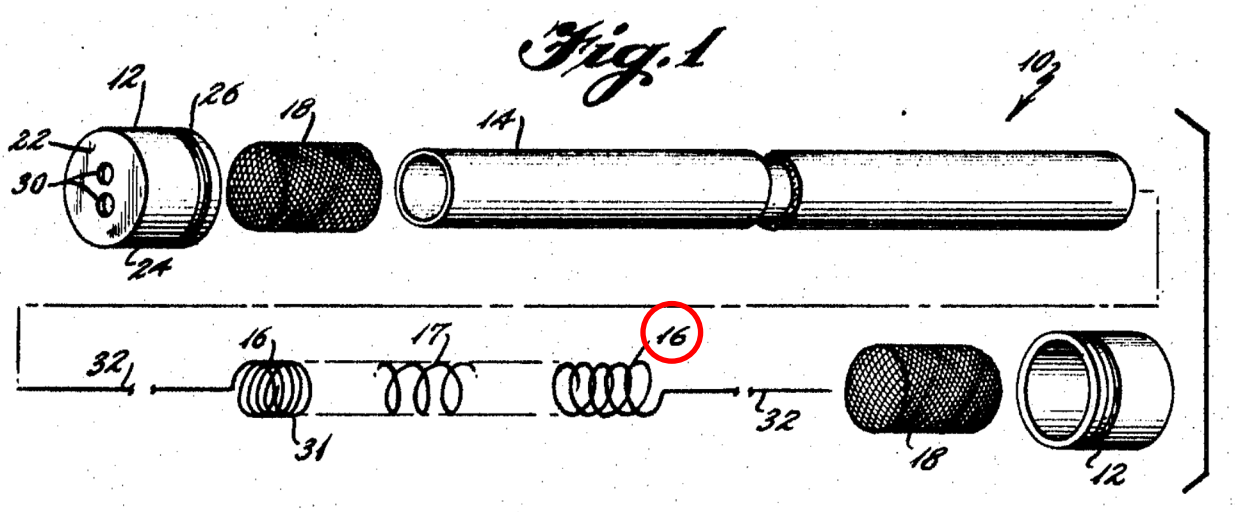
415. Further, Veltrop's electrically-resistive heater wire (67) is electrically controlled, which would enable the IRHS Holding Unit's controller to operate it. EX1022: ¶[0025].

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

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

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

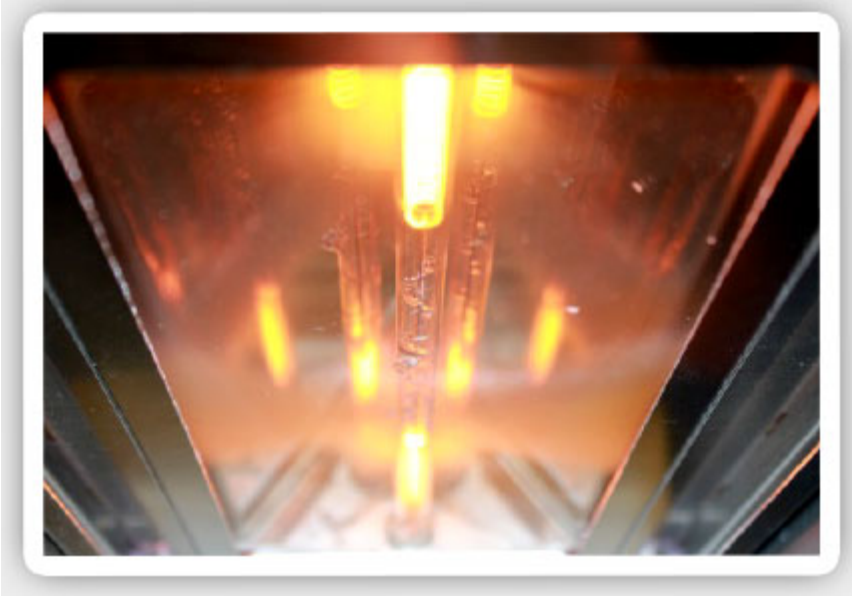
419. Poole teaches that an "infrared quartz heater" has a resistance wire (16). EX1025: Title ("Infrared Quartz Heater"), 1:29-30 ("[t]he usual quartz infrared heater consists essentially of a resistance wire heating element"), 2:6-7 ("a heater element 16 in the form of a coiled resistance wire").



EX1025: Fig. 1 (annotated).

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

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



EX1007: 11.

422. This would have been nothing more than the substitution of one known element (Poole's infrared quartz heater) for another (the unspecified IR bulbs of the IRHS Holding Unit) to obtain predictable results in the form of IR heating of food. Here there would be a high expectation of success given that the IRHS Documents are already disclosing the use of quartz IR heaters like Poole's. EX1007: 53.

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

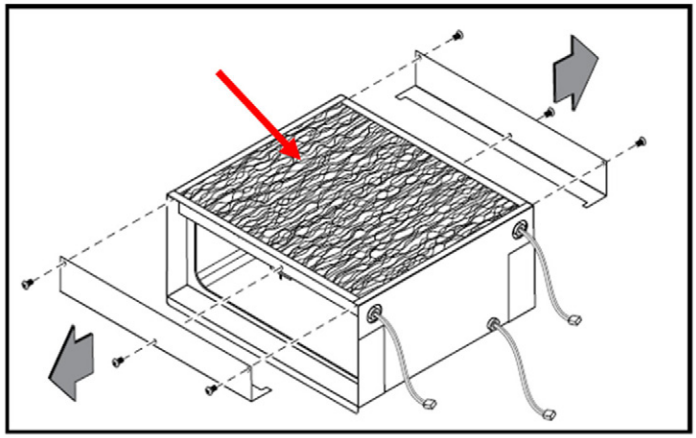
424. Accordingly, to the extent that there is any doubt that the IRHS Documents disclose the independently controllable heating elements as comprising a resistive wire, the POSA would have found it obvious to modify the IRHS

Holding Unit disclosed in the IRHS Documents in view of Veltrop and/or Poole to arrive at the claimed food holding bin of Claims 6, 17, and 25.

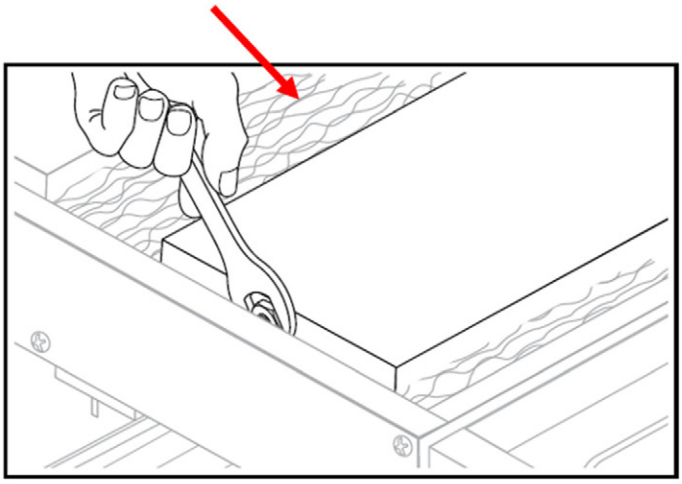
VII. GROUND 4: Claim 22 Would Have Been Obvious Over the IRHS Documents in view of Fortmann'967 and/or Fortmann'197

A. Claim 22: the food holding bin of claim 21, wherein an insulating material is provided between the second and the fifth heating elements

425. The IRHS Service Manual shows thermal insulation in some of its views and instructs the removal and reinstallation of the insulation in the shelf of the IRHS Holding Unit during replacement of heat sink heating elements and temperature sensors. EX1008: 17-18 ("9. Invert the liner deck assembly upside-down, then remove and retain the insulation" and "12. … replace the insulation"), 22-23.



EX1008: 25.



EX1008: 26.

426. While insulation of the IRHS Holding Unit would presumably be located between the first and second sets of independently controllable heating elements, so as to permit the heat to reach the intended food holding compartment while limiting unintended heat migration between the food holding compartments, the IRHS Service Manual does not explicitly give the location of the insulation with respect to heating elements.

427. Fortmann'967 teaches a food holding system or cabinet (10) for keeping food warm that is similar to the IRHS Holding Unit. 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.

428. Within the Fortmann'967 cabinet (10), stacked food treatment spaces (16, 18, 20, 22) receive trays (32) of food and each space (16, 18, 20, 22) has two heaters (44, 48) which heat the tops and bottoms of the trays (32). EX1018: 3:64-

65, 4:4-11, 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

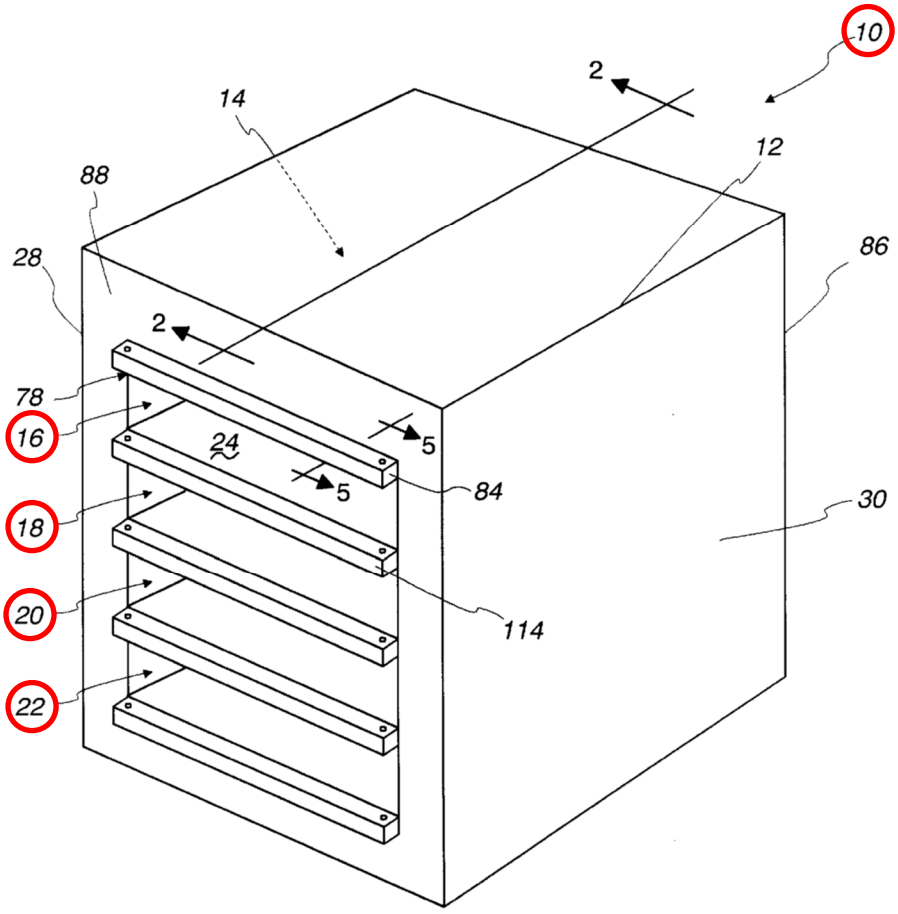
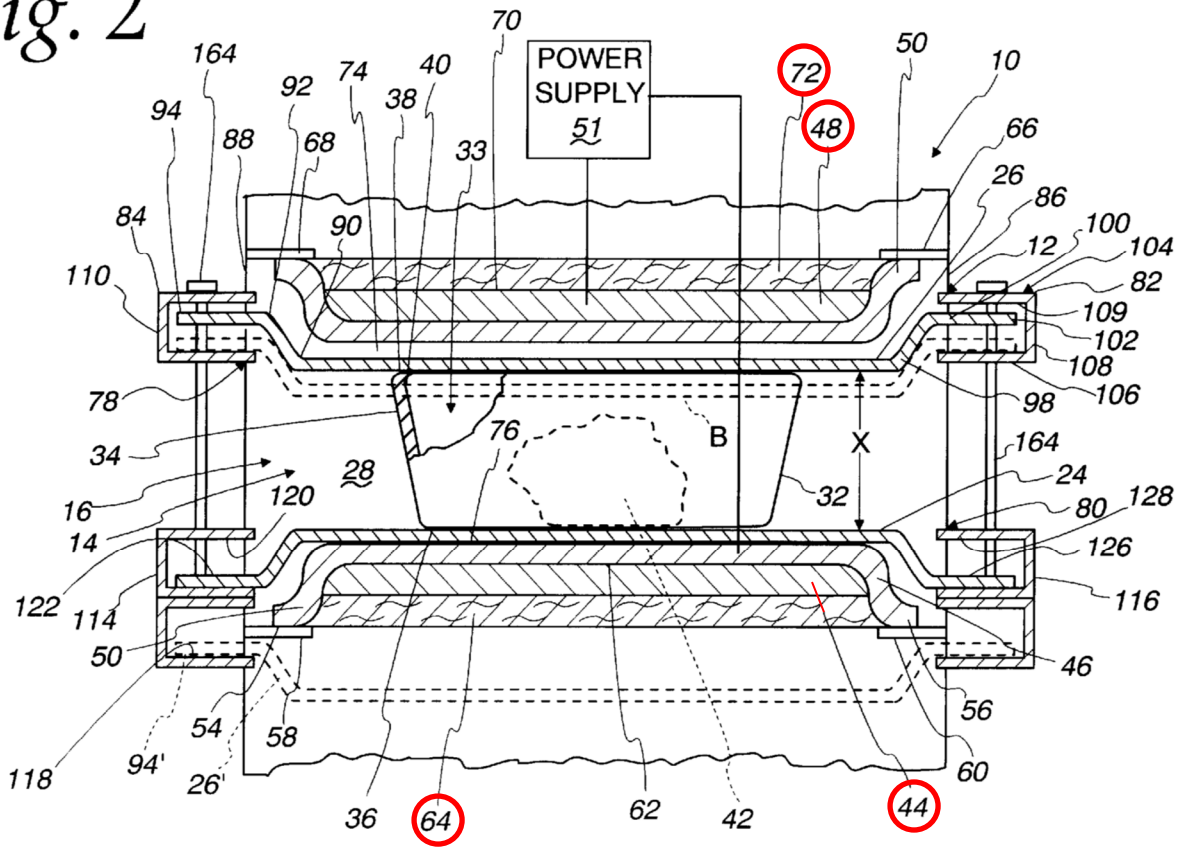


Fig. 2



EX1018: Figs. 1 and 2 (annotated).

429. Each heater (44, 48) of Fortmann'967 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.

430. Similarly, Fortmann'197 explains "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, Figs. 1 and 10.

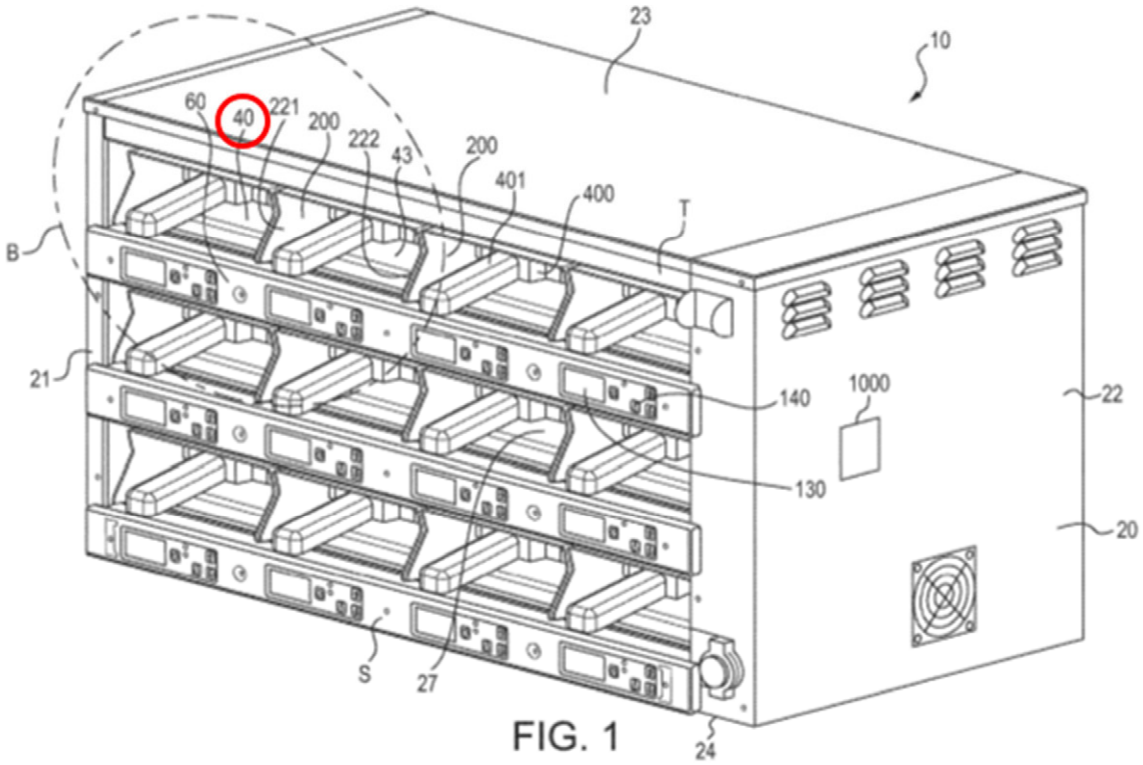


FIG. 1

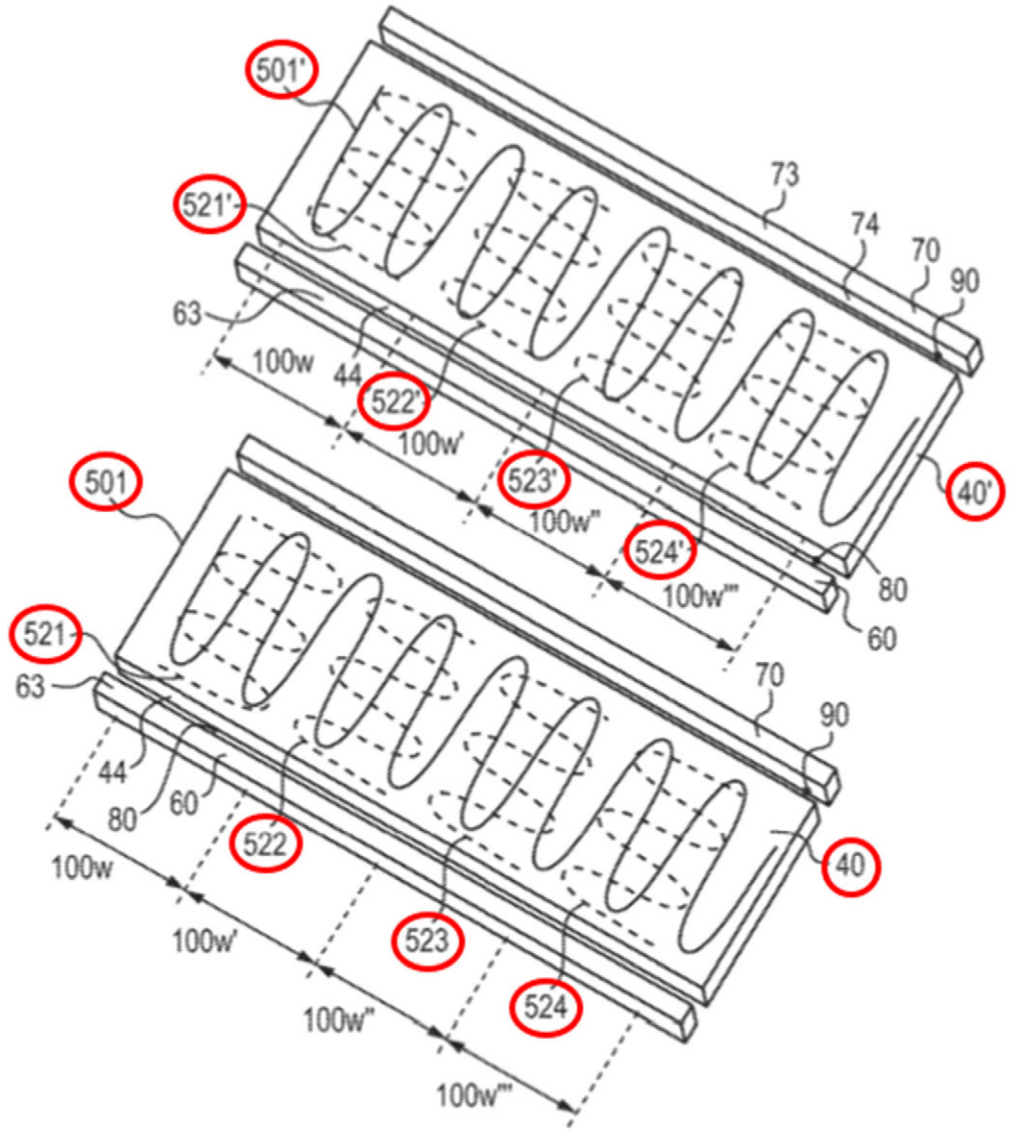


FIG. 10

EX1014: Figs. 1 and 10 (annotated).

431. It would have been obvious to arrange insulation within the shelf of the IRHS Holding Unit between the upper and lower heating elements to direct the heat generated by the upper heating elements (e.g., second and fourth heating

elements) into the compartment above the shelf and direct the heat generated by the lower heating elements (e.g., fifth and sixth heating elements) into the compartment below the shelf for the same reasons identified by Fortmann'197. EX1014: 9:32-37 ("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").

432. The insulation would further thermally separate the two compartments, thus reducing the effect of temperature in one compartment on temperature in the other compartment, increase heating accuracy and efficiency, and reduce power consumption.

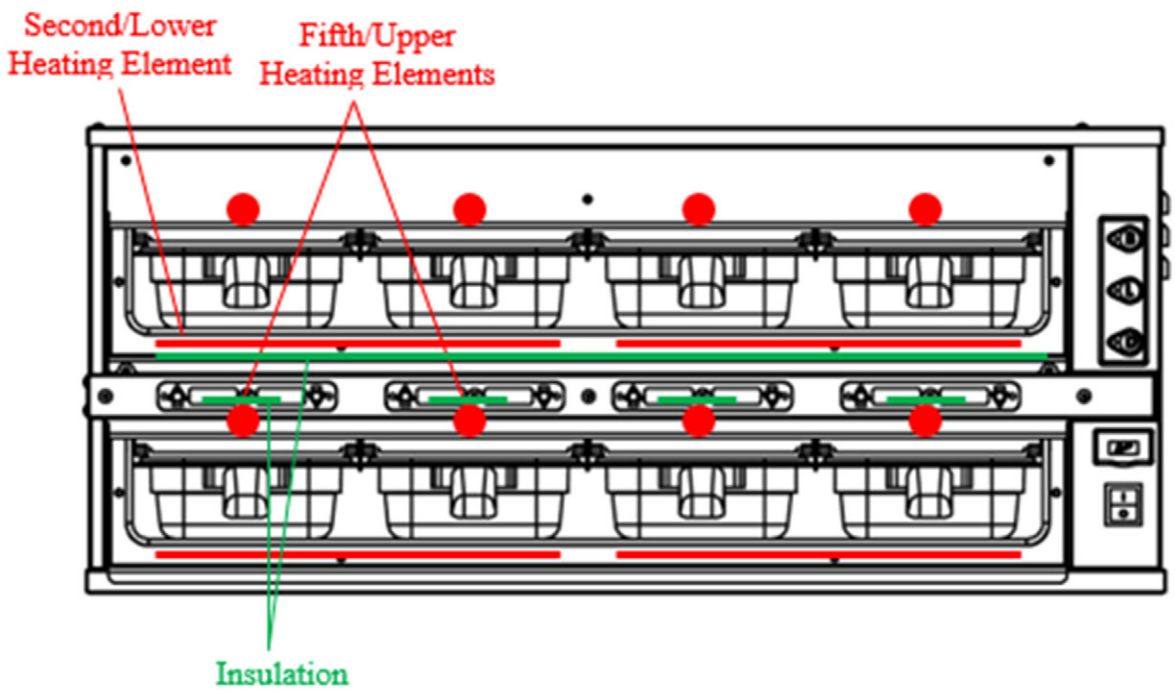
433. This modification would have been nothing more than combining known prior art elements (the insulation of Fortmann'967 and/or Fortmann'197 with the IRHS Holding Unit) according to known methods (the arrangement taught by Fortmann'967 and/or Fortmann'197) to yield predicable results of thermally separating the upper and lower heaters in the same shelf.

434. Likewise, this modification would have also been nothing more than using a known technique (incorporating the insulation of Fortmann'967 and/or

Fortmann'197) to improve a similar device (the IRHS Holding Unit) in the exact same way as taught by Fortmann'967 and/or Fortmann'197.

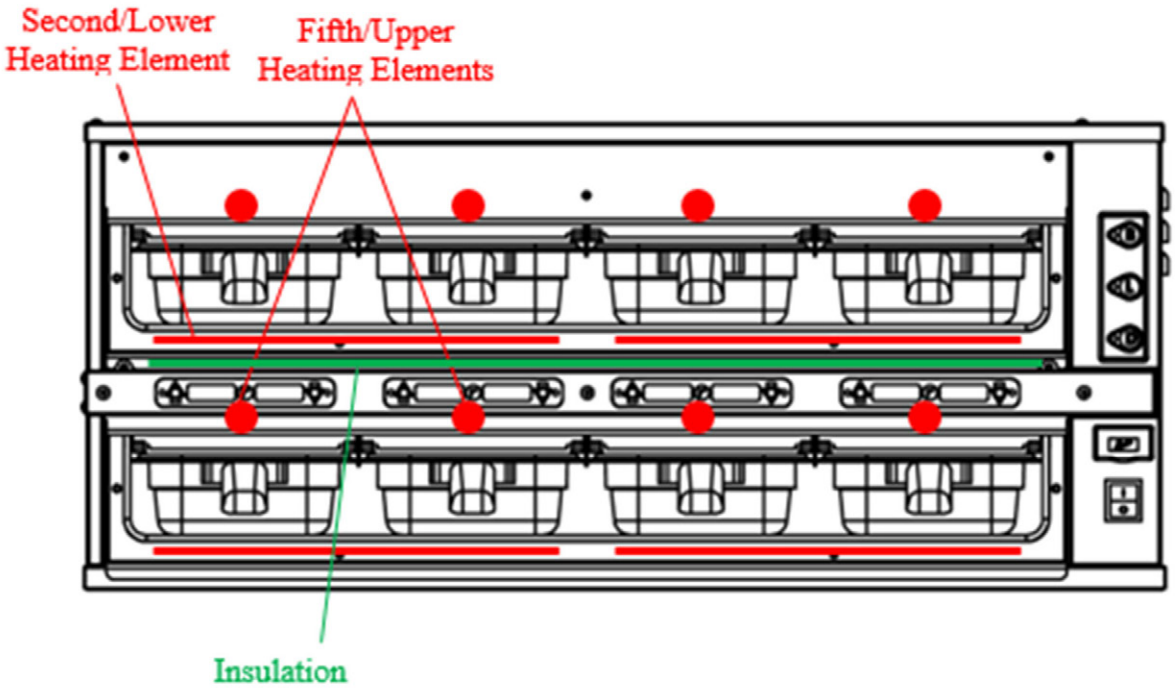
435. Moreover, there would have been a reasonable expectation of success in making this modification given (1) the similarities between the IRHS Holding Unit and the units of Fortmann'967 and Fortmann'197 (*e.g.*, all shelves having upper and lower heating elements), (2) the IRHS Service Manual shows insulation and mentions it in the shelf, (3) the insulating capabilities of the added insulation from Fortmann'967 or Fortmann'197 would not change, and (4) Fortmann'967 and Fortmann'197 demonstrate placement of insulation between heating elements in a shelf would be possible. EX1018: 4:33-38; EX1014: 9:32-37.

436. Specifically, based on Fortmann'967's teachings to back each heating element with insulation (EX1018: 4:33-38), the POSA would have backed each of fifth/upper and second/lower heating elements in the shelf with insulation. A schematic illustration of the IRHS24 Holding Unit modified in this manner is shown below:



EX1005: 8 (modified, annotated to demonstrate insulation location).

437. Fortmann'197 teaches placing insulation between the upper and lower heating elements in the shelf. EX1014: 9:32-37. Based on these teachings, the POSA would place the insulation in the interior volume of the shelf (21) between the upper and lower heating elements. A schematic illustration of the IRHS24 Holding Unit modified in this manner is shown below:



EX1005: 8 (modified, annotated to demonstrate insulation location).

438. In either configuration, the modified IRHS Holding Unit would have had insulation in the shelf, which would have been arranged between the second and the fifth heating elements.

439. Accordingly, the POSA would have found it obvious to modify the IRHS Holding Unit disclosed in the IRHS Documents in view of Fortmann'967 and/or Fortmann'197 to arrive at the claimed food holding bin of Claim 22.

VIII. GROUND 5: Claims 14-20 and 29 Would Have Been Obvious According to Grounds 1-3 or 6-7 in Further View of Prince Castle and/or Reese Even to the Extent the IRHS Documents Are Found Not to Sufficiently Teach the Comparative Energy Outputs of the Heating Elements

440. Within the claims of the ’002 Patent, there were claim limitations of Claims 14 and 29 that concern the comparative energy outputs of the heating elements. These limitations are listed as follows:

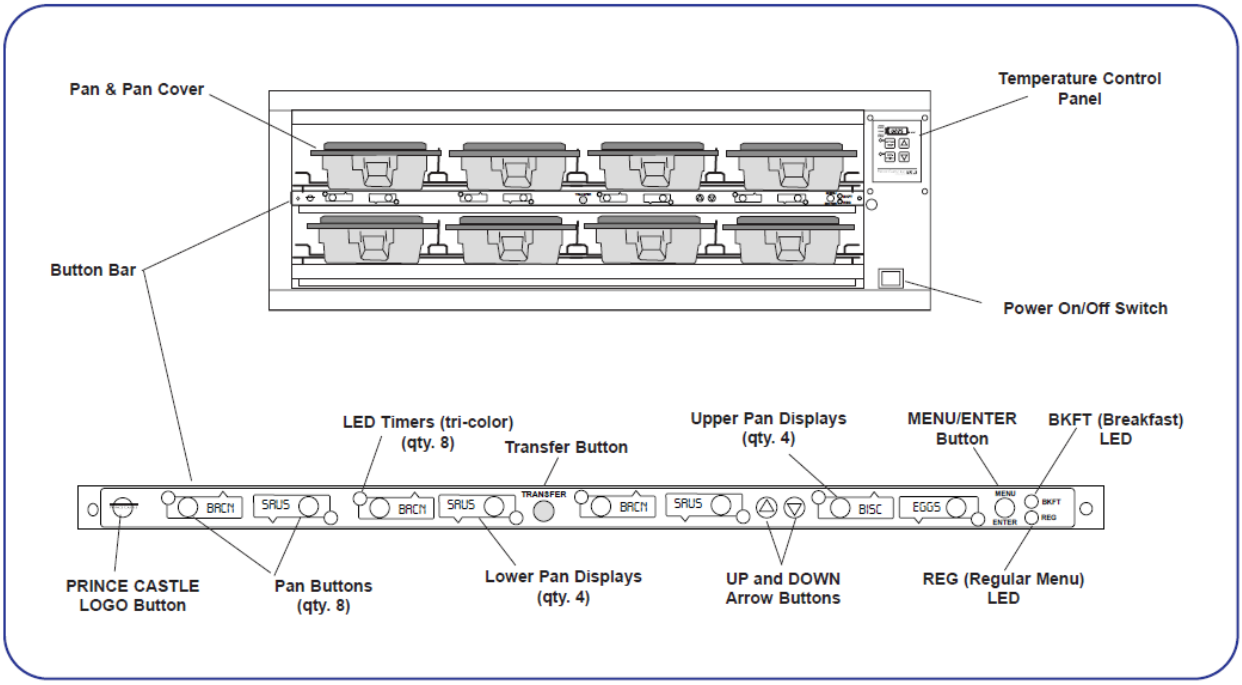
- 14.g: “wherein the first independently controllable heating element is adapted to output more heat energy than the second heating element.”; and
- 29.d: “wherein the first independently controllable heating element is adapted to output more heat energy than the second heating element.”

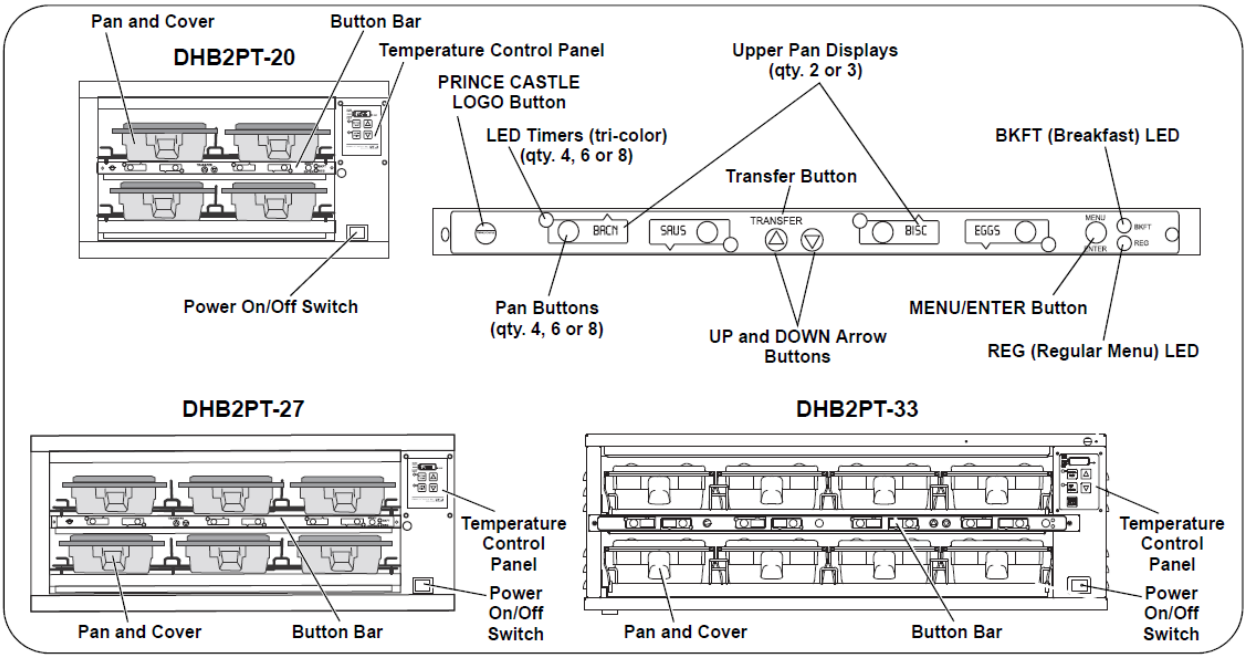
441. As discussed in Paragraphs 265-269 above (Claim 14.g), it is my opinion that the POSA would have recognized that as disclosed by the IRHS Documents the heating element disposed at the top portion of the food holding compartments were adapted to output more heat energy than the heating elements disposed at the bottom portion of the food holding compartments. If it is determined that the IRHS Documents do not sufficiently describe the comparative energy outputs of the heating elements, the claimed comparative energy outputs would have still been obvious in view of Prince Castle and/or Reese.

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

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

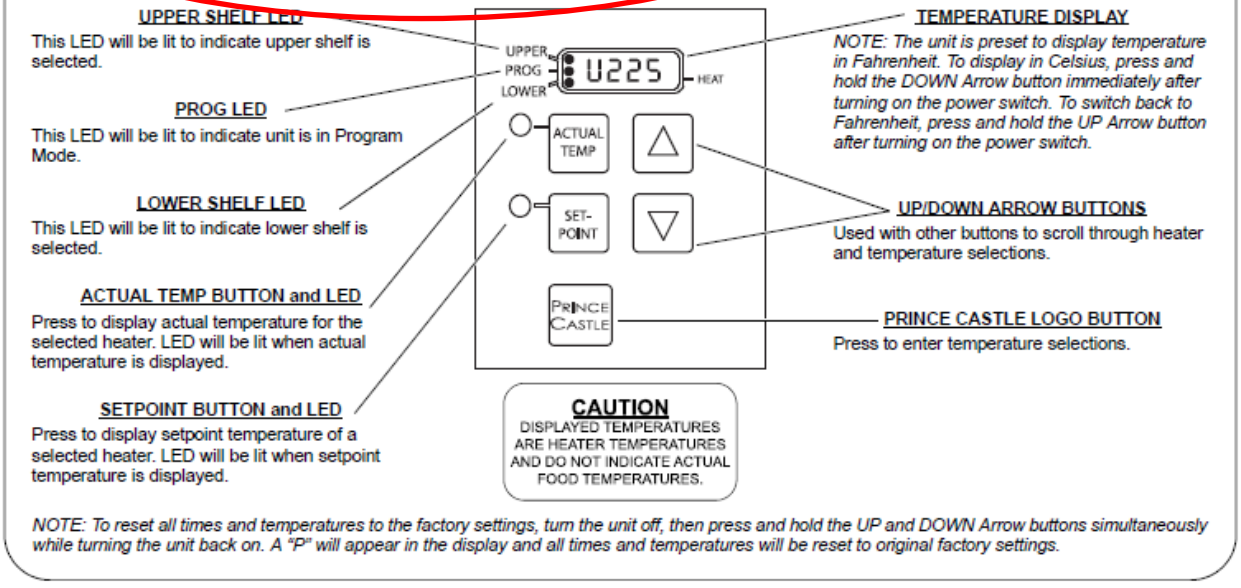
444. Specifically, the 2006 and 2010 Operation Manuals of Prince Castle both explain that "[t]he factory pre-set for the upper heaters is 225°F" (with a max setting of 275°F) and "[t]he factory pre-set for the lower heaters is 195°F" (with a max setting of 225°F). EX1009: 22, 40.





EX1009: 19, 36.

The unit has two shelves, each with an upper and lower heater (four heaters total).
The factory pre-set for the upper heaters is 225°F.
The factory pre-set for the lower heaters is 195°F.
Each upper heater has a programmable range of 150° – 275°F.
Each lower heater has a programmable range of 150° – 225°F.
Use the control below and the following steps to set the setpoint temperature for each heater.



NOTE: To reset all times and temperatures to the factory settings, turn the unit off, then press and hold the UP and DOWN Arrow buttons simultaneously while turning the unit back on. A "P" will appear in the display and all times and temperatures will be reset to original factory settings.

EX1009: 40 (annotated).

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

446. Similar to the IRHS Documents, Reese also teaches a product holding unit with upper IR heating elements having a turbo boost function to increase heat output "to re-crisp breaded (fried) food, to melt cheese on fries, to melt cheese on burger patties, to brown grilled food products, and/or to brown burger patties" before serving. EX1027: ¶¶[0001], [0019] ("deliver an increased amount of heat to the food"), [0021], [0025].

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

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

449. It would have further been desirable for the first/upper IR heating elements in a food holding to output more heat energy than second/lower conduction elements as needed for the first/upper IR heating elements to overcome several issues.

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

451. Additionally, IR heating elements radiate IR energy in all directions. Even with reflectors, a portion of that heat energy is lost to the surrounding air and the structure of the holding unit. This loss of energy is compensated for by operating the IR heating elements at higher heat energy output levels.

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

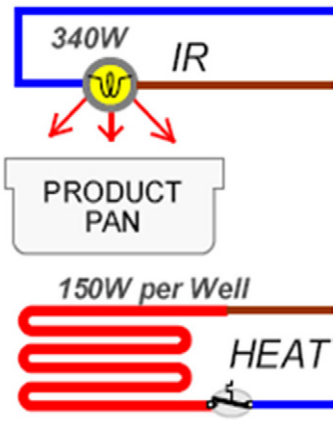
453. Accordingly, it would have been obvious to adapt each upper heating element (*e.g.*, the first/third/fifth/sixth heating elements) of the IRHS Holding Unit—including the IRHS24 Holding Unit—be to output more heat energy than the lower heating elements (*e.g.*, the second/fourth heating elements) in view of the IRHS Documents, Prince Castle and/or Reese.

454. The POSA would have had the first/upper IR heating elements output more heat energy than the second/lower heating elements (higher target temperature, turbo boost heat, and/or higher wattage rating (EX1008: 64)) to help overcome the distance between the upper IR heating elements and the food, to counteract evaporative cooling, to maintain food surface temperature and texture, to compensate for the upper IR energy radiating in all directions, and/or to permit the cook "to re-crisp breaded (fried) food, to melt cheese on fries, to melt cheese on burger patties, to brown grilled food products, and/or to brown burger patties" with the first/upper IR heating elements. EX1027: ¶[0021]; EX1006: 1 ("Upper IR emitters provide optimum environment for holding of all fried foods resulting in extended hold time, moist protein, and crispy breading.").

455. Adapting the first/upper heating elements to output more heat energy than the second/lower heating element would also allow more direct heat on the food to "provide optimum environment" while "minimiz[ing] temperature distribution from top to bottom." EX1006: 1 ("[d]ual technology heating to reduce

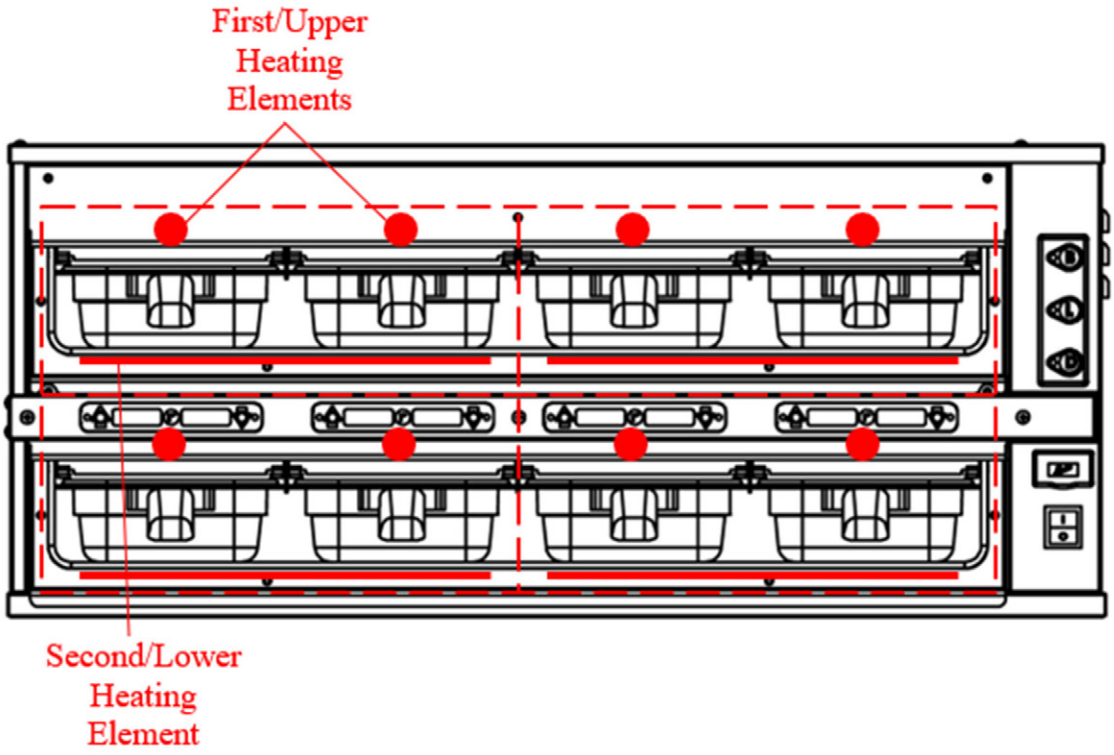
temperature variance from top to bottom"); EX1007: 51 ("deliver a consistently hot pan of product, from top to bottom").

456. This would have been nothing more than the application of a known technique (upper heating elements outputting more heat energy than lower heating elements per Prince Castle) to improve a similar device (IRHS Holding Unit) in the same way (higher setpoint temperatures for upper heating elements relative to lower heating elements). The POSA would have had a reasonable expectation of success given the IR first/upper heating elements operate independently of the second/lower heating elements, can pulse on and off as needed, and are higher wattage (340W) than the heat sink heating elements (150W per well or 300W per element). EX1006: 1 ("Individually controlled IR emitters pulse on and off for controlling optimum amount of energy being applied to the food").



EX1008: 64.

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



EX1005: 8 (annotated).

458. Higher temperatures mean more heat energy. Having the upper/first IR heating elements operate at a higher target temperature than the lower/second heating elements means the upper/first IR heating elements are outputting more heat energy to maintain the higher temperature than the lower/second heating elements.

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

460. The claim limitations of Claims 14 and 29 that concern the comparative energy outputs of the heating elements are met by Prince Castle and/or Reese.

461. Accordingly, to the extent that there is any doubt that the IRHS Documents disclose that the first heating elements disposed at the top portion of the food holding compartments were adapted to output more heat energy than the second heating elements disposed at the bottom portion of the food holding compartments, the POSA would have found it obvious to modify the IRHS Holding Unit disclosed in the IRHS Documents in view of the IRHS Documents, Prince Castle, and/or Reese to arrive at the food holding bin as claimed. As such, Claims 14-20 and 29 would have been obvious for at least the reasons explained Grounds 1-3 above and Grounds 6-8 below in further view of Prince Castle and/or Reese.

IX. GROUND 6: Claims 1-29 Would Have Been Obvious According to Grounds 1-5 or Grounds 7-8 in Further View of Veltrop and Shei'155 Even to the Extent the IRHS Documents Are Found Not to Sufficiently Teach the Claim Limitations Concerning the Material of Construction of the Heatsink or its Conductivity

462. Within the claims of the '002 Patent, there were several claim limitations of Claims 1, 8, 11, 14, 19, 21, and 27 that concern the material of construction of the substantially planar surfaces/upper plates of the shelf and their ability to conduct thermal energy. These limitations are listed as follows:

- 1.c.3: "and the substantially planar surface comprising a thermally conductive material"
- 8: "the second independently controllable heating element provides heat energy through conduction"
- 11: "the substantially planar surface comprises aluminum"
- 14.c.3: "the substantially planar surface comprising a thermally conductive material"
- 19: "the second independently controllable heating element provides heat energy through conduction"
- 21.c.3: "the substantially planar surface comprising a thermally conductive material"
- 21.j.1: "wherein the shelf comprises an upper thermally conductive plate"
- 21.j.2: "the fifth and sixth heating elements being disposed between the upper thermally conductive plate and the lower thermally conductive plate"
- 21.j.3: "the second and fourth heating elements being in thermal communication with the upper thermally conductive plate"
- 27: "the second independently controllable heating element provides heat energy through conduction"

463. As discussed above, it is my opinion that the POSA would recognize the IRHS Documents—and more particularly the IRHS Specifications (EX1006)—taught the Heatsink (i.e., the "substantially planar surface" and "upper thermally conductive plate") as being composed of anodized aluminum—a thermally conductive material—thus meeting these limitations. EX1006: 1 ("[a]nodized aluminum HeatSink").

464. If it is determined that the IRHS Documents do not sufficiently describe the IRHS material of construction of the substantially planar surfaces and/or their thermal conductivity, the claims would have still been obvious in view of Veltrop and/or Shei'155.

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

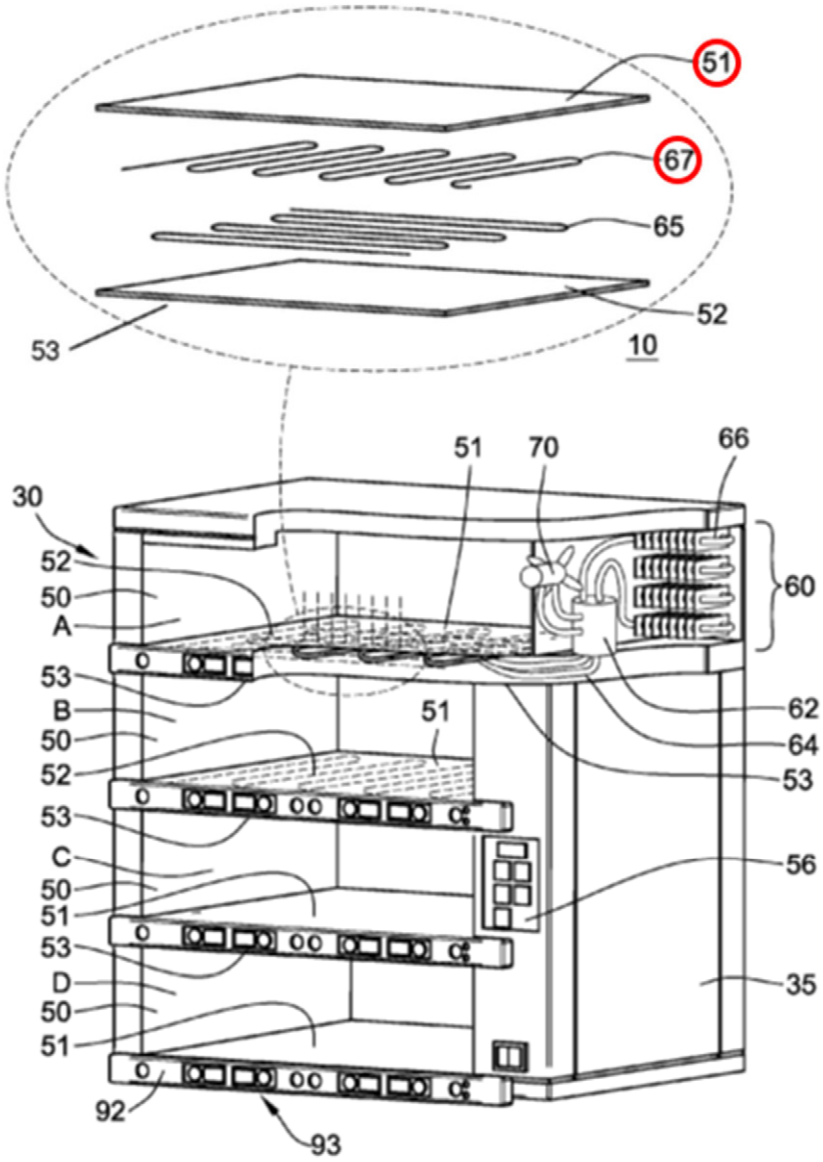
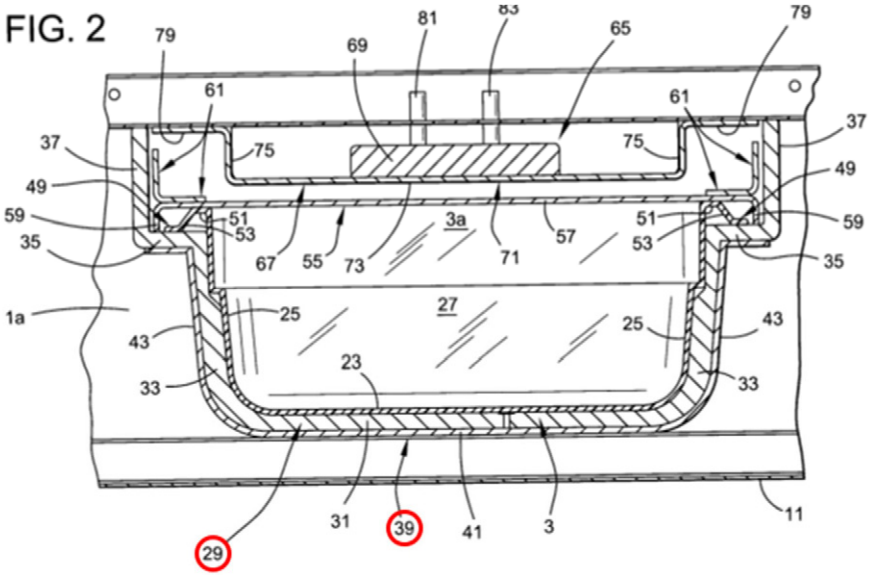


FIG. 2

EX1022: Fig. 2 (annotated).

466. Shei'155 similarly teaches an electrical resistance heating element (39) conductively coupled to the heat sink (29) via contact with the bottom of the heat sink. EX1016: ¶[0039] ("An electrical resistance heating element generally

designated 39 having a bottom component 41 contacting the bottom of the heat sink").



EX1016: Fig. 2 (annotated).

467. It would have been obvious for the lower heating elements of the IRHS Holding Unit (*i.e.*, second and fourth independently controllable heating elements) to be conductively coupled to the heatsink plates in view of Veltrop and/or Shei'155 because conduction is an effective and efficient means of transferring the heat from the lower heating elements to the heat sinks and into the food in the pans. EX1010: ¶[0020] ("bottom sheet 23 may be in contact with the heater 60 to allow for conductive heat transfer thereto"); EX1016: Fig. 2, ¶[0039] ("[a]n electrical resistance heating element generally designated 39 having a bottom component 41 contacting the bottom of the heat sink"); EX1017: Fig. 3, 4:51-53 ("[e]ach heat sink 46 is fitted with a heater which may take the form of a

flexible heating element 76 of the electrical resistance type. It extends almost the full length of the heat sink 44, covering the flat bottom surface 54 of the bottom wall 50 [of the heat sink]"); EX1020: ¶[0020] ("thermally-conductive shelves"); EX1022: ¶[0050] ("[t]he heat transfer devices disclosed herein are thermally coupled to the shelf 52, preferably by way of mechanical attachment to at least one of the plates").

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

469. There would have been a reasonable expectation of success given that the IRHS Holding Unit, Veltrop, and Shei'155 are all food warming cabinets and conduction was a well-known technique of heating food pans. EX1010: ¶[0020] ("bottom sheet 23 may be in contact with the heater 60 to allow for conductive heat transfer thereto"); EX1016: Fig. 2, ¶[0039] ("[a]n electrical resistance heating element generally designated 39 having a bottom component 41 contacting the bottom of the heat sink"); EX1017: Fig. 3, 4:51-53 ("[e]ach heat sink 46 is fitted with a heater which may take the form of a flexible heating element 76 of the

electrical resistance type. It extends almost the full length of the heat sink 44, covering the flat bottom surface 54 of the bottom wall 50 [of the heat sink]"); EX1020: ¶[0020] ("thermally-conductive shelves"); EX1022: ¶[0050] ("[t]he heat transfer devices disclosed herein are thermally coupled to the shelf 52, preferably by way of mechanical attachment to at least one of the plates").

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

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

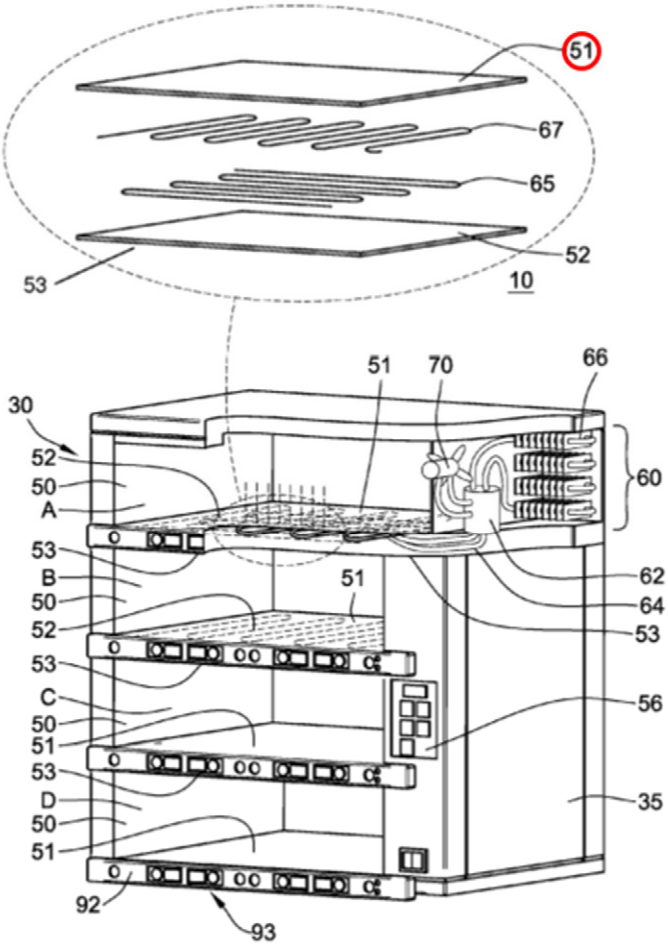


FIG. 2

EX1022: Fig. 2 (annotated).

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

473. Just as it would have been obvious to select thermally conductive material to make the IRHS heatsink plates, more specifically, aluminum would have been a preferred material for such structures as it "conducts heat well." EX1017: 3:32-33; EX1022: ¶[0023]; EX1020: ¶¶[0021]-[0023] (in the context of

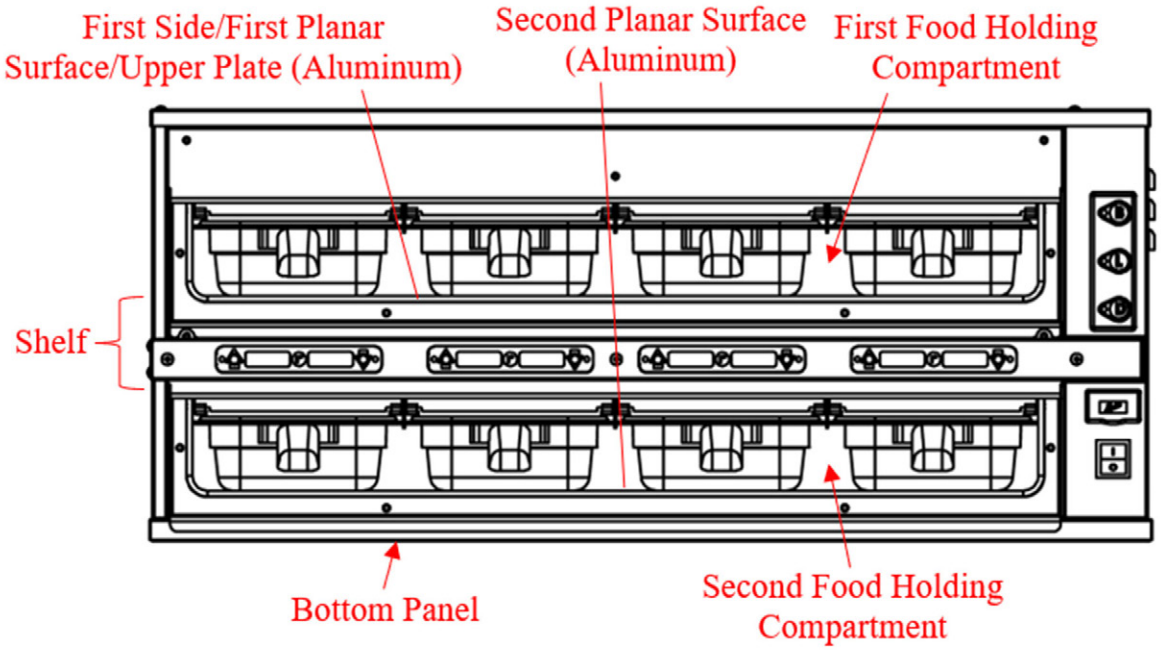
individually controllable heating zones A-C across a shelf (21), disclosing that "shelves 21 are preferably made from thermally conductive materials such as aluminum, copper or steel, so that the temperature of the food holding compartments 23 can be maintained by the transfer of heat from the shelf 21 into the compartment"); EX1021: ¶¶[0020]-[0022] (in the context of individually controllable heating zones A-C across a shelf (21), disclosing that "shelves 21 are preferably made from thermally conductive materials such as aluminum, copper or steel, so that the temperature of the food holding compartments 23 can be maintained by the transfer of heat from the shelf 21 into the compartment").

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

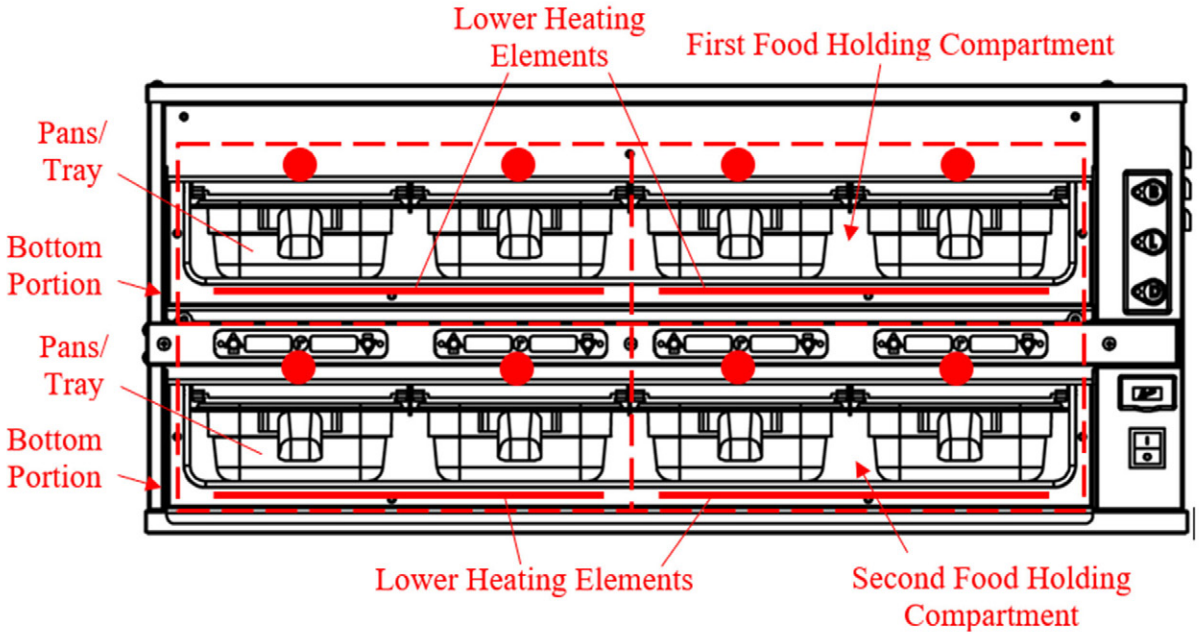
475. The use of aluminum, specifically, would have been nothing more than the use of a known material (aluminum from and Shei'155) to improve—to the extent it was not sufficiently disclosed—a similar device (the heatsink plates of the IRHS Holding Unit) in the same way (aluminum surfaces for supporting food tray/pans for localized heating).

476. In making this modification, the IRHS Holding Unit's heatsink plates would be made of aluminum, thereby making the first and second planar surfaces and the upper plate of the IRHS Holding Unit (which are formed by the heatsink)

comprise aluminum, a thermally conductive material. This is illustrated with the IRHS24 Holding Unit below.



EX1005: 8 (annotated).



EX1005: 8 (annotated).

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

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

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

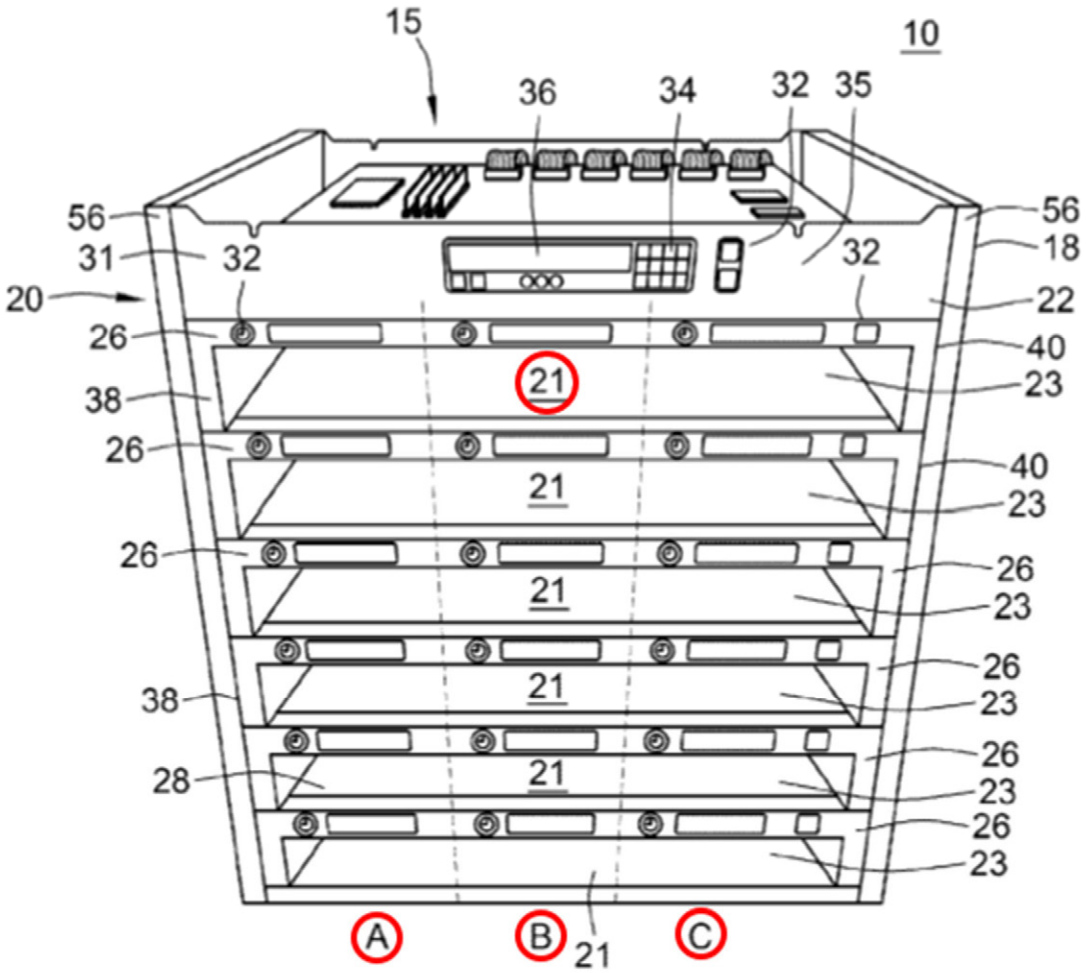


FIG. 2

EX1020: Fig. 2 (annotated).

480. The claim limitations of Claims 1, 8, 11, 14, 19, 21, and 27 that concern the material of construction of the substantially planar surfaces/upper plates of the shelf and their ability to conduct thermal energy are met by Veltrop and/or Shei'155.

481. Accordingly, to the extent that there is any doubt that the IRHS Documents disclose the substantially planar surfaces/upper plates as meeting these

limitations, the POSA would have found it obvious to modify the IRHS Holding Unit disclosed in the IRHS Documents in view of Prince Castle and/or Reese to arrive at the food holding bin as claimed. As such, Claims 1-29 would have been obvious for at least the reasons explained Grounds 1-5 above and Grounds 7-8 below in further view of Veltrop and/or Shei'155.

X. GROUND 7: Claims 1-29 Would Have Been Obvious According to Grounds 1-7 in Further of Hartfelder and/or Veltrop Even to the Extent the IRHS Documents Are Found Not to Meet the "Panel" and "Substantially Planar Surface" Limitations

482. Within the claims of the '002 Patent, there were several claim limitations of 1, 4, 7, 14, 15, 18, 21, 23, and 26 that concern identifying the "panels" of the chassis or certain "substantially planar surfaces." These limitations are listed as follows:

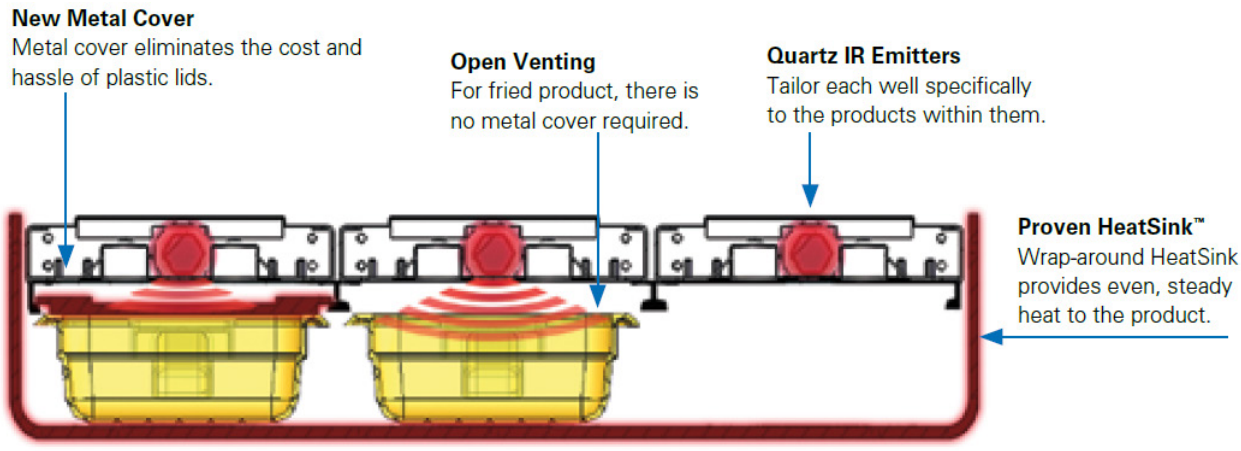
- 1.a: "a chassis having a top panel, a first side panel, a second side panel, a bottom panel, a front face, and an opposing rear face";
- 1.b.1: "a first food holding compartment within the chassis, the first food holding compartment being defined by the first side panel, the second side panel, and a shelf,";
- 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,";
- 1.f.1: "wherein the first food holding zone and the second food holding zone are adjacent one another across the substantially planar surface and";
- 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.";

- 7: “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.”;
- 14.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;”;
- 14.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, and a shelf,”;
- 14.c.1: “a substantially planar surface forming a top surface of the shelf and thus a bottom surface of the first food holding compartment,”;
- 14.f.1: “wherein the first food holding zone and the second food holding zone are adjacent one another across the substantially planar surface and”;
- 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.”;
- 18: “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.”;
- 21.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;”;
- 21.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, and a shelf,”;
- 21.c.1: “a substantially planar surface forming a top surface of the shelf and thus a bottom surface of the first food holding compartment,”;
- 21.f.1: “wherein the first food holding zone and the second food holding zone are adjacent one another across the substantially planar surface and”;
- 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,";

- 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, and";
- 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,";
- 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."; and
- 26: "the substantially planar surface is substantially free of any dividing walls or other structure between the first, second, third, and fourth food holding bays.".

483. The IRHS Documents explain the heat sink wraps upwardly on the left and right sides as shown below:



EX1007: 53.

484. In my opinion the construction of the IRHS Holing Unit with wrap-around heat sinks are consistent with the claimed "panels" of the chassis and

"substantially planar surfaces" as claimed in the '002 Patent, such that the IRHS Documents sufficiently disclose the claim limitations. If it is determined that the IRHS Documents do not sufficiently meet the claim limitations, the claims would have still been obvious in view of Hartfelder and/or Veltrop.

485. Hartfelder teaches a food warming apparatus (10) with upper and lower heating compartments (24, 26) having flat heat sinks (*e.g.*, lower compartment surfaces (30)). EX1013: ¶[0030]. Heaters below the lower compartment surfaces (30) heat the food pans through the lower compartment surfaces. EX1013: ¶[0037] ("each heating system includes one or more resistive heaters for heating its respective compartment from above and/or from below…. Heating compartment 24 may also be heated through lower compartment surface 30 by similar heater plates. Heating compartment 26 may be heated in a similar manner.").

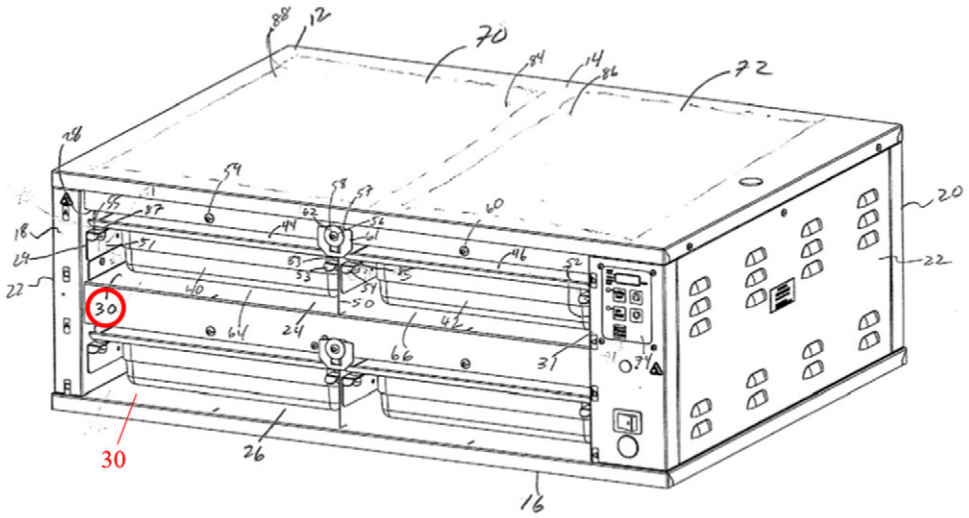


FIGURE 1

EX1013: Fig. 1 (annotated).

486. Veltrop teaches a food holding cabinet (10) with shelves (52) having flat heat sinks. The shelves (52) have flat thermally conductive plates (51) that support the food items and are heated from below by an electrically-resistive heater wire (67). EX1022: ¶¶[0016] ("Food items can be placed onto a shelf 52"), [0022] ("thermally conductive plates or sides 51"), [0025] ("the heater wire 67 … [is] in thermal communication with at least one of the plates 51 and 53 such that when the wire 67 temperature rises due to an electric current flow, it provides heat energy into the plates 51 and/or 53, to which the wire 67 is thermally coupled to").

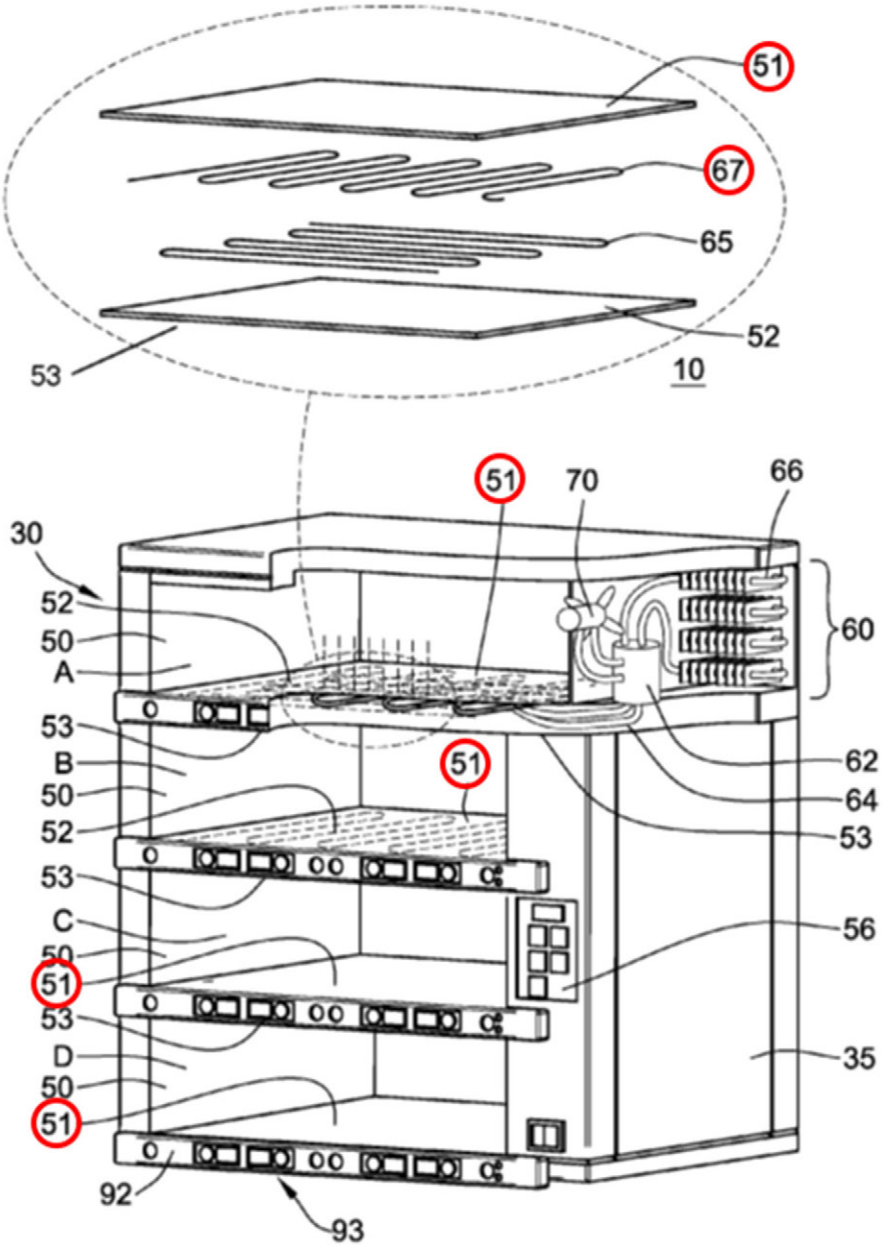


FIG. 2

EX1022: Fig. 2 (annotated).

487. It would have been obvious to modify the heatsink of the IRHS Holding Unit to be fully planar as taught by Hartfelder and/or Veltrop, rather than

wrapping heat sink upwardly on the left and right sides as doing so could provide advantages.

488. Eliminating the upward wrapping of the heat sink would allow or a reduced width of the IRHS Holding Unit, furthering the IRHS Holding Unit's goal to have a small footprint. EX1007: 53 ("Smaller footprint allows IRHS to fit into smaller spaces").

489. This configuration would also reduce costs to manufacture the IRHS Holding Unit (less material, easier to construct as it would not require bending the heat sink, etc.) and to ship it than the existing configurations (smaller package, less weight), thereby reducing the overall cost.

490. This modification would provide more uniform heating of food in the left-most and right-most pans in that the food across the width of the pan would be heated more evenly. For example, the food in the left-most pan, instead of being heated from the left side and bottom (promoting more heat on the left side) would be heated only from the bottom (promoting more evenly distributed across the bottom). The wrap-around configuration of the heatsink results in the food in the pan toward the outer side (e.g., adjacent the portion of the heatsink that extends upward) receiving more heat than other food in the pan, resulting in uneven heating. Removing the upwardly extending sides of the heatsink eliminates this problem.

491. This would also provide better heating consistency across all the pans (compartment sides vs. middle).

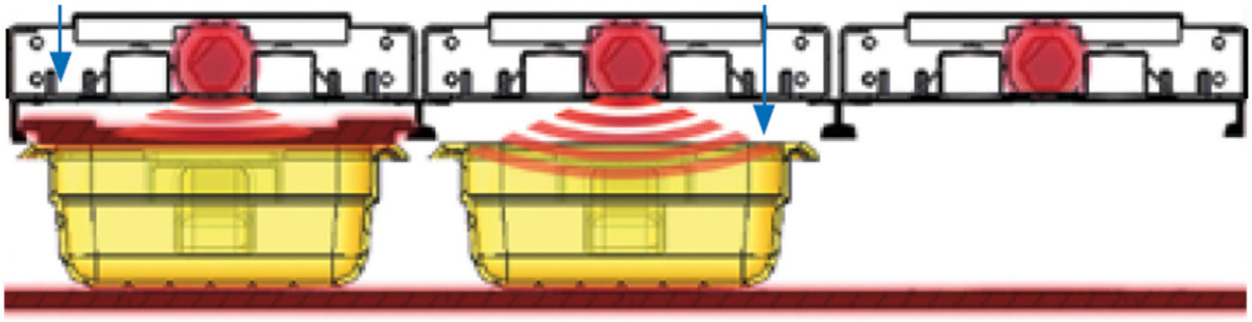
492. While the IRHS Catalog explains the "[w]rap-around HeatSink provides even, steady heat to the product," the configuration of the heat sink results in the pans on either end receiving more heat from the heat sink than the pans in the middle. The portions of heat sink that wrap upwardly on the left and right sides result in the heat sink heating the pans on either end from both the bottom and the side. In contrast, the pans in the middle are heated from only the bottom by the heat sink.

493. A flat heat sink, on the other hand, would result in all the pans being heated in a similar fashion (just from below by the heat sink) to provide a more consistent supply of heat to all the pans in a zone. Heating across all the pans in a heating zone (*e.g.*, across the compartment, or across the two left pans or the two right pans heated from below by the same heating element) would be more consistent. This allows the two pans on the left that are both heated by one heating element to receive the same amount of heat from the heating element. Likewise, this allows the two pans on the right that are both heated by one heating element to receive the same amount of heat from the heating element. This prevents the same food product in the two food pans from being unevenly heated—*e.g.*, the food in one pan being heated more than the same food in the other pan.

494. This modification would have been nothing more than the application of a known technique (flat heat sink configuration of Hartfelder or Veltrop) to improve a similar device (the IRHS Holding Unit) in the same way (by using a flat heat sink for each food holding compartment).

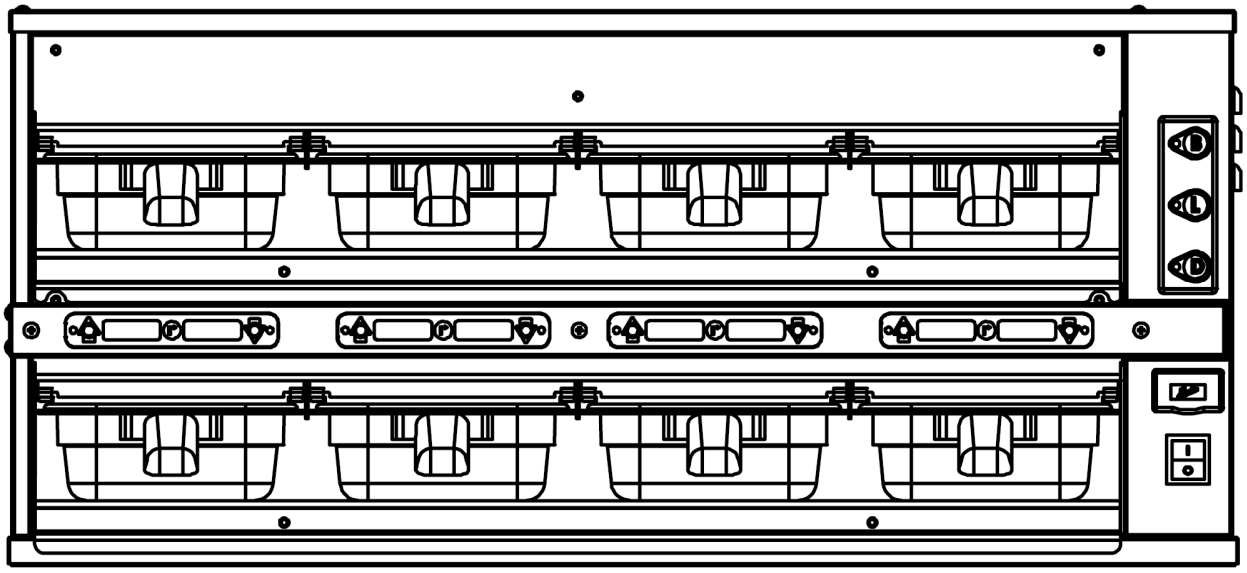
495. There would have been a reasonable expectation of success in making this modification given this modification requires only minor reconfiguration of some parts, within the POSA's capabilities, and because prior art demonstrates it was possible. EX1013: Fig. 1; EX1022: Fig. 2; EX1020: ¶¶[0021]-[0023].

496. A representative illustration of the modified heat sink is shown below:

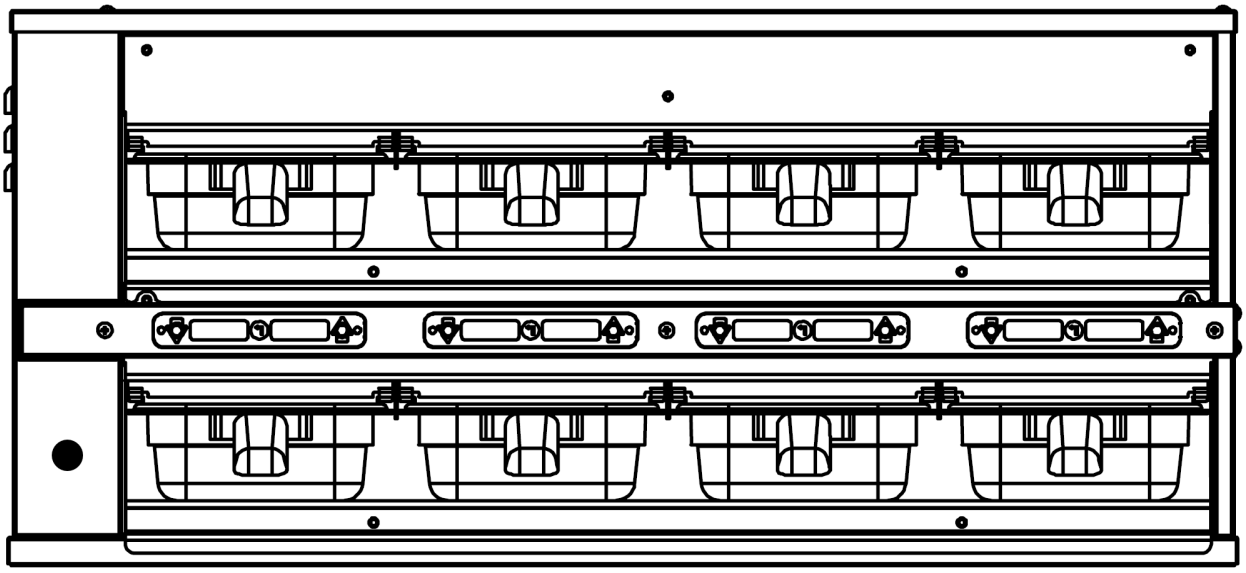


EX1007: 53 (modified)

497. Representative illustrations of the IRHS24 Holding Unit modified to have flat heat sinks are shown below:



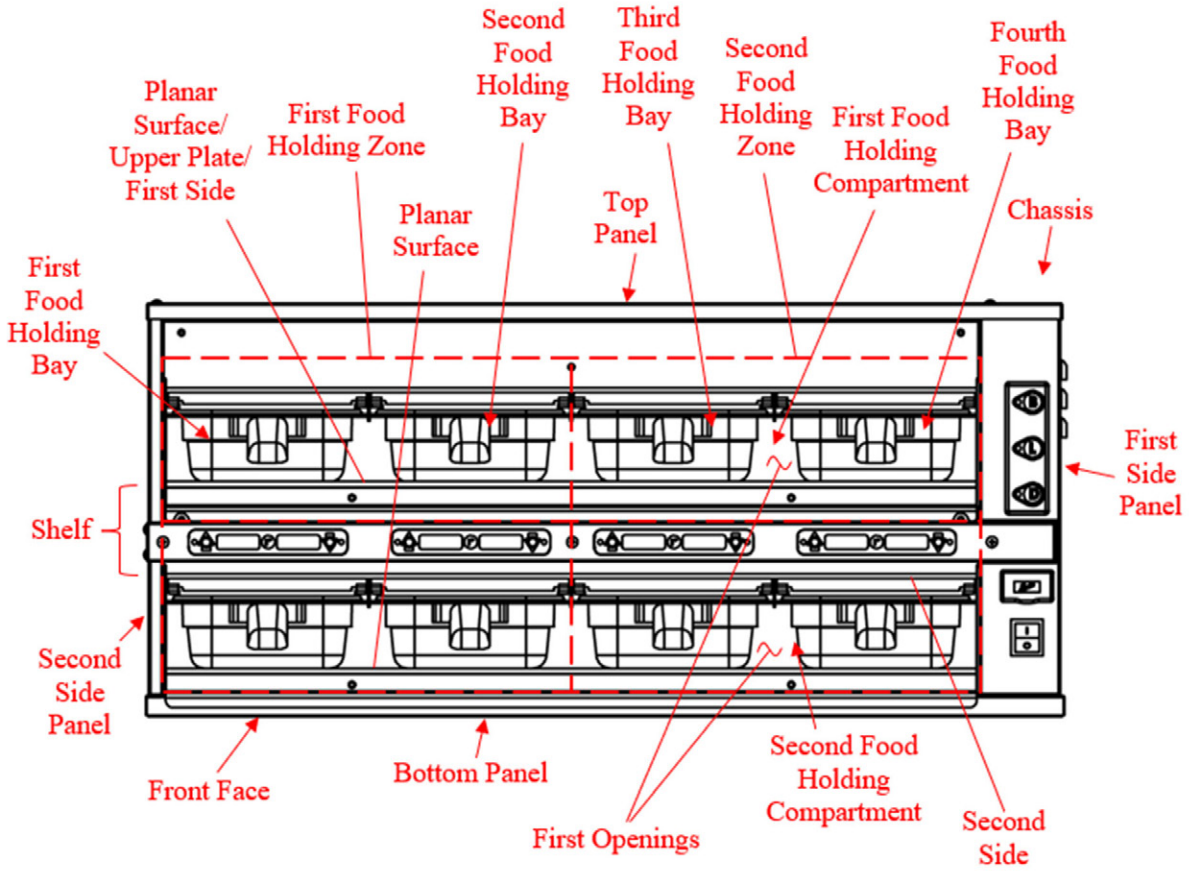
EX1005: 8 (modified-front).



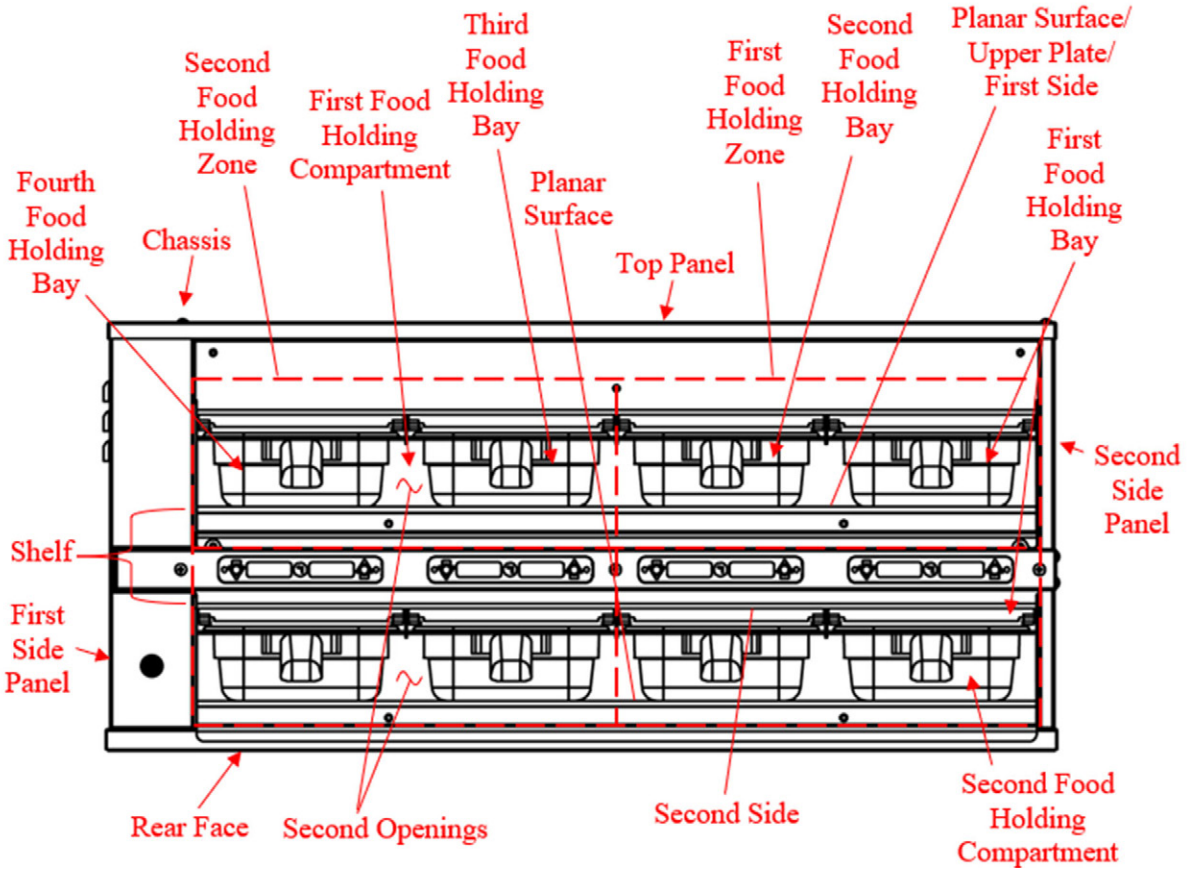
EX1005: 8 (modified-rear).

498. Under the modification of the IRHS Holding Unit in view of Hartfelder or Veltrop, the limitations of claims 1-29 are obvious for at least the reasons Grounds 1-6 above or Ground 8 below, with the further modified IRHS Holding Unit rendering obvious the limitations of the claims as demonstrated by

the representative illustrations of the IRHS24 Holding Unit modified to have flat heat sinks (as shown below):



EX1005: 8 (modified-front).



EX1005: 8 (modified-rear).

XI. GROUND 8: Claim 3 Would Have Been Obvious as According to Grounds 1, 6, and 7 in Further View of Vaseloff and McMillan Even to the Extent the IRHS Documents Are Found Not to Meet the Dedicated Display Limitations

499. Claim 3 of the ’002 Patent includes the following claim limitations specifying the configuration of the user/graphical interface and displays: “the first bezel comprises dedicated displays and the dedicated display displays a temperature setting for a corresponding food holding bay.”

500. As discussed above, it is my opinion that the POSA would recognize that the IRHS Holding Unit—and more specifically the IRHS24 Holding Unit—as disclosed in the IRHS Documents meets this claim limitation.

501. If the user/graphical interface and displays disclosed in the IRHS Documents are deemed not to sufficiently meet the claimed configurations, it would have been obvious to modify the IRHS Holding Unit in view of Vaseloff and McMillan as explained below.

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

503. Similar to the time bar of the IRHS Holding Unit, the Vaseloff food holding device (30) has a timer module (32). EX1026: 2:60-63, 3:48-49, Figs. 3, 4, 10.

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

505. Each display device (60) is grouped with a corresponding timer status indicator (62) and timer button (64), and these groupings 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.

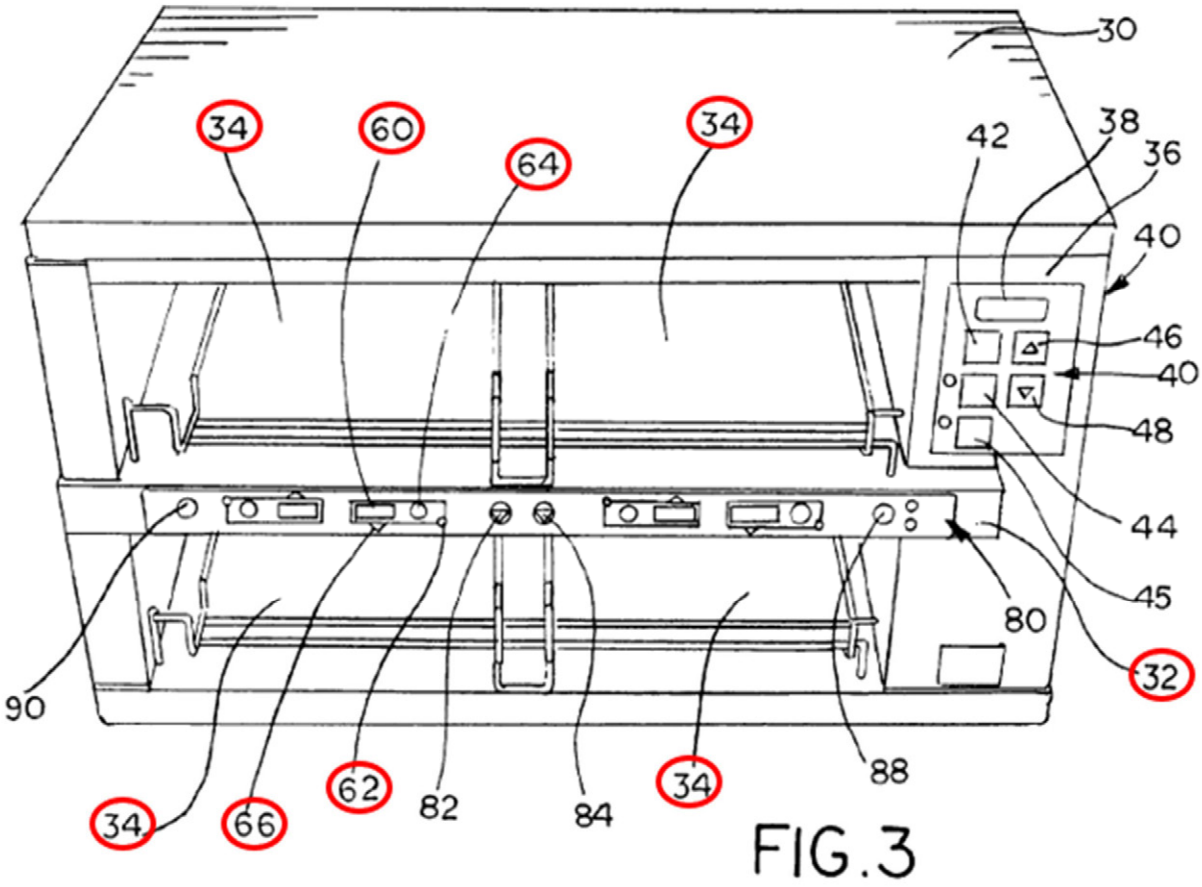


FIG. 3

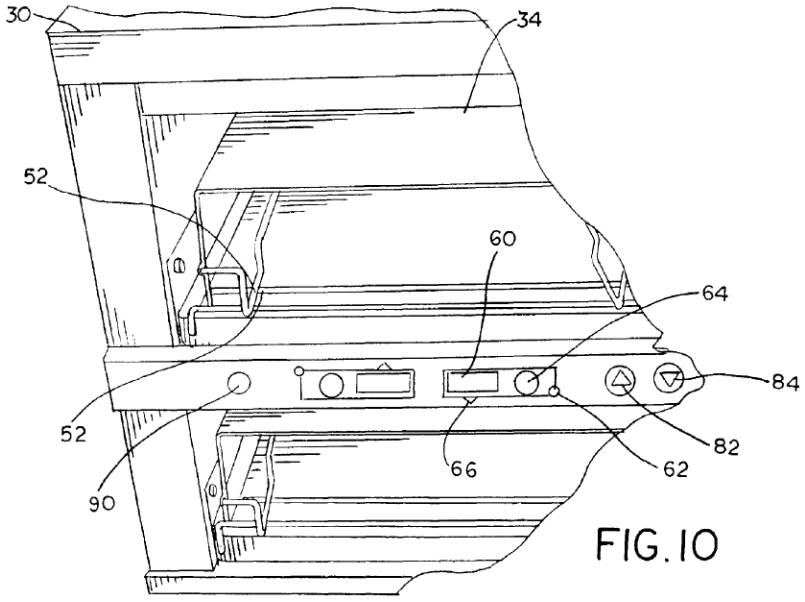


FIG. 10

EX1026: Figs. 3 and 10.

506. The display devices (60) of Vaseloff display 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.

507. 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.

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

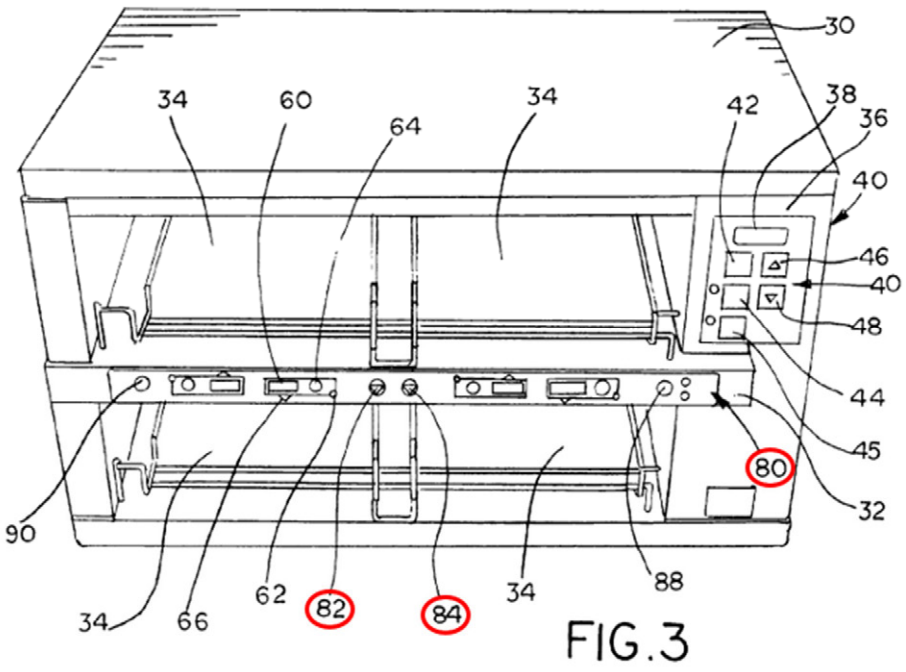


FIG.3

EX1026: Fig. 3 (annotated).

509. Vaseloff further includes a transfer button (90) which 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.

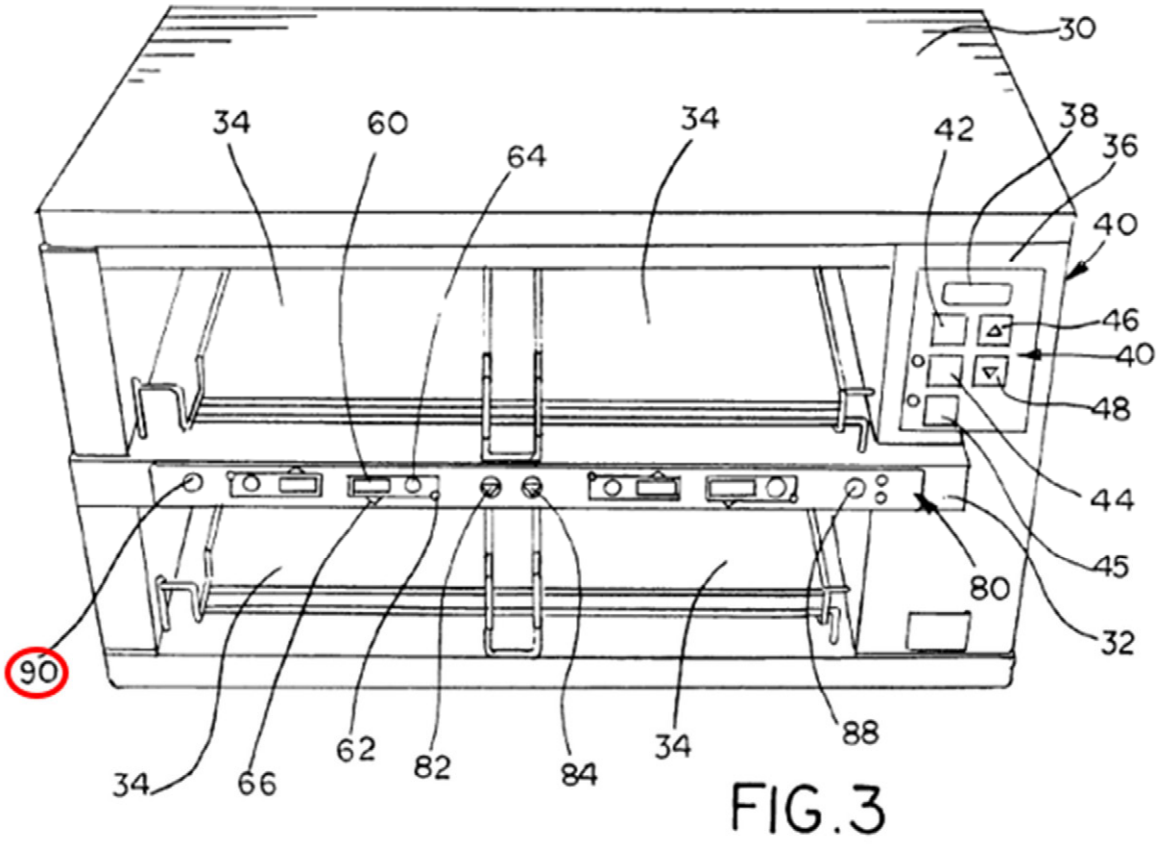


FIG.3

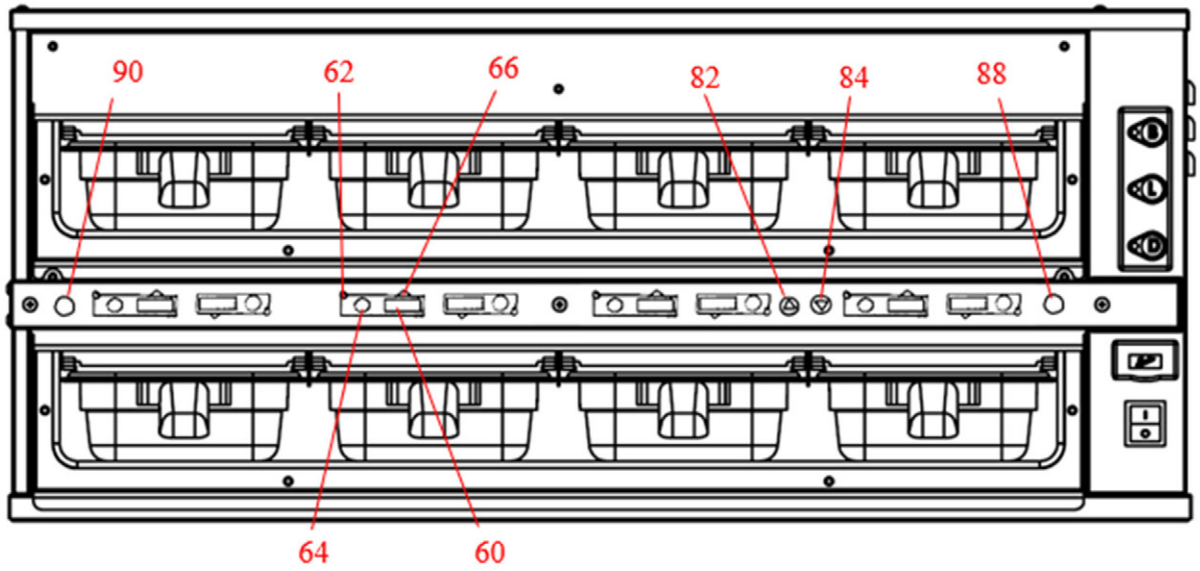
EX1026: Fig. 3 (annotated).

510. In view of Vaseloff, it would have been obvious to replace the controls of the IRHS timer bars with Vaseloff's timer module controls (in the housing of the IRHS timer bar). For example, each IRHS24 Holding Unit control/display group (below left) would be replaced by two groups (below right) of Vaseloff's display devices (60), timer status indicators (62), timer buttons (64), and indicator arrows (66).



EX1007: 8 EX1026: Fig. 10

511. A representative front view of the modified IRHS24 Holding Unit with a modified IRHS24/Vaseloff timer bar controls is shown below. The rear view would be similar.



EX1005: 8 (modified-front).

512. The POSA would make these modifications because the Vaseloff control system would add convenience and flexibility, such as the pan transfer capability.

513. Additionally, some users may find the Vaseloff controls to be more intuitive, to display more information, and/or to more clearly display or associate

information with the respective pan locations. EX1026: 4:20-22, 4:26-29, 57-58, 6:1-25, 6:65-7:20; 11:35-38.

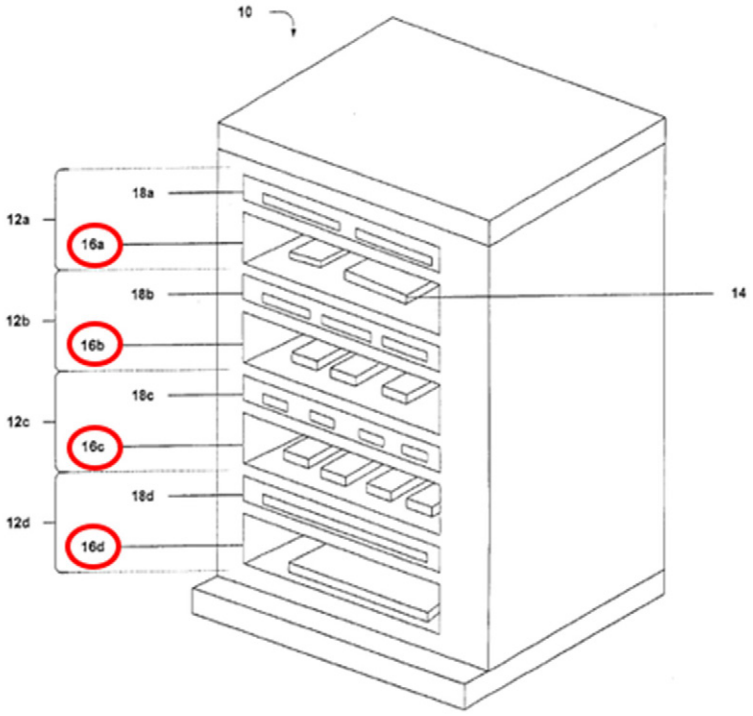
514. Modifying the IRHS timer bars in view of Vaseloff would have been nothing more than the application of a known technique (Vaseloff timer bar controls) to improve a similar device (the timer bars of the IRHS Holding Units) in the same way (specifically by incorporating one-to-one corresponding displays and controls for each individual pan location).

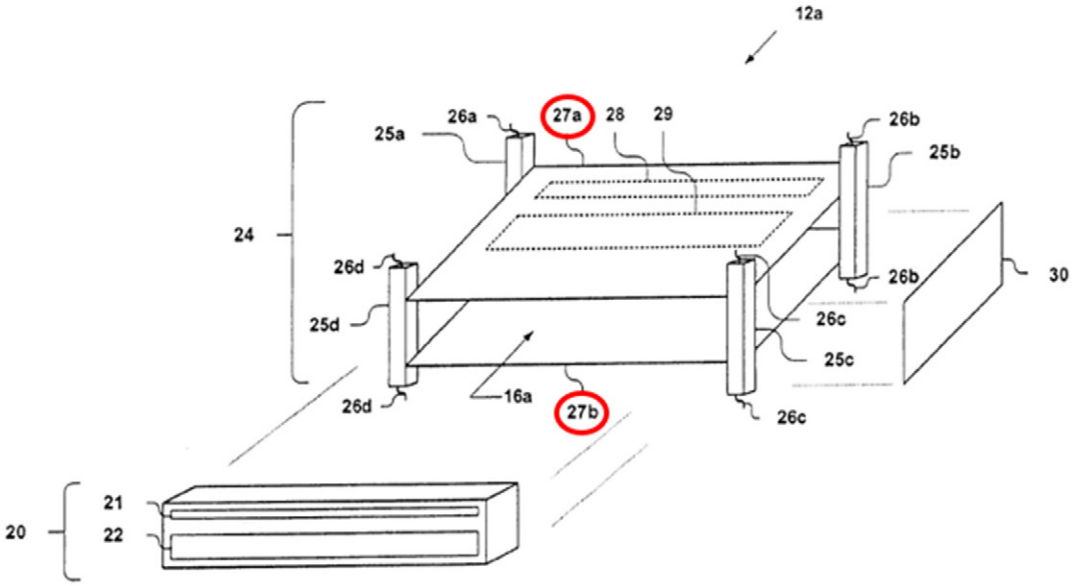
515. The POSA would have had a reasonable expectation of success in making such a modification because the food holding units and their intended operation are similar. Vaseloff expressly explains that "one of ordinary skill in the art will appreciate the flexibility and versatility of the disclosed food timing system for it can be applied to any food preparation and storage device that is typically used in restaurants." EX1026: 11:35-38.

516. When implementing this modification, the POSA would have connected Vaseloff's timer module controls (*e.g.*, transfer button (90), arrow buttons (82, 84), and each display/control grouping, including display device (60), timer status indicator (62), timer button (64)) to the IRHS Holding Unit's controller. EX1005: 25. It would have been within the skill in the art to modify the connections to and/or programming of the controller to accommodate the Vaseloff timer module controls.

517. McMillan also teaches a food holding cabinet (10) including several food passageways (16a-16d). EX1019: 2:49-52, 2:65-67.

518. Each passageway of McMillan includes upper and lower heater plates (27a, 27b). EX1019: 4:36-52.





EX1019: Figs. 1 and 2 (annotated).

519. Each food passageway of McMillan 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.

520. Each food product display (180a-d) includes 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.").

521. 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.

522. 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.").

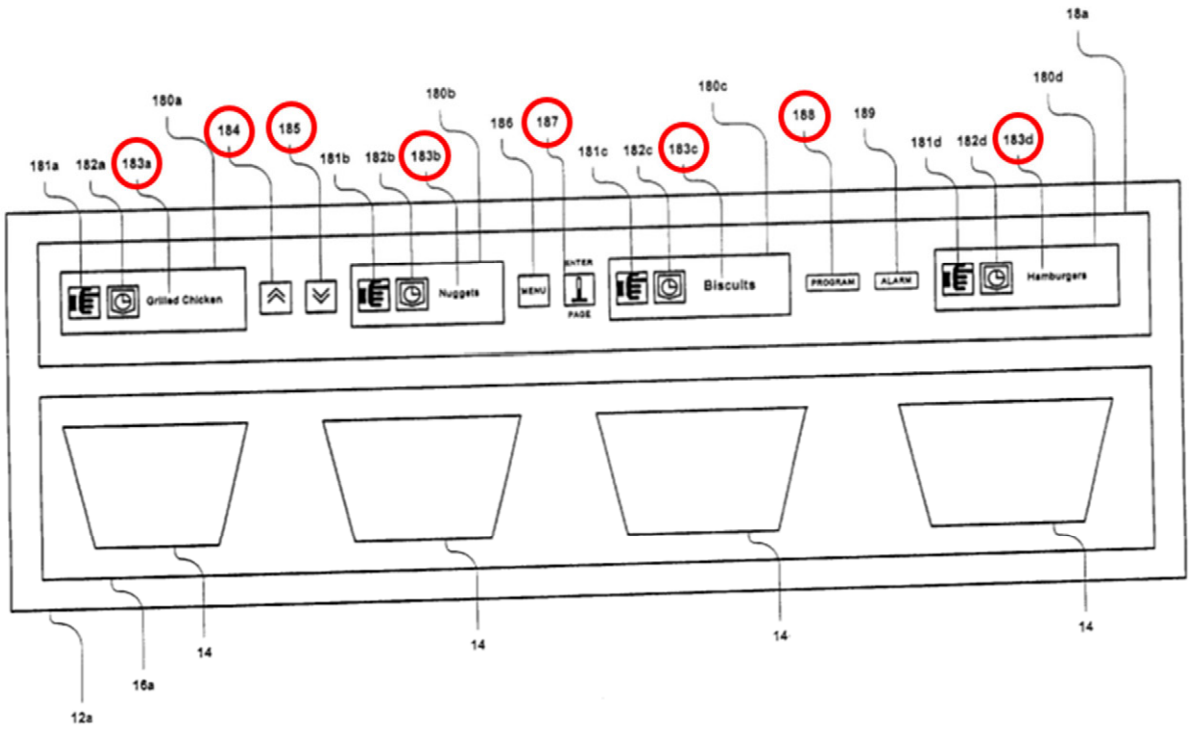


Fig. 5a

EX1019: Fig. 5a (annotated).

523. Because McMillan provides additional detail regarding the ability to display current temperatures and setpoint temperatures in the display device (60) for each pan location, it would have been obvious to further modify the IRHS24/Vaseloff timer bars to incorporate these teachings of McMillan. EX1019: 10:30-32 ("display areas [] may present a numeric value indicating the current and/or set temperature").

524. Moreover, it would have been obvious to enable the timer bars to change the setpoint temperature as taught by McMillan. EX1019: 10:43-58 ("allow an operator to change or select … holding temperatures").

525. The IRHS24/Vaseloff timer bar includes up-arrow and down-arrow buttons (82, 84) similar to McMillan's arrow keys (184, 185). In further incorporating the teachings of McMillan, the POSA would have enabled the IRHS24/Vaseloff arrow buttons (82, 84) (described by Vaseloff as "for increasing and decreasing the value of a parameter, or scrolling up and down through a list of parameters") to "allow an operator to increase and decrease displayed values (*e.g.*, temperature, time) or change selections." EX1026: 7:30-32; EX1019: 10:46-48.

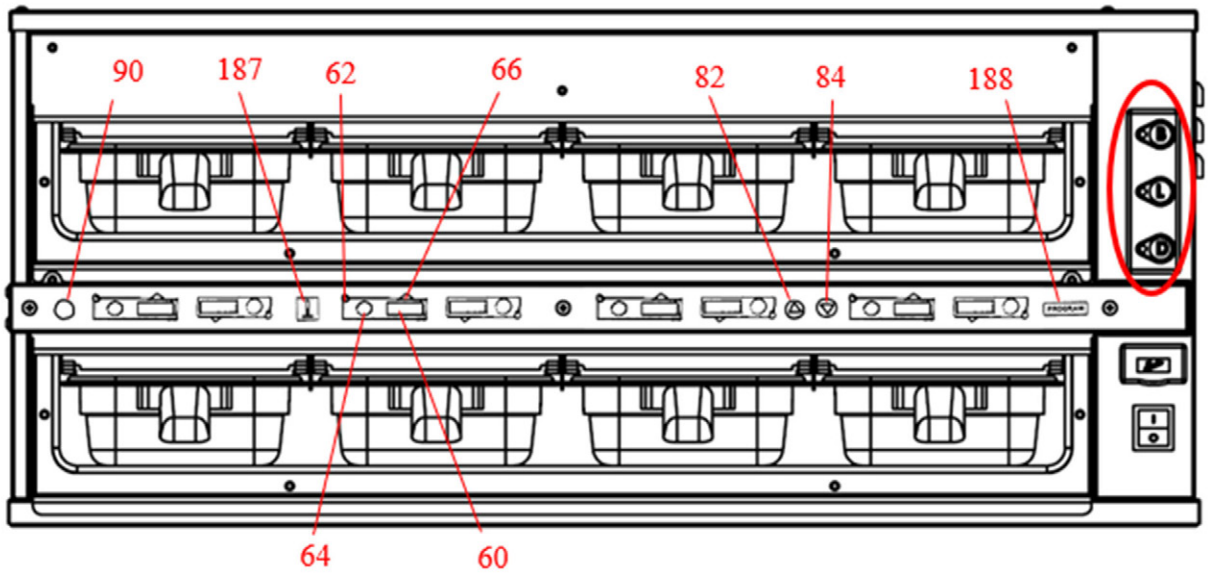
526. It would have thus been obvious per McMillan to incorporate a temperature button (187) to permit a user to "allow a user to display temperature information, enter operational changes, and/or scroll to different pages" and/or a program button (188) to permit the user to "change or select … holding temperatures." EX1019: 10:52-58. The POSA would know how to implement the temperature button and program button as physical buttons. EX1026: 2:60-3:19 (teaching physical programming buttons).

527. The POSA would know how to implement the temperature button and program button as physical buttons. EX1026: 2:60-3:19 (teaching physical programming buttons).

528. Moreover, it would have been obvious to replace the IRHS24/Vaseloff activity button (88) with McMillan's temperature button (187) and/or program button (188), or to otherwise omit the activity button (88), because

the IRHS24 Holding Unit already includes a daypart interface serving the purpose of the activity button (88) (selecting a daypart to populate the pan location displays with an arrangement of pre-programmed food types). EX1026: 7:46-8:39; Paragraph 48.

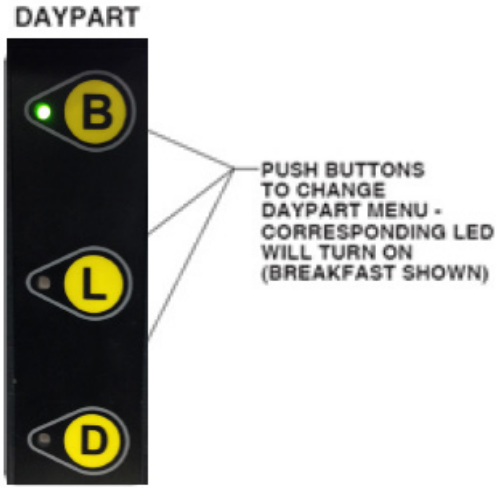
529. Specifically, the POSA would operatively connect the existing IRHS24 daypart interface to the IRHS24/Vaseloff timer bar (as in the IRHS24 Holding Unit) to permit selection of a daypart. The IRHS daypart interface provides a dedicated and simpler solution for selecting a daypart with dedicated LEDs for indicating the active daypart.



EX1005: 8 (modified-front, annotated).

OPERATION – CHANGE DAYPARTS

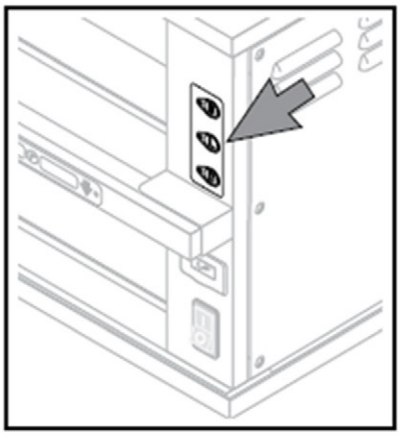
Select the appropriate Daypart Button to switch between Breakfast, Lunch, and Dinner menus.



EX1005: 16.

DAYPART SWITCH

The Daypart Switch is used to control the temperatures of various food products, up to three different time periods a day. It is located on the Control Panel and is accessed from inside the control compartment.



EX1008: 29.

530. The POSA would further program the IRHS24/Vaseloff timer bars to permit a user to display the current and setpoint temperatures for each pan location (*i.e.*, food holding bay) in the associated display (60) and to change the setpoint

temperature for individual pan locations (*i.e.*, food holding bay) by use of the up-arrow and down-arrow buttons (82, 84), the temperature button (187), and/or the program button (188), similar to the teaching of McMillan. EX1019: 10:6-8, 10:20-33, 10:42-58.

531. For example, a first press of the temperature button (187) would cause each display (60) to display a current temperature of its associated pan location (*i.e.*, food holding bay), a second press of the temperature button (187) would cause each display (60) to display a setpoint temperature of its associated pan location (*i.e.*, food holding bay), the program button (188) would be pressed as needed to cycle through the displays (60) (*e.g.*, from left to right) to select a desired display/pan location for temperature programming, and the arrow buttons (82, 84) would be pressed to adjust the displayed setpoint temperature for that pan location (*i.e.*, food holding bay).

532. Thus, temperature display and setting per McMillan would provide an easy, fast, and intuitive way for a user to see current temperatures and setpoint temperatures displayed where the user would associate them with the corresponding pan location (*i.e.*, food holding bay). EX1019: 10:6-10; EX1026: 4:20-22, 4:25-30.

533. This would also allow the user to change the holding temperatures in real time as needed, such as to accommodate real time changes in the types of food

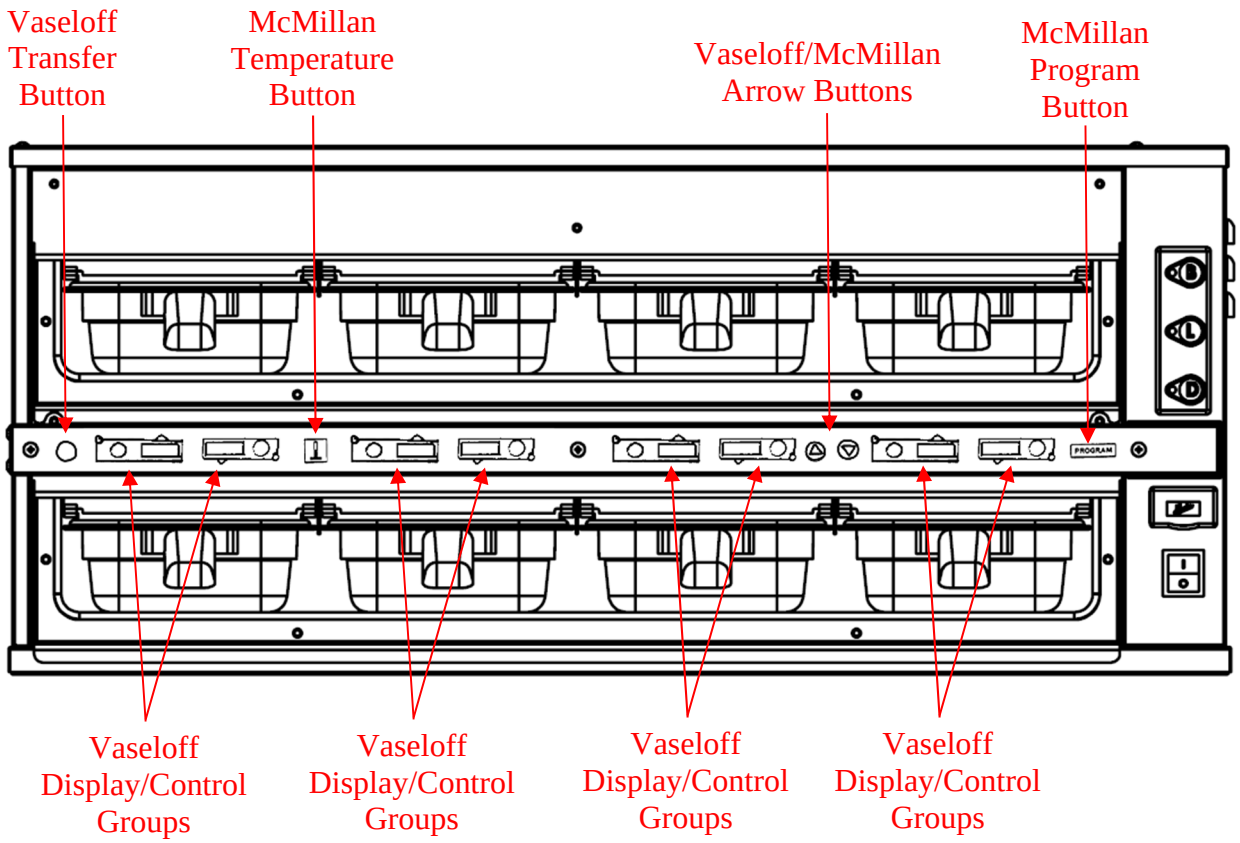
being held, rather than being limited to the web-based programing that is transferred to the unit via a USB drive. EX1005: 19 ("Able to program via USB Port"); EX1007: 33 ("USB Drive: Allows for web programing updates for your [] IRHS holding unit[]").

534. This would have been nothing more than the application of a known technique (actual and set-point temperature display and changing set-point temperature of McMillan) to improve a similar device (IRHS24/Vaseloff) in the same way (display actual and set-point temperatures for each pan holding location to a user and provide the ability for the user to change the set-point temperature).

535. There would have been a reasonable expectation of success in modifying the IRHS/Vaseloff timer bars because the timer bars already include displays for displaying various parameters and controls for scrolling or incrementing/decrementing parameters similar to McMillan's arrow and program keys, the functions would be incorporated as taught in McMillan and use existing IRHS24 temperature sensors, and McMillan showed it was possible. EX1026: 4:10-12, 7:26-32. When implementing this modification, the POSA would have connected McMillan's controls (e.g., temperature button (187), program button (188)) to the IRHS24's controller. EX1005: 25. The POSA would have been able to make any changes to the IRHS Holding Unit's controller and software to implement this ability to display and change temperatures. EX1019: 6:15-19

("The main controller 34 may interface with the memory 32 and execute the control program. Under the direction of the control program, the main controller 34 may control the operation of the shelving unit 12a.").

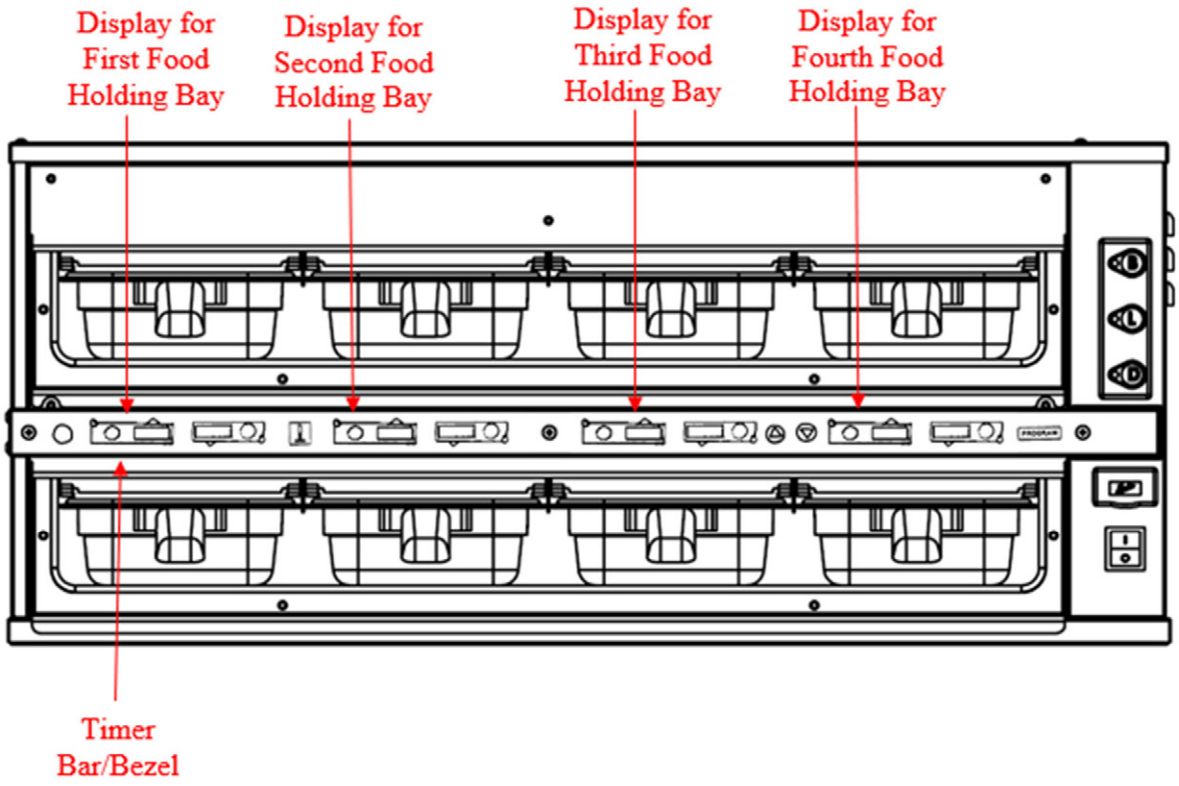
536. IRHS24 modified in view of Vaseloff and McMillan is shown below:



EX1005: 8 (modified-front, annotated).

537. Under the modification of the IRHS Holding Unit in view of Vaseloff and McMillan, the limitations of claims 1 and 3 are obvious for at least the reasons Grounds 1, 6, and 7 above, with the limitations of Claim 3 further being obvious as demonstrated by the representative illustration of the IRHS24 Holding Unit below. In view of Vaseloff and McMillan, it would have been obvious for the first bezel to

have dedicated displays that display a temperature setting for a corresponding food holding bay.



EX1005: 8 (modified-front, annotated).

XII. GROUND 9: Claims 1-5, 7-10, 12, 13, 21-24, and 26-28 Would Have Been Obvious Over Fortmann'748 in view of the IRHS Documents, Jones, Fortmann'197, Fortmann'967, McMillan, Vaseloff, Hartfelder, and/or Shei'099

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

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

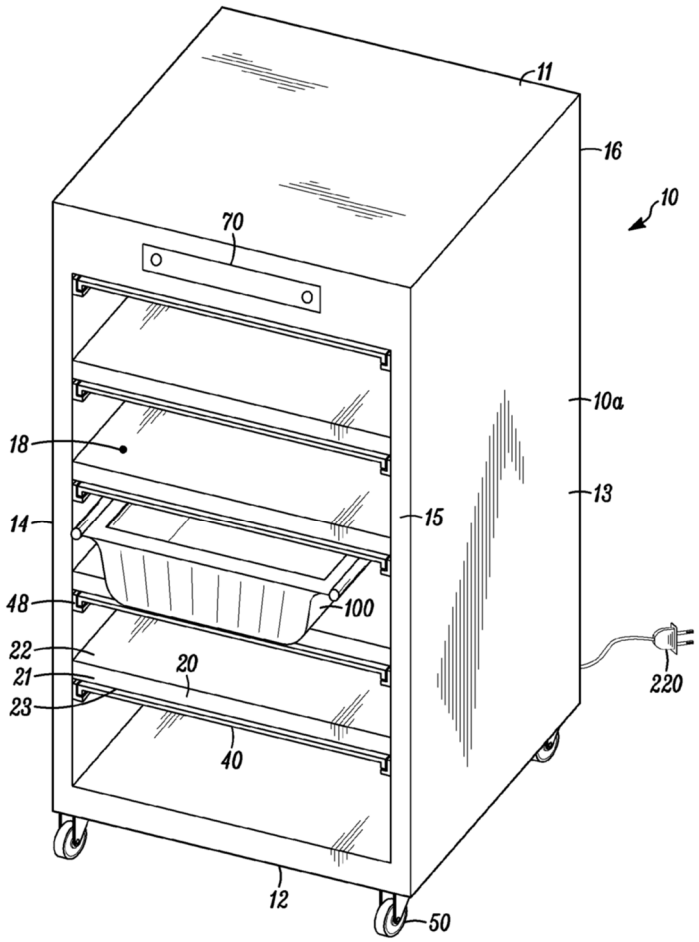


FIG. 1

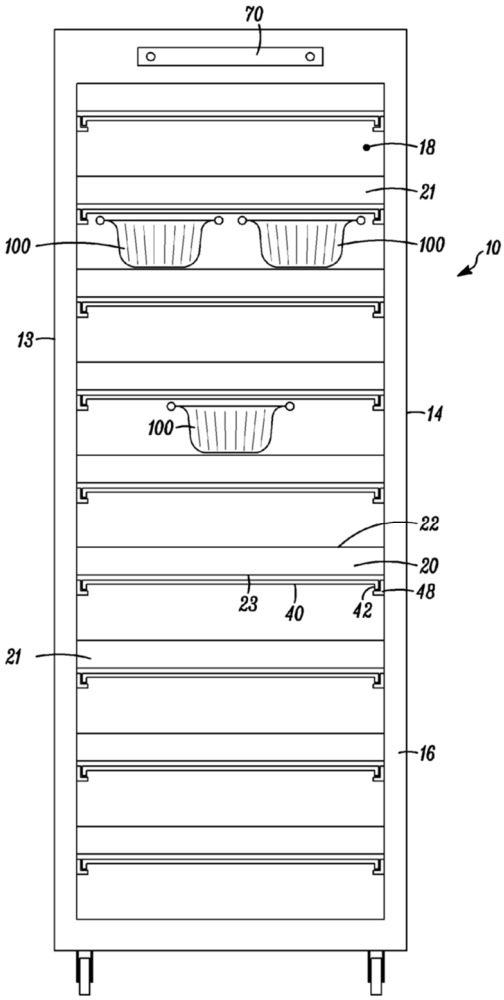


FIG. 6

EX1010: Figs. 1 and 6.

540. Notably, claims of the ‘002 Patent mix and match a number of independent features and design choices (*e.g.*, number and configuration of food holding bays, location and configuration of the controls, location and configuration of the heating elements, inclusion of lid holding shelves and latches to secure the lids in place, and independent temperature control of the food holding bays) that were already known in the art.

541. Fortmann'748 thus presents the base structure of a food holding cabinet which a POSA would have considered ripe to incorporate specific design choices and advancements from other food holding cabinets such as those taught by the IRHS Documents, Jones, Fortmann'197, Fortmann'967, McMillan, Vaseloff, Hartfelder, and/or Shei'099.

A. Modifications of Fortmann'748

1. 2x4 Configuration

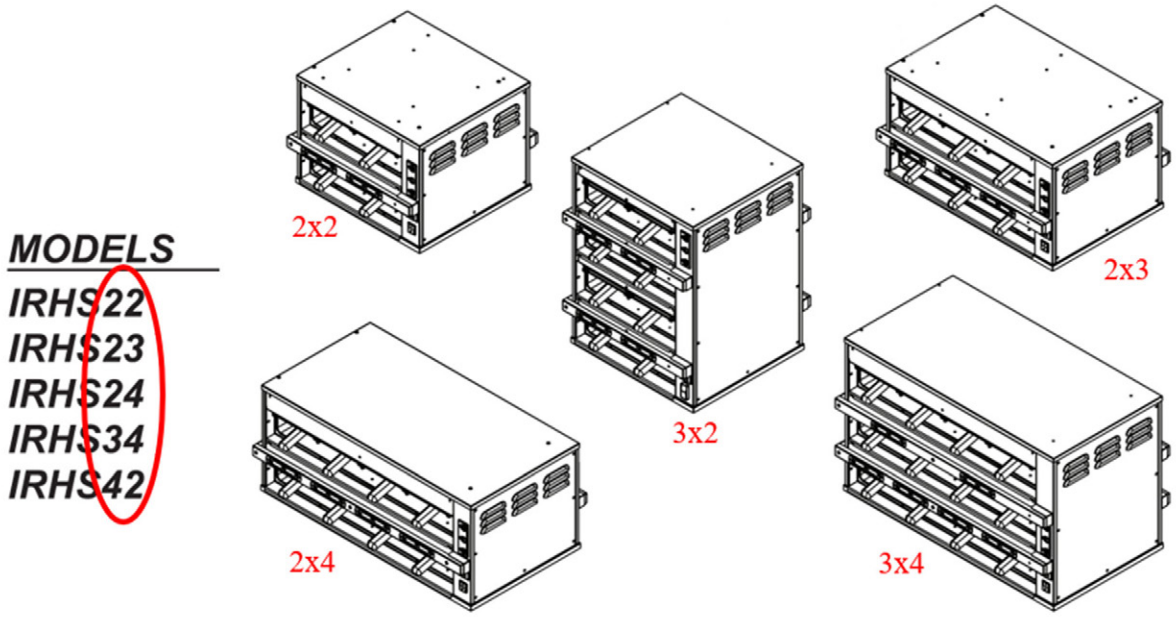
542. While Fortmann'748 does not explicitly disclose a 2x4 configuration (eight pan locations/bays arranged in a 2x4 grid) as recited by the claims of the '002 Patent, such a configuration would have been both consistent with and obvious in light of the teachings of Fortmann'748.

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

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

545. Fortmann'748 also explains the shelves (21) of the cabinet (10) can have a "sufficient width to accept ***two or more*** standard 12 inch wide restaurant warming pans therewithin in a side by side relationship." EX1010: ¶[0015] (emphasis added), *see also* ¶ [0014] (identifying that instead of 12 inch wide warming pans the cabinet could be designed to accept "trays, pizza boxes, or the like").

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



EX1005: 1 (annotated).

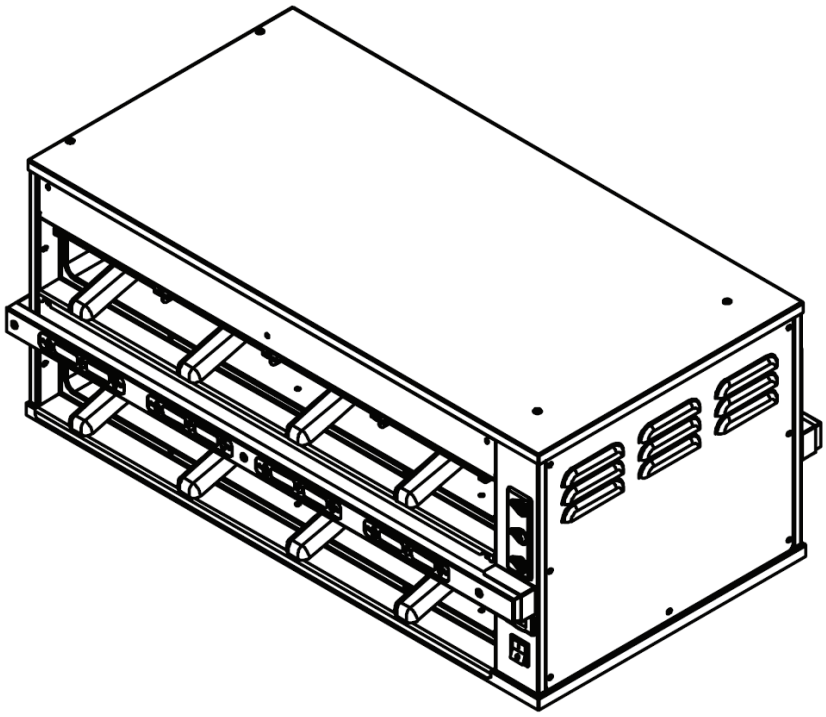
547. In view of the IRHS Documents, it would have been obvious to configure Fortmann'748's cabinet (10) to have only two compartments, with each compartment having four relatively narrow pan holding locations (*i.e.*, modifying Formann '748's cabinet to specifically have a 2x4 configuration holding eight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

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

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

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

("four heating compartments, it is to be understood that a food warming apparatus could be provided with a greater or fewer number of heating compartments"), [0026] ("two trays in each compartment, it is to be understood that the compartments may be sized to accommodate a greater or fewer number of trays").

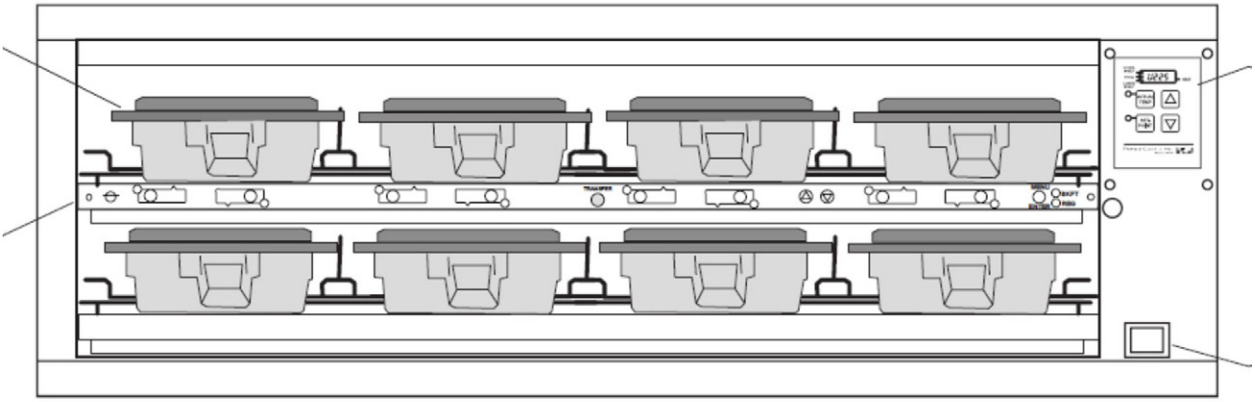


EX1005: 1.



EX1007: 56.





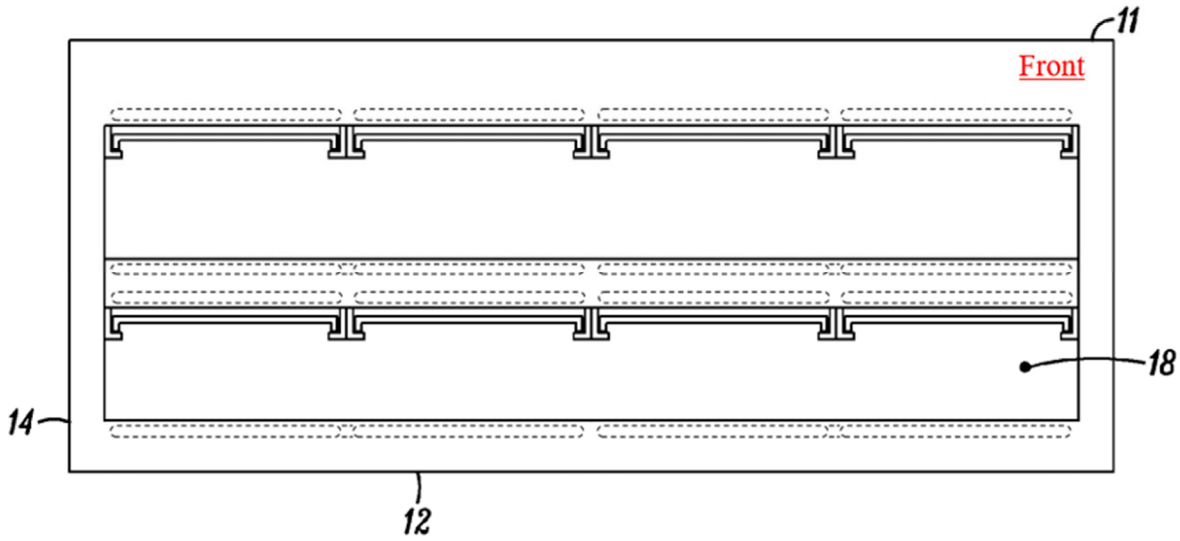
EX1009: 11, 19.

551. This modification would have been nothing more than the application of a known technique (the 2x4 pan holding location configuration of the IRHS Documents) to improve a similar device (Fortmann'748's cabinet) in the same way (Fortmann'748's cabinet with eight pan holding locations for warming pans of food).

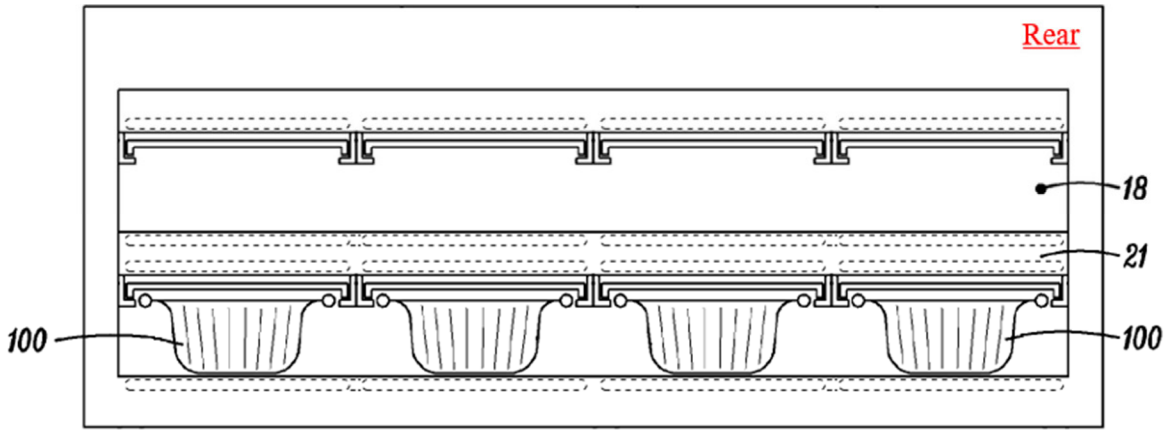
552. There would have been a high expectation of success in making this modification given the similarities between Fortmann'748's cabinet and IRHS Documents' food holding unit (*e.g.*, both receive pans/trays of food to warm).

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

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



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



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

2. Multiple Temperature Zones per Compartment

554. 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.

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

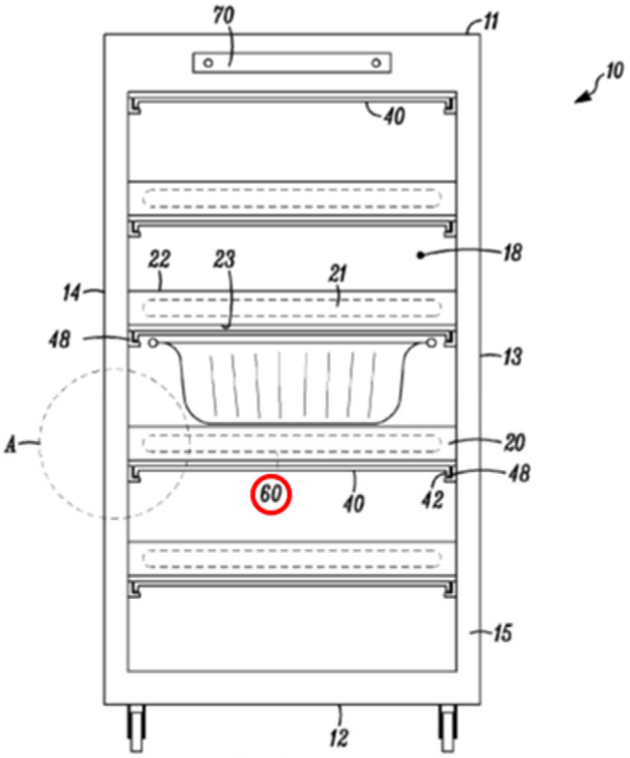


FIG. 2

EX1010: Fig. 2 (annotated).

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

557. Fortmann'748 teaches that the heaters 60 may be disposed so as to make contact with "at least the upper sheet 22 forming the shelf 21" and also "may contact the lower sheet 23 forming the shelf 21" such that it would provide heat to both the compartment above the shelf (21) and to the compartment below the shelf (21).

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

559. Whereas the POSA would have contemplated creating multiple temperature zones per compartment based on Fortmann'748 alone, each of Jones (EX1012), Fortmann'197 (EX1014), the IRHS Documents (EX1005-1008), and McMillan (EX1019) expressly teach this.

560. 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.

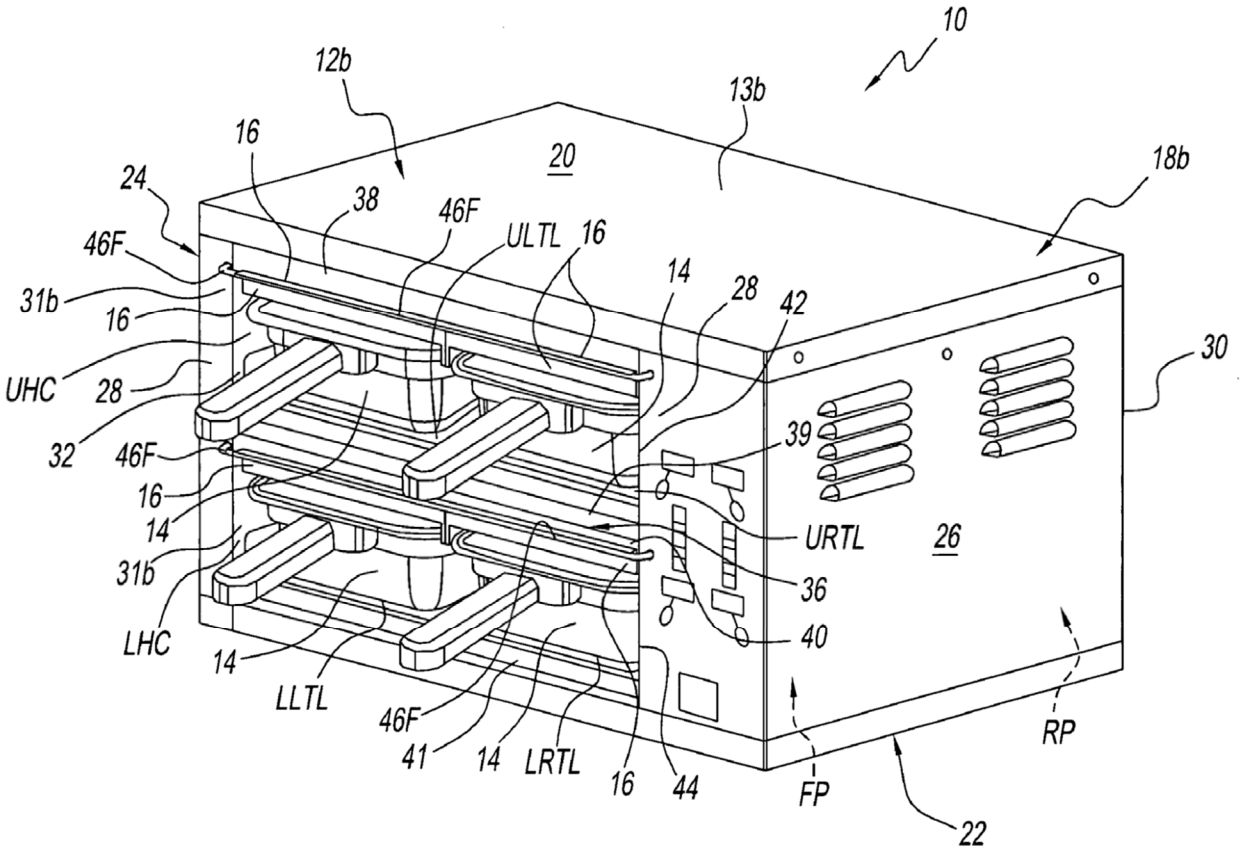
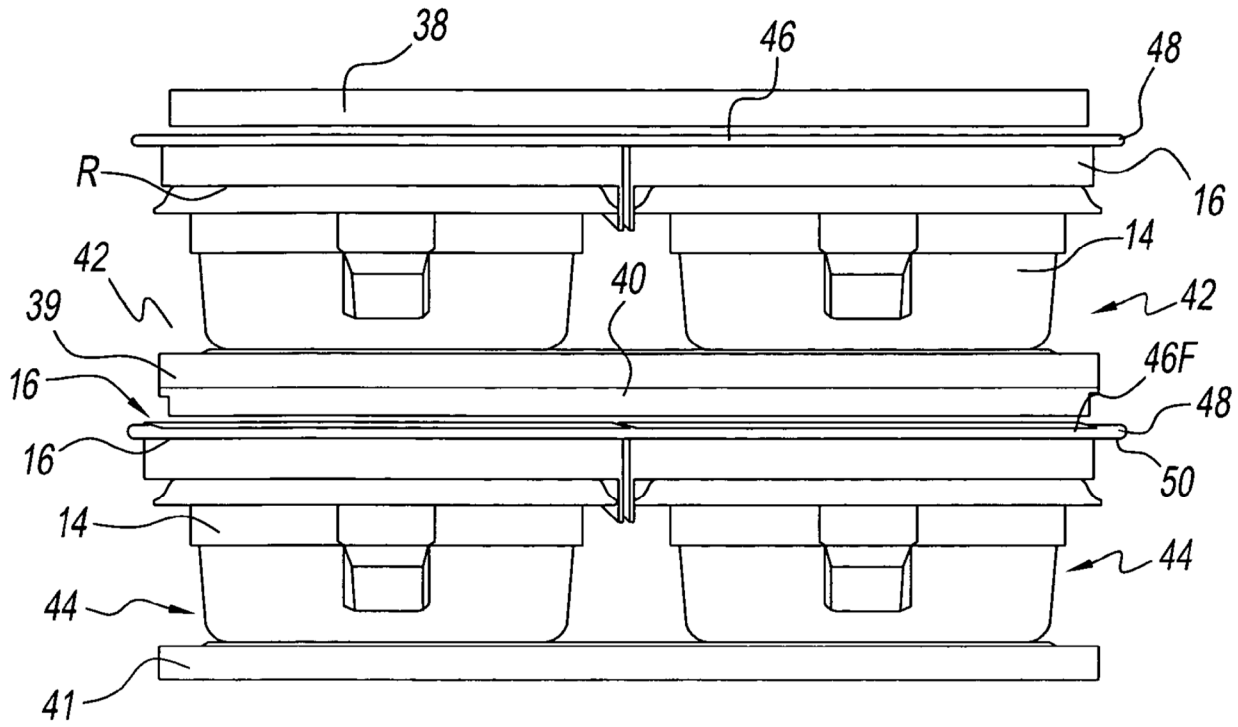


Fig. 1B

EX1012: Fig. 1B.

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

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



EX1012: Fig. 1G.

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

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

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

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

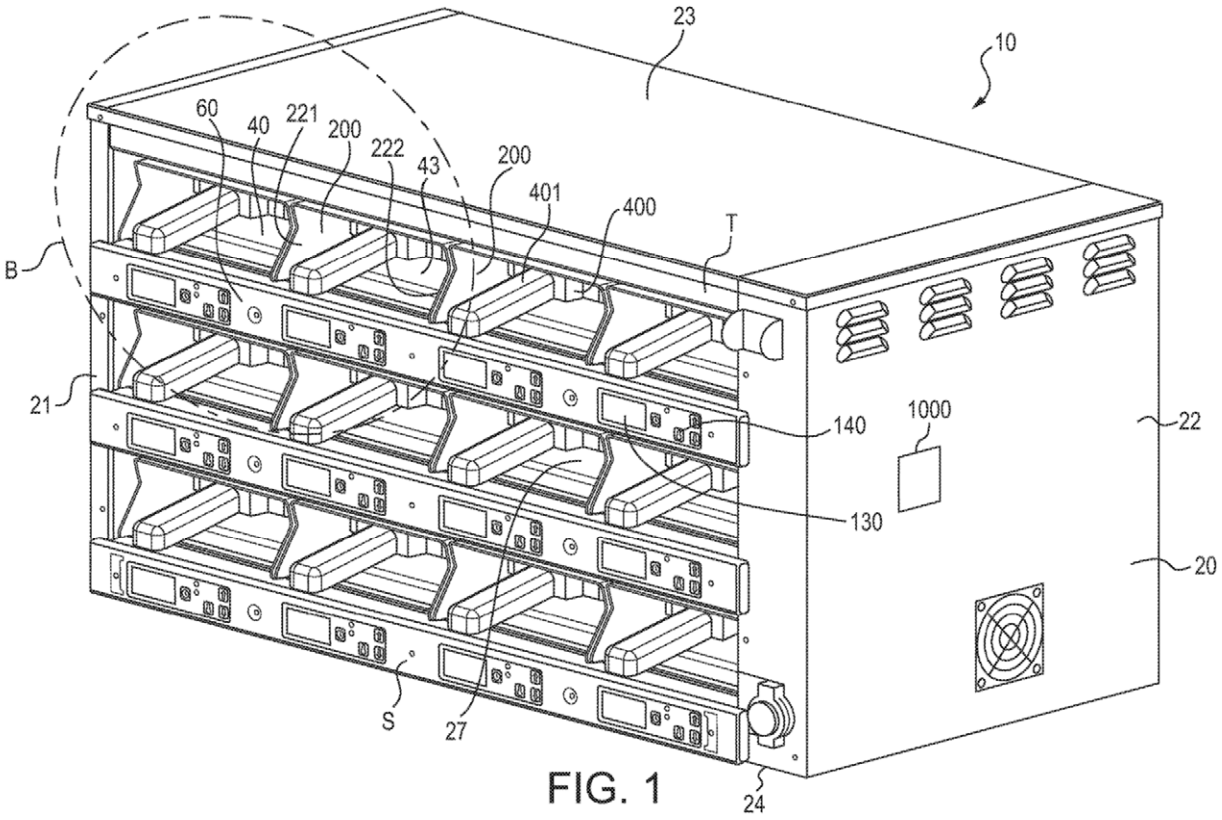


FIG. 1

EX1014: Fig. 1.

566. Each shelf (40) establishes a plurality of discrete heating zones (100) within the internal volume (27), with each heating zone receiving a food pan (400). EX1014: 3:6-19. Further, each heating zone (100) includes a discrete independently controllable upper heater (521)-(524) above the food pan (400) and discrete independently controllable lower 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, 9:50-65.

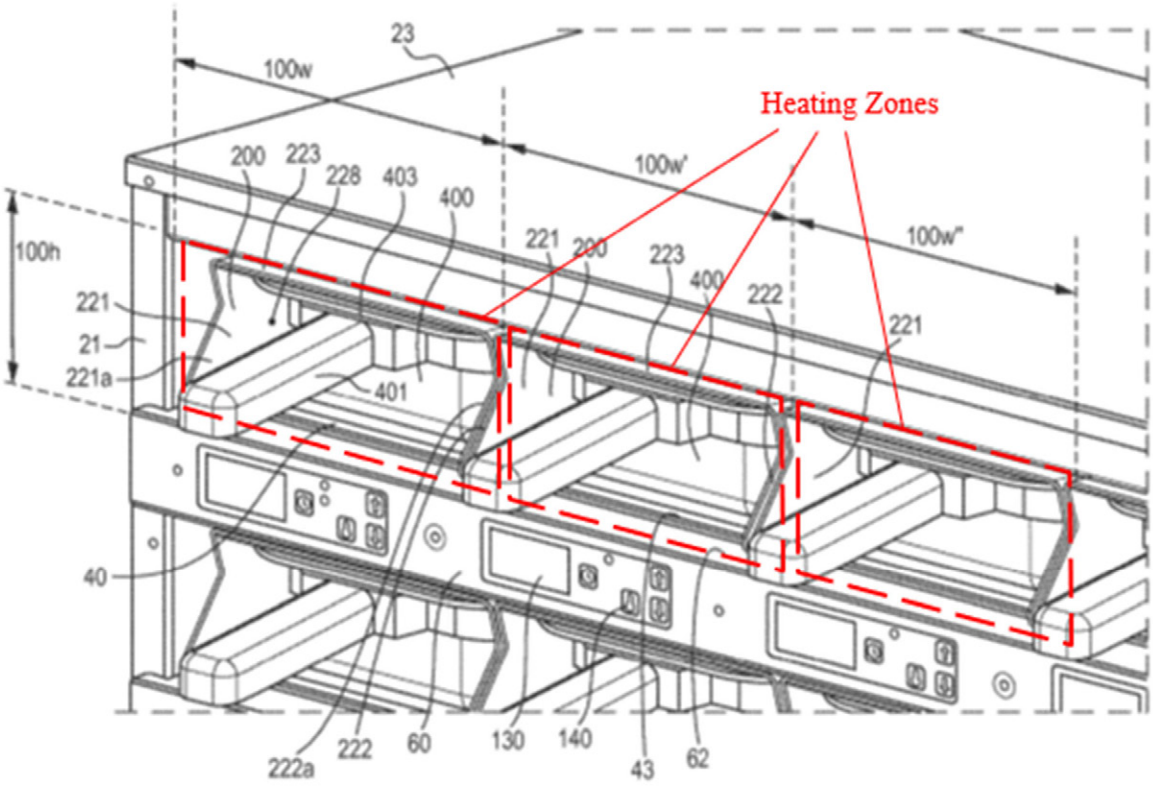

23
100w
Heating Zones
100w'
100w"
200
223
228
403
400
221
200
223
400
222
221
100h
221
21
221a
401
40
222a
222
60
130
140
43
62

FIG. 2

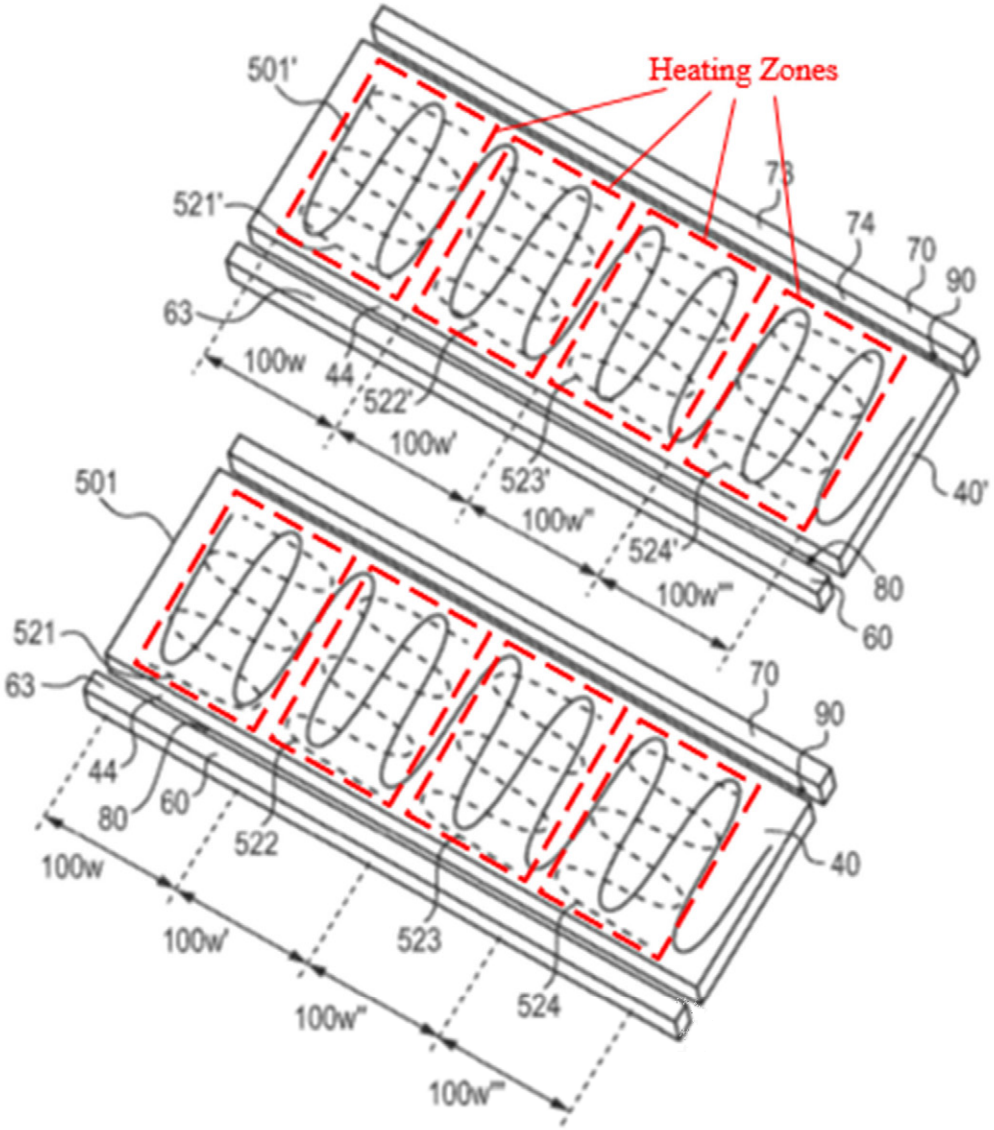
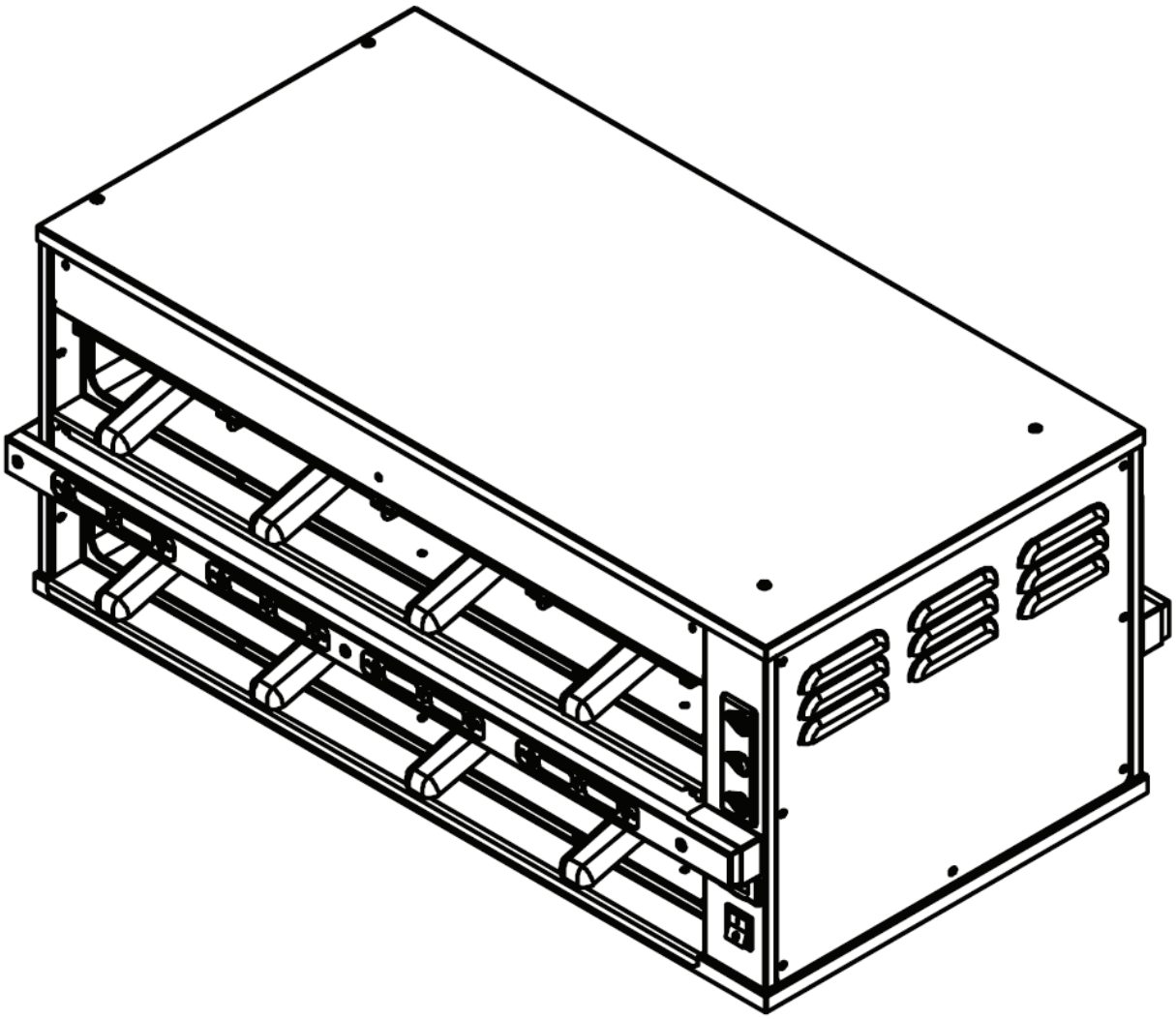


FIG. 10

EX1014: Figs. 2 and 10 (annotated).

567. Likewise, the IRHS Documents (EX1005-1008) teach a holding unit with upper and lower compartments that receive food trays. EX1005: 1; EX1006:

1; EX1007: 56. It would have been obvious to combine the teachings of the IRHS Documents (EX1005-1008) as explained in Ground 1.



EX1005: 1.

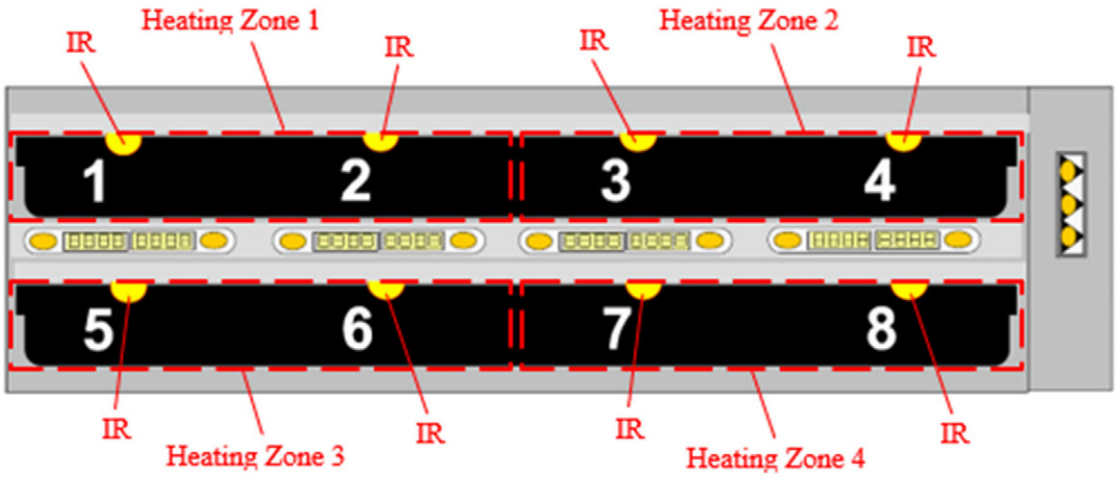


EX1007: 56.

568. For example, the IRHS Documents describe an IRHS24 holding unit (the "2" and "4" indicating the unit has eight pan locations arranged in a 2x4 grid (two rows and four columns)) having independent heating zones. EX1005: 16 ("[t]his new technology allows you to precisely control the environment in each pan, allowing customized settings for each food product"), 25 ("1/2 ROW HEAT (2 Wells)" and "Per Well IR Element").

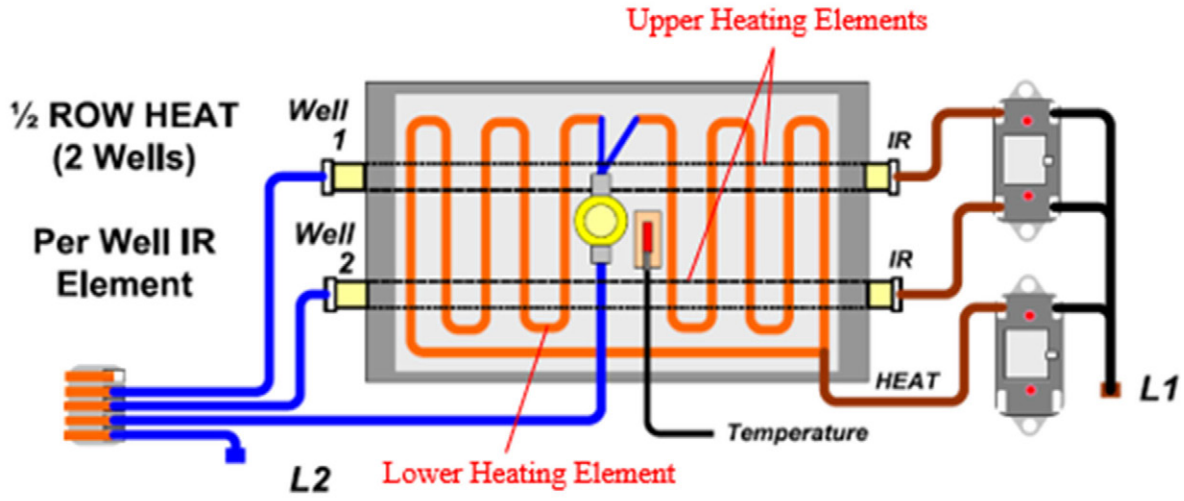
569. The first heating zone includes pan locations/bays or wells "1" and "2." The second heating zone includes pan locations/bays or wells "3" and "4." The third heating zone includes pan locations/bays or wells "5" and "6." And the fourth heating zone includes pan locations/bays or wells "7" and "8."

570. The IRHS Documents further explain this IRHS24 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").



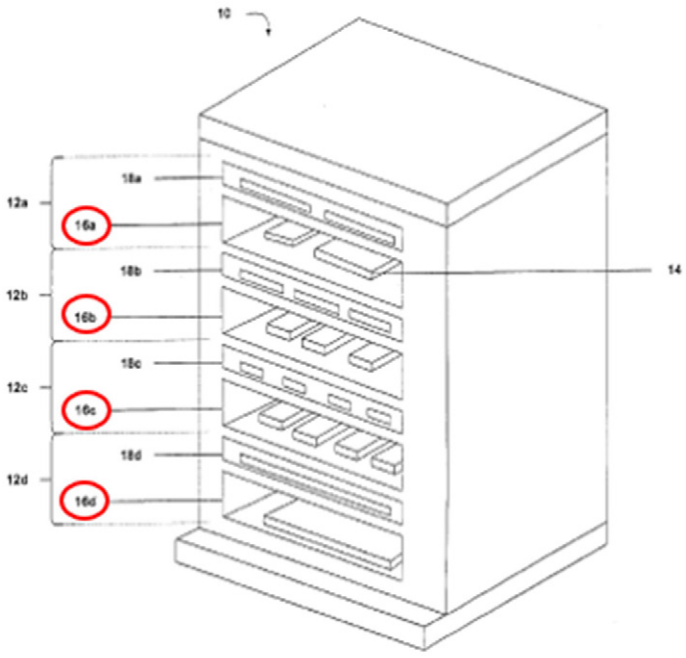
EX1005: 25 (annotated).

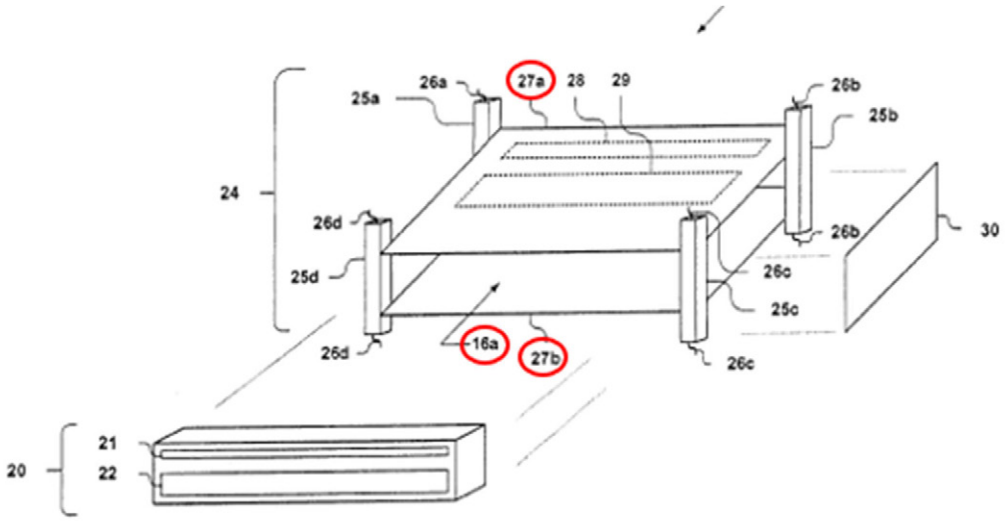
571. Each heating zone includes upper heating elements in the form of infra-red (IR) bulbs and lower electrical resistance heating element. EX1005: 20 (elements 16 and 17), 25; EX1007: 53. The image below shows the upper heating elements (IR) and lower heating element for one heating zone:



EX1005: 25 (annotated).

572. Lastly, McMillan teaches upper and lower heater plates (27a, 27b) that include multiple heating elements for zoned heating across the width of a food holding compartment or passageway (16a-d) "such that different portions of the passageway 16a may be set to different temperatures." EX1019: 4:36-52. "In this way, the temperature of each passageway may be maintained according to the number and types of food product to be stored. For example, the passageway 16a may be set to store four different types of food products at four different temperatures." EX1019: 4:48-59.





EX1019: Figs. 1 and 2 (annotated).

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

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

575. This modification would further Fortmann'748's goal of heating "zones" for "food products that require different warming temperatures" by providing multiple temperature zones within the same compartment. EX1010: ¶[0024]; EX1019: 1:36-45 ("fast food restaurants [] face challenges [to] maintain a large volume of different food products … [at] different storage temperatures"), 1:46-48 ("there exists a need for a holding cabinet … structured and arranged to maintain multiple categories of food products"), 4:45-52.

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

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

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

579. Further, to the extent Fortmann'748's top compartment does not have heaters above it and Fortmann'748's bottom compartment does not have heaters below it, this modification would add these heaters in the top wall (11) and bottom wall (12), thereby providing better and more uniform heating of the top and bottom compartments as is provided in the compartments between the shelves (21).

EX1006: 1 (“minimize temperature distribution from top to bottom of pan”); EX1005: 4 (“[e]xtended hold times with improved food quality and consistency were achieved through the innovative combination of two proven, patented Duke technologies: InfraRed and HeatSink. This new technology allow you to precisely control the environment in each pan”); EX1007: 53 (“[i]mproved temperature consistency throughout the pan through the unique use of dual holding technologies”).

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

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

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

(1) Fortmann’748 already teaches heating a compartment with heaters built into the shelf;

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

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

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

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

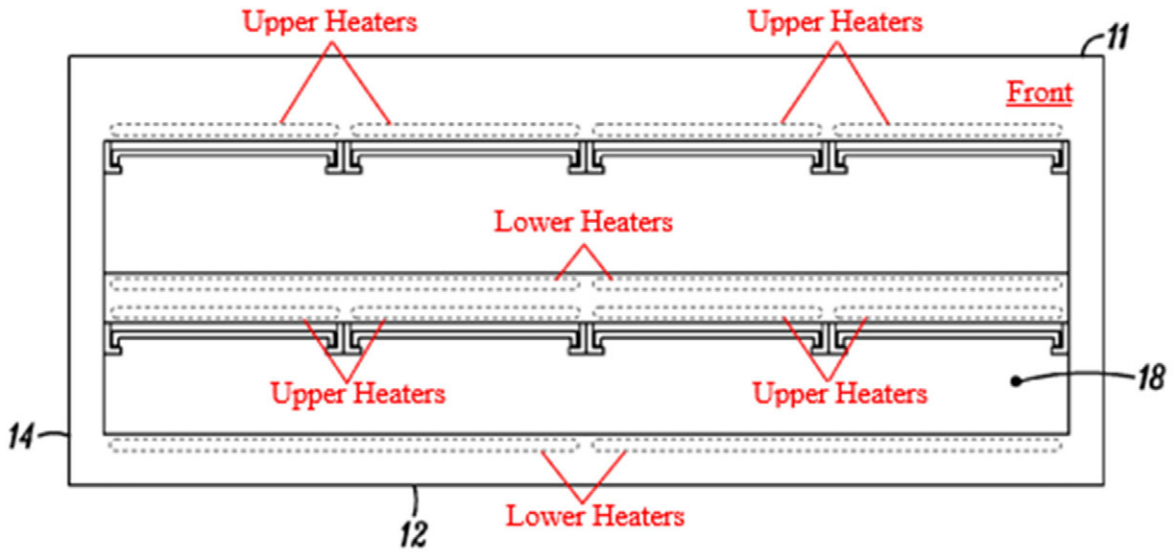
(6) Jones, Fortmann'197, IRHS Documents, and McMillan each demonstrate that individual heating of adjacent zones within a compartment was possible.

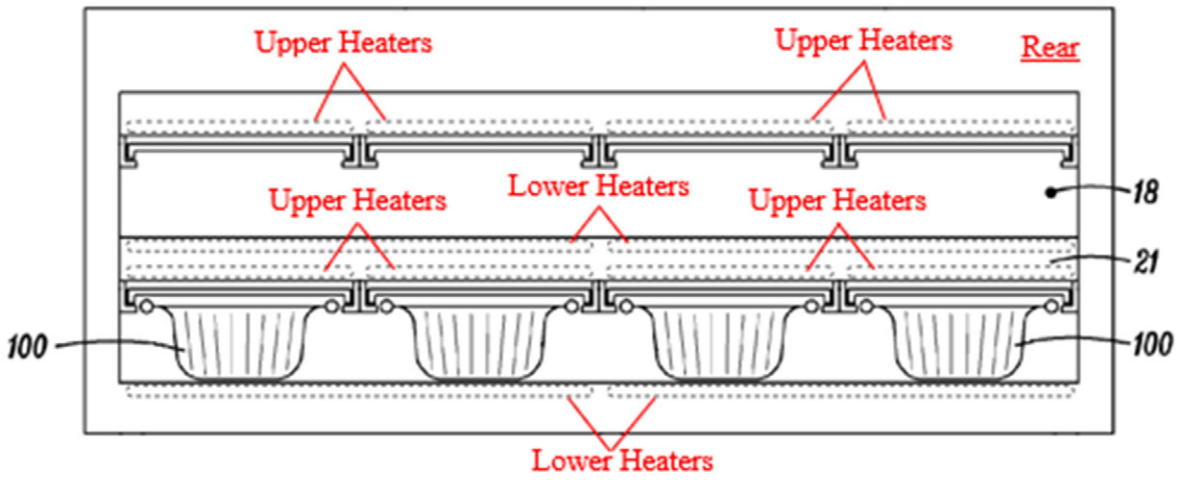
583. Additional prior art references demonstrate that there was a motivation within the field to include multiple heating zones across a shelf and that such configurations were already known to be readily feasible.

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

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

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

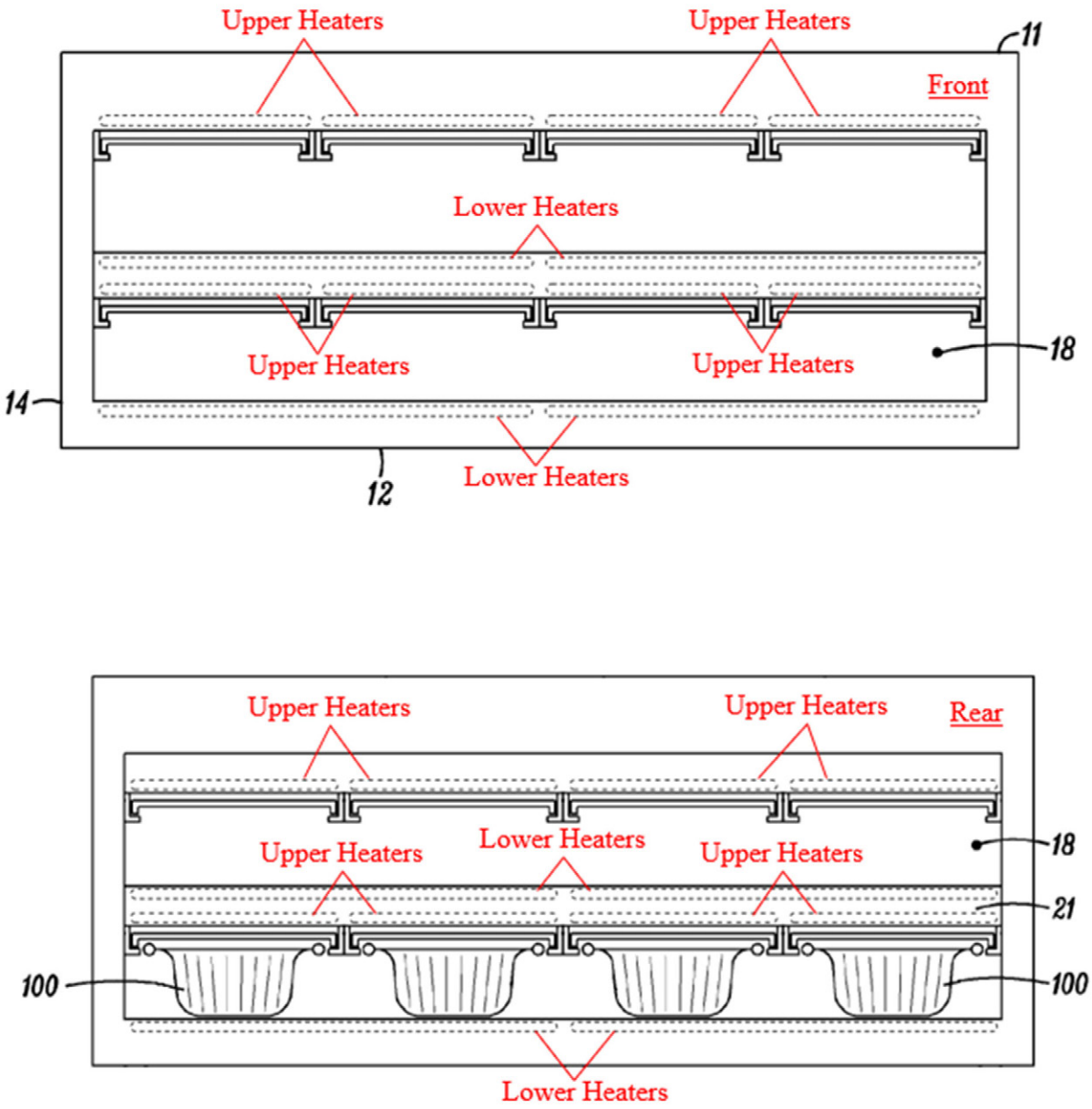




EX1010: Figs. 2 and 6 (modified, annotated).

587. IRHS Documents teach *each* zone (*e.g.*, pair of pan holding locations) within a compartment of a 2x4 holding unit having dedicated upper heating elements (*e.g.*, IR bulbs), one for each pan holding location/bay, and a shared lower heating element for both pan holding locations of the zone. EX1005: 20, 25; EX1006: 1; EX1007: 53.

588. Based on these teachings from the IRHS Documents, the POSA would have further found it obvious to duplicate the existing heaters (60) of Fortmann'748 to provide a discrete upper heater for each pan holding location, and provide a lower heater for both pan holding locations of each zone. Schematic illustrations of the 2x4 Fortmann'748 cabinet modified to have this arrangement of heaters are shown below:

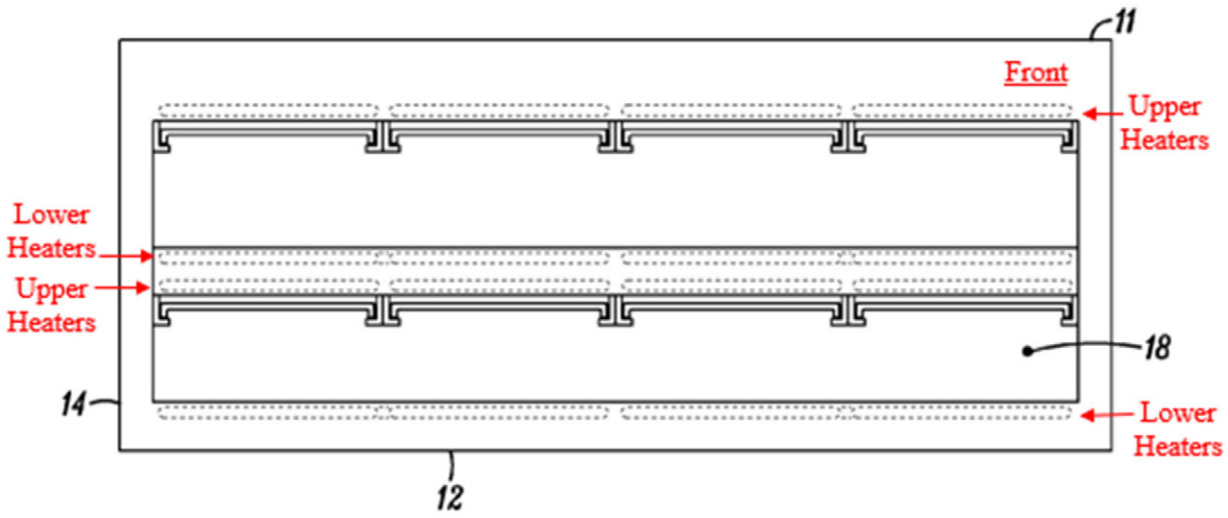


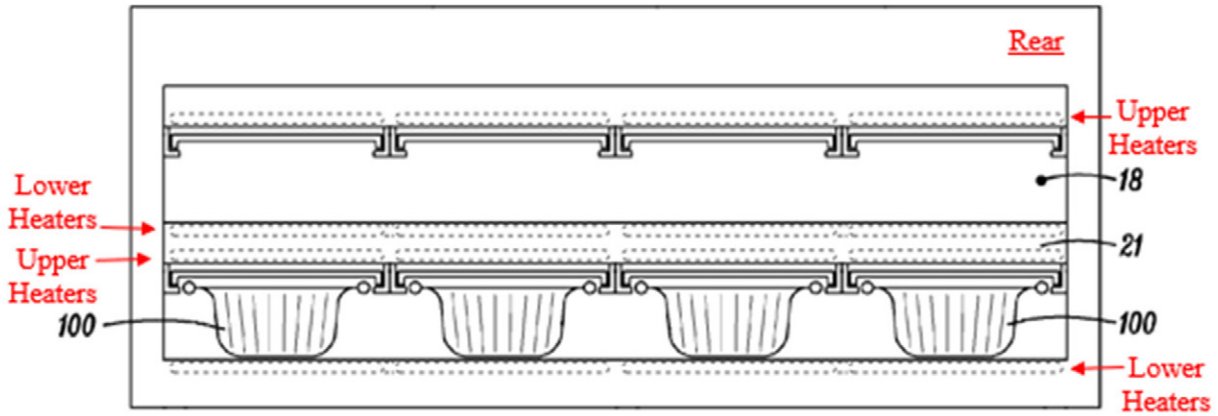
EX1010: Figs. 2 and 6 (modified, annotated).

589. Schematic illustrations of the 2x4 Fortmann'748 cabinet indicating both heater configurations—(1) dedicated upper and lower heaters for each pan holding location/bay, and (2) dedicated upper heaters for each pan holding

location/bay and a shared lower heater for two pan holding locations—are shown above.

590. Notably, the claims of the ’002 Patent would have been obvious regardless of which of the two heater configurations discussed in Paragraph 588 are relied upon. The following illustrations are intended to simultaneously represent both configurations and will be used in the Grounds 10-13 based on Fortmann’748.





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

3. Independently Controllable Top and Bottom Heaters per Zone

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

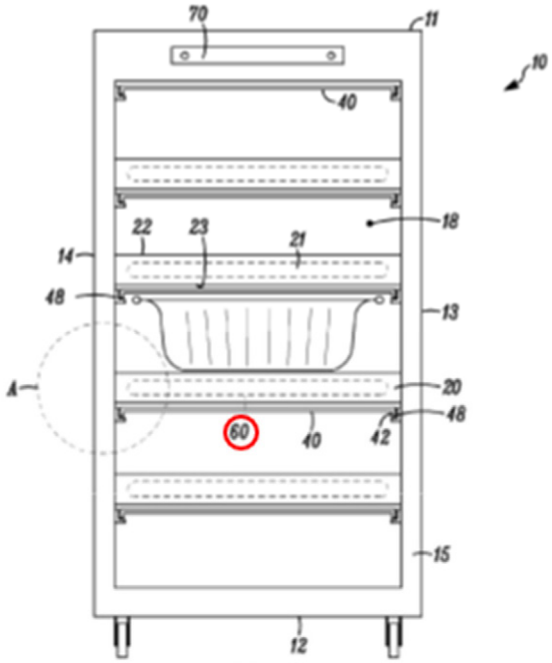


FIG. 2

EX1010: Fig. 2 (annotated).

592. Jones, Fortmann'197, the IRHS Documents, and McMillan likewise teach food holding zones that are independently controllable from one another, providing more particularized descriptions of their disclosed controls configurations which the POSA would have been motivated to incorporate with respect to the Fortmann'748 cabinet as modified in Paragraphs 554-590 above.

593. Jones teaches that upper and lower heaters for the food holding zones are independently controllable.

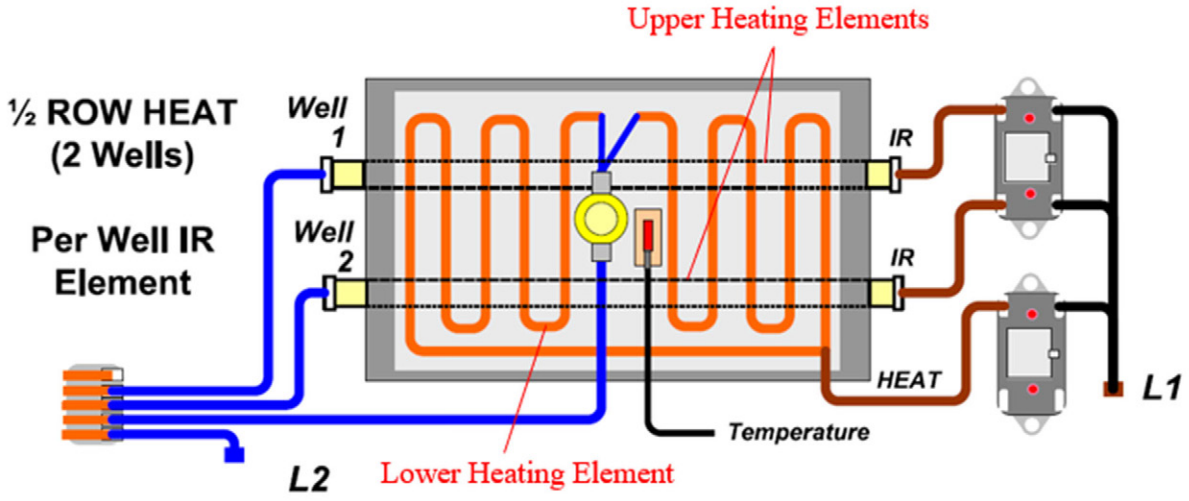
594. Jones explains its "control features of the invention provide control over … upper and lower heat settings that are … programmed into the software for each product name." EX1012: ¶[0098].

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

596. Similarly, Fortmann'197 has independently controllable upper and lower heaters for each of its zones. EX1014: 8:63-67 ("the plate 40 may include multiple heaters 501, such as one heater 501 per discrete heating zone 100, with the controller 1000 controlling the heat to each heater 501 to maintain the desired temperature in the specific discrete heating zone"), 9:50-65 ("[t]he upper heaters

521, 522, 523, 524 may be individually controlled to maintain the temperature within the respective discrete heating zone 100 associated with the heater"), 9:59-65 ("the instructions inputted by the user … may be used by the controller 1000 to operate the respective upper heater (and lower heater 501 in embodiments where the lower heater (or a portion of the lower heater may be controlled)[)] as necessary to maintain the desired temperature within the zone)").

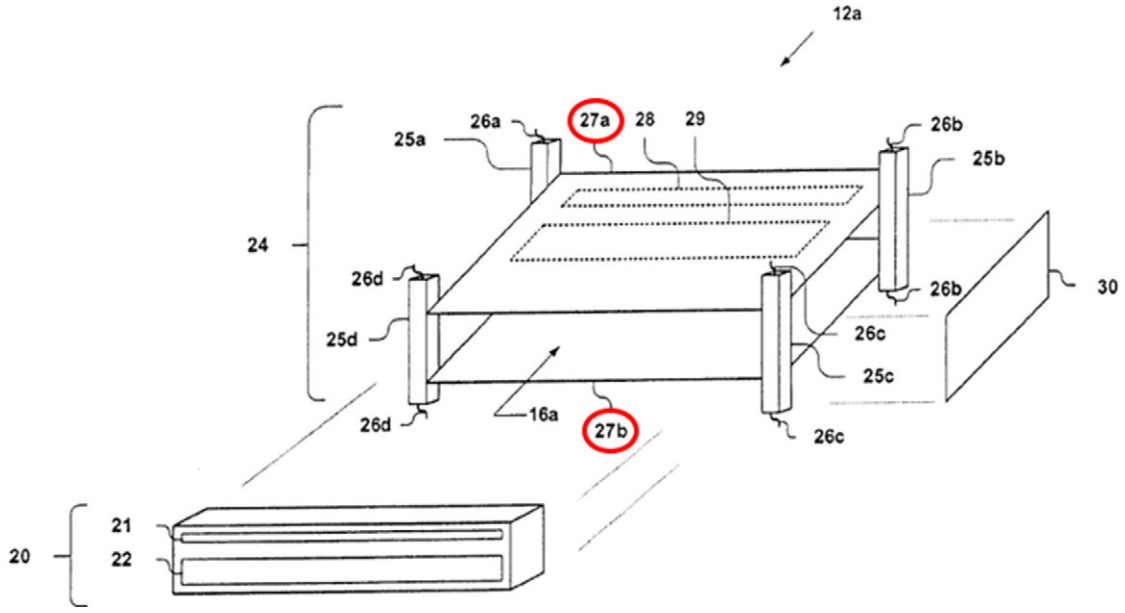
597. Likewise, the IRHS Documents teach the upper (IR bulb) and lower (electrical resistance heating element) heaters for each zone which are independently controllable from one another, as explained in Paragraphs 139-163 above (Ground 1 (1.d.2)).



EX1005: 25 (annotated).

598. Lastly, McMillan states "[e]ach of the heater plates 27a, 27b may be individually controlled to maintain a certain temperature set by an operator."

EX1019: 4:40-42. As shown below, heater plate "27a" is heating a food holding zone above a shelf (i.e., a lower heater for the food holding zone above the shelf) and heater plate "27b" is heating a food holding zone below a shelf (i.e., an upper heater for the food holding zone below the shelf).



EX1019: Fig. 2 (annotated).

599. It would have been obvious to make the upper and lower heaters of each zone of Fortmann'748's cabinet as modified in Paragraphs 554-611 above to be independently controllable, as taught by Jones, Fortmann'197, IRHS Documents, and/or McMillan.

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

601. This adaptation would have also enabled "precise[] control [of] the environment in each pan, allowing customized settings for each food product" and provided "the ability to maintain gold standard sensory attributes at drastically extended hold times while delivering hotter food to [] customers." EX1005: 4 (explaining the benefits of the IRHS heatsink and IR bulbs); EX1007: 10 ("Tailor each well specifically to the products within them, providing unlimited flexibility per well").

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

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

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

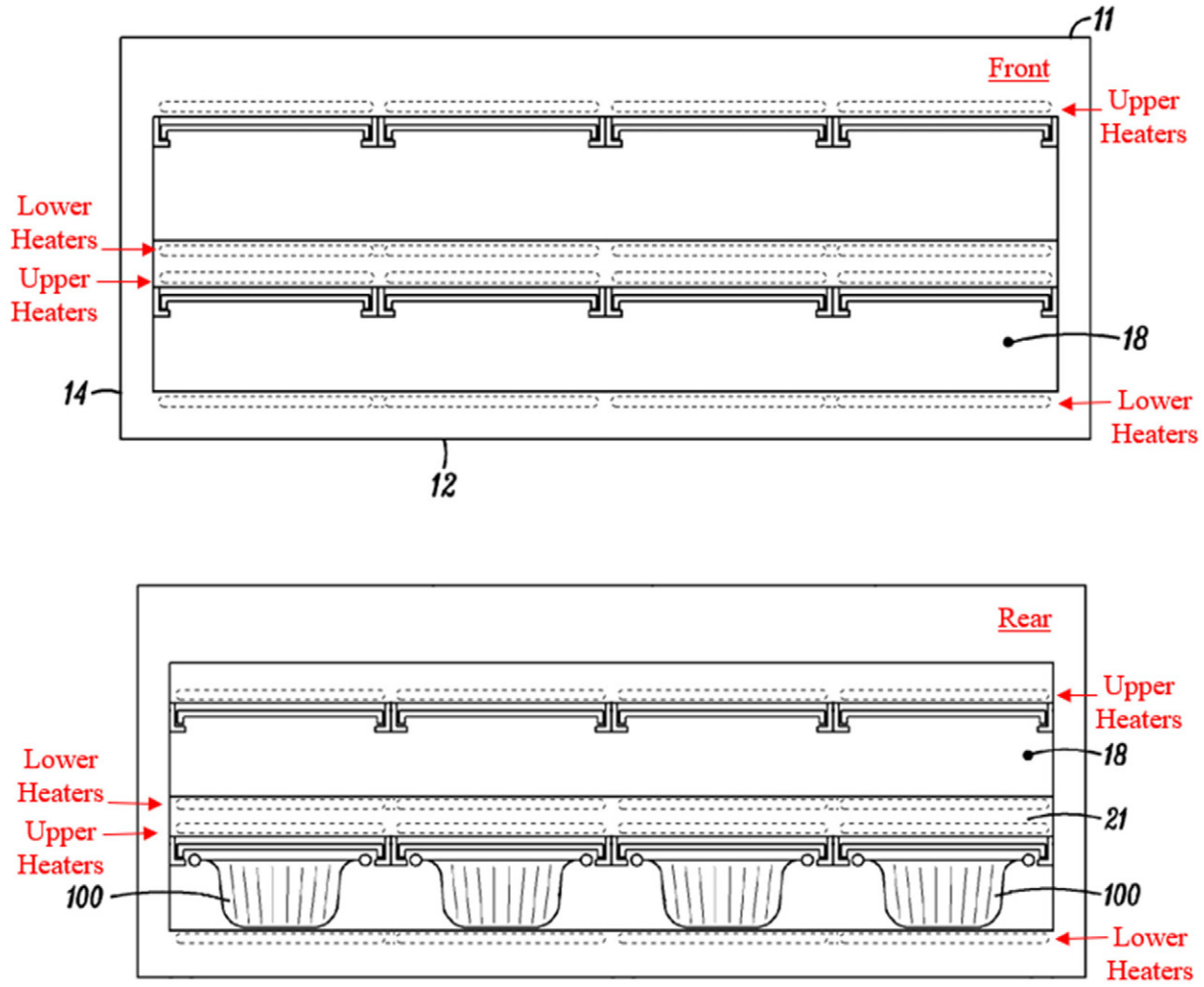
605. There would have been a high expectation of success in making this modification given:

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

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

606. Representative illustrations[3] of Fortmann'748's cabinet modified to demonstrate each food holding zone having independently controllable upper and lower heaters as shown below:

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



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

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

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

609. Fortmann'748's controller is already able to operate heaters independently in different zones, and therefore would have been understood to be capable of operating the additional heaters independently as well. EX1010: ¶¶[0021] ("one or more heaters 60 that are controlled separately from the heaters 60 that are disposed in conjunction with the remaining shelves 21"), [0024] ("establish two or more heat zones of differing temperatures within the warming volume, to allow food products that require different warming temperatures to be simultaneously disposed within the cart 10").

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

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

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

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

4. Modified Controls

612. Fortmann'748 describes its control system as having a generic "input device for the user to select the desired temperature [] within the heating zone" and "a display that provides an indication of a temperature upon or proximate to each of the plurality of shelves 21 (or representative shelves within a specific heat zone)." EX1010: ¶[0027].

613. While Fortmann'748 describes a generic input device and display, Vaseloff provides more specific descriptions of its input devices and displays that would be compatible with and improve upon Fortmann'748.

614. Vaseloff teaches a food holding device (30) having a timer module (32). EX1026: 2:60-63, 3:48-49, Figs. 3, 4, 10.

615. 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 groupings (*e.g.*, display/control groups) are positioned near and associated with a particular pan location/bay (34) as confirmed by a visual

indicator arrow (66) that points up or down to the pan location/bay. EX1026: 4:5-6, 4:20-22, 4:26-33, 4:48-49, 6:51-52.

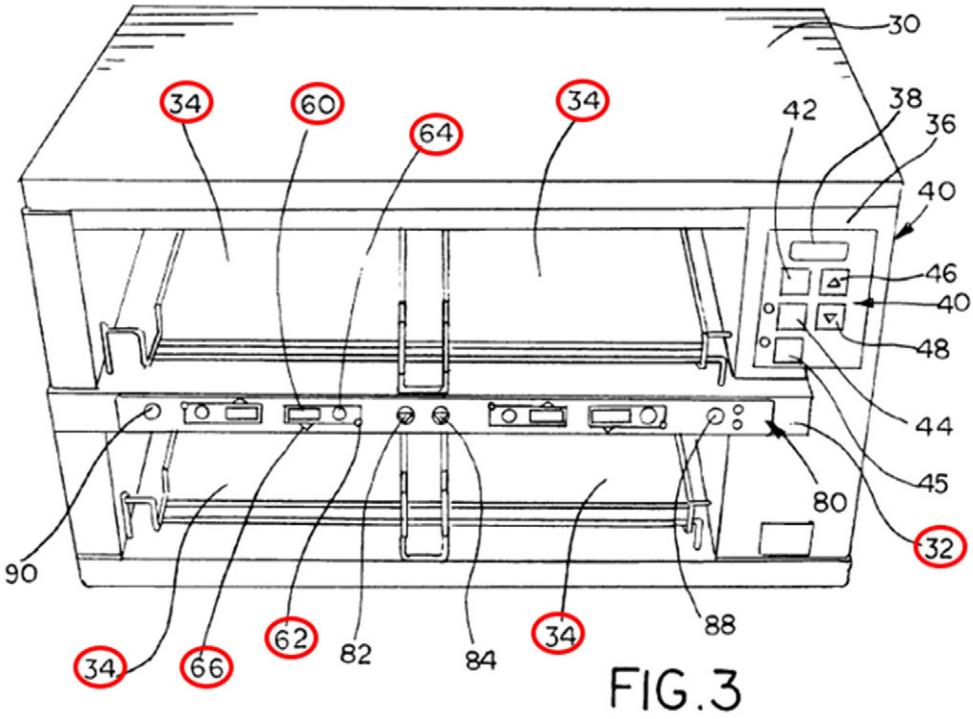


FIG.3

EX1026: FIG. 3 (annotated).

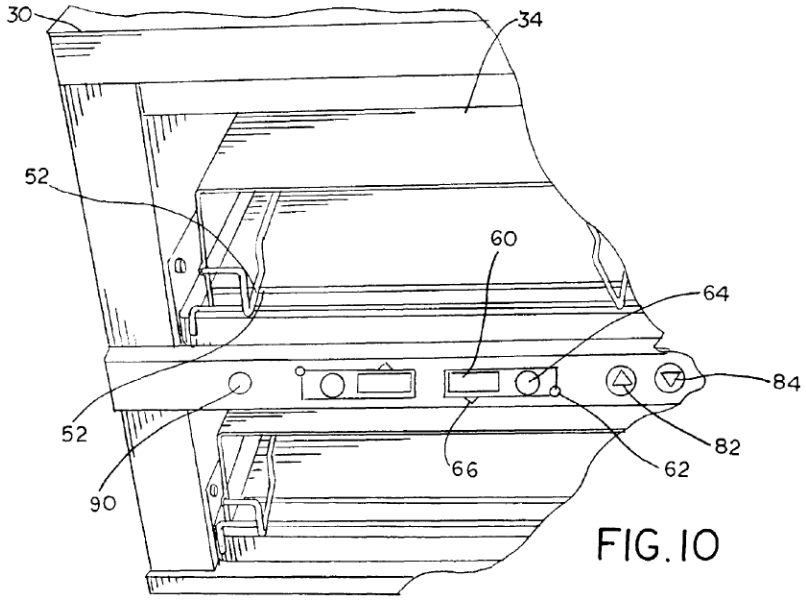


FIG.10

EX1026: Fig. 10.

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

617. The POSA would have recognized Vaseloff's display devices (60), timer status indicators (62), and timer buttons (64) as suitable examples of the generic input device and display in Fortmann'748's control system.

618. In view of Vaseloff, the POSA would have considered it obvious to incorporate Vaseloff's display/control groups (*e.g.*, each set of display device (60), timer status indicator (62), timer button (64), and indicator arrow (66)) into Fortmann'748's modified cabinet for each pan holding location/bay.

619. In incorporating Vaseloff's display/control groups, each pan holding location/ bay would have its own display/control group (*e.g.*, display device (60), timer status indicator (62), timer button (64), and indicator arrow (66)). EX1019: 3:21-23 ("each display panel 18a-d may be configured to convey information corresponding to the number of different categories or types of food products").

620. Providing each pan holding location/bay with its own display/control group would visually associate the controls with the pan holding location/bay, making it easier and quicker for the user to identify the controls (*e.g.*, display device (60), timer status indicator (62), and timer button (64)) for each pan holding location/bay. EX1026: 4:20-22 ("display devices 60 are positioned on the timer modules 32 such that a user can visually determine which display device 60 is associated with which holding compartment"); EX1019: 10:5-10 ("the holding cabinet user interface includes food product displays 180a-d for conveying information regarding the stored food products. The location of the food product displays 180a-d corresponding to the position of the food products within the passageway 16a").

621. Providing each pan holding location/bay with its own display/control group would thus improve the user's interaction with the cabinet by making it more intuitive for the user to associate the information shown by the display with a specific pan holding location/bay and to identify the input device associated with the pan holding location/bay (*e.g.*, to start a hold timer for the particular pan). EX1026: 4:25-30 ("a user of the food holding device 30 can intuitively determine the association of the display device 60 with its associated holding compartment"), 6:51-55 ("a timer may also be activated/deactivated by an associated timer button 64").

622. Moreover, as Vaseloff's display devices (60) display the identity of the food (*e.g.*, "EGGS") held at each pan holding location/bay, and Vaseloff's indicators (62) indicate food/timer status, adopting Vaseloff's display/control group would intuitively identify the type of food at or to be placed in each pan holding location/bay and facilitate food inventory/timing management (*e.g.*, discard expired food, cook more food) including first-in-first-out operations. EX1026: 4:5-15, 4:48-6:25.

623. Adopting Vaseloff's display/control groups would have been nothing more than combining known prior art elements (display/control groups of Vaseloff and the cabinet of Fortmann'748) according to known methods (the arrangement taught by Vaseloff) to yield predicable results (display/control groups on the cabinet with controls associated with each pan holding location/bay).

624. This would have also been nothing more than an application of a known technique (the display/control groups of Vaseloff) to a known device (the cabinet of Fortmann'748) in the same way (incorporating the display/control groups on the cabinet with controls associated with each pan holding location/by).

625. The POSA would have been motivated to adopt Vaseloff's display/control groups and had a high expectation of success because the food holding units are similar.

626. As Vaseloff explains, "one of ordinary skill in the art will appreciate the flexibility and versatility of the disclosed food timing system for it can be applied to any food preparation and storage device that is typically used in restaurants." EX1026: 11:35-38.

627. Moreover, there would have also been a high expectation of success in making this modification given

(1) the similarities between the Fortmann'748 cabinet and the unit of Vaseloff (*e.g.*, all units with compartments for warming trays/pans of food via heating elements),

(2) Fortmann'748's control system already uses a generic input device and display, and

(3) Vaseloff's display/control groups would function in generally the same way when incorporated into Fortmann'748's cabinet.

628. When implementing this adaptation, the POSA would have connected each of Vaseloff's display/control groups, including display device (60), timer status indicator (62), and timer button (64), to Fortmann'748's controller as taught by Fortmann'748 and Vaseloff. EX1010: ¶[0027] ("control system may include or operate in conjunction with a display" and "control system 200 may include or communicate with an input device"); EX1026: 2:17-20 ("the food timing system further includes a centralized processor and a centralized memory for managing the connectivity, information sharing, and coupled operations of the timer modules 32").

629. The POSA or a member of his/her interdisciplinary team would have further suitably modified the connections to and/or programming of Fortmann'748's controller to accommodate the Vaseloff display/control groups.

630. Moreover, when modifying Fortmann'748's cabinet to include Vaseloff's display/control groups, it would have been obvious to arrange the Vaseloff display/control groups on both the front and back of Fortmann'748's cabinet as taught by Fortmann'197, IRHS Documents, and/or McMillan.

631. Each of Fortmann'197, the IRHS Documents, and McMillan each teach providing displays and controls on both the front and back sides of pass-through warming cabinets. EX1005: 8, 20, 25; EX1006: 2; EX1007: 54, 56; EX1008: 61; EX1014: 3:51-55, 4:25-37; EX1019: 3:44-47, 4:15-17.

632. Fortmann'748 cabinet is a pass-through design that allows food pans to be inserted and removed from both the front and back of the unit. EX1010: ¶[0014].

633. Providing Vaseloff's display/control groups on both the front and back of Fortmann'748's cabinet would allow for viewing information (*e.g.*, temperature) and for controlling of cabinet (specifically, each pan holding location/bay) operation (*e.g.*, timer) from either the front or back side. EX1014: 4:32-37 ("where the plurality of displays 130 and inputs 140 are provided on both the front and rear end walls 60, 70, the respective displays 130 may be operated

simultaneously, and one or both of the inputs 140 may be configured to accept user instructions"); EX1019: 5:42-44 ("the control system 30 may transmit display commands to the display screen 21 of a front and/or rear bezel assembly 20 for displaying particular information"); EX1024: 11:34-38 ("control and display areas 264A-D [on the inlet side I] are replicated on outlet side O as control and display areas 266A-D and are controllable from either inlet side I or outlet side O for the convenience of the restaurant personnel").

634. This would thus allow users on both sides of the cabinet to coordinate proper use of the food in the cabinet. EX1029: 5:19-23 ("[b]ecause both the front side and rear side of the cabinet 10 have displays, operators on the front side and operators at the rear side view substantially identical information to coordinate proper use of the food in the cabinet").

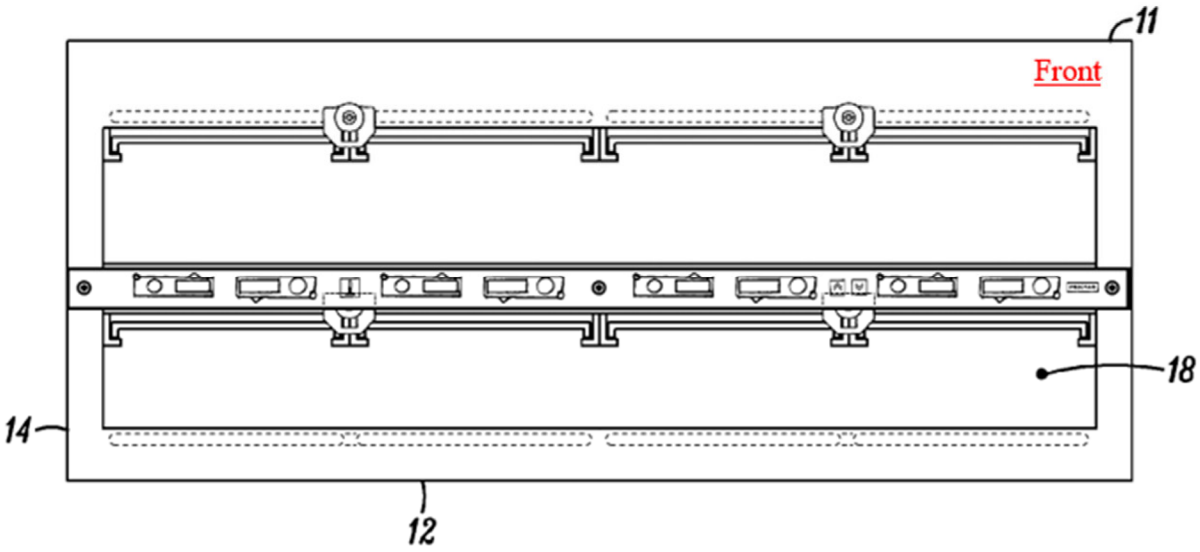
635. Providing Vaseloff's display/control groups on both the front and back of Fortmann'748's cabinet would have been nothing more than the application of a known technique (arranging displays and controls on both the front and rear of a cabinet per Fortmann'197, IRHS Documents, and/or McMillan) to improve a similar device (the Fortmann'748 cabinet) in the same way (enabling operators on the front and/or rear side of the cabinet to view information and control the operation of the cabinet).

636. There would have been a high expectation of success in making these modifications given

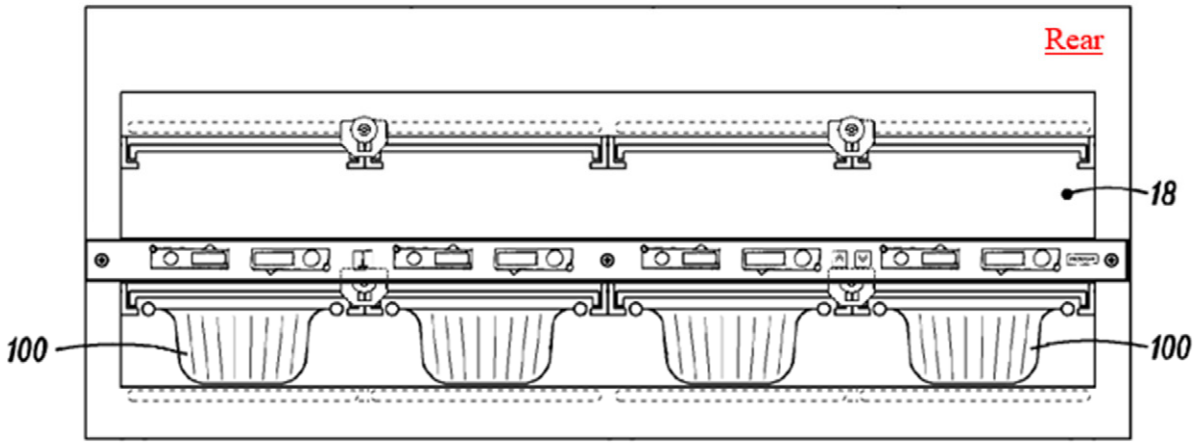
(1) the similarities between the Fortmann'748 cabinet and the units of Fortmann'197, IRHS Documents, and McMillan (*e.g.*, each disclose units with compartments for warming trays/pans of food via heating elements); and

(2) that Vaseloff's display/control groups would still function in generally the same way.

637. Representative illustrations[4] of the 2x4 Fortmann'748 cabinet modified to have Vaseloff's display/control groups are shown below:



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



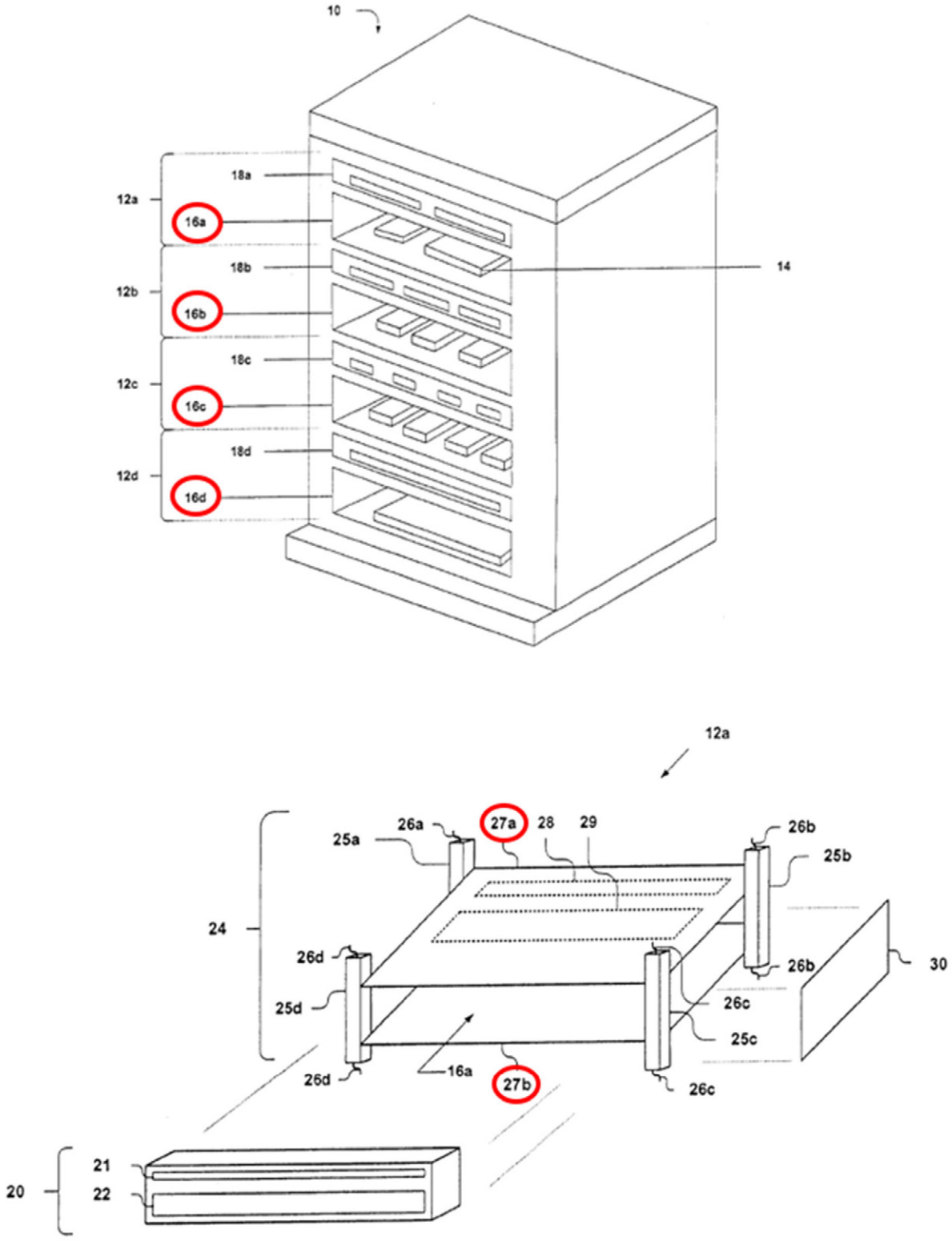
EX1010: Figs. 2 and 6 (modified).

5. Temperature Control

638. Fortmann'748 describes its control system as having a generic "input device for the user to select the desired temperature [] within the heating zone" and "a display that provides an indication of a temperature upon or proximate to each of the plurality of shelves 21 (or representative shelves within a specific heat zone)." EX1010: ¶[0027].

639. While Fortmann'748 describes a generic input device and display for providing temperature control, McMillan provides more specific descriptions as to how such devices and displays could be configured and operated.

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



EX1019: Figs. 1 and 2 (annotated).

641. McMillan teaches 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.

642. To accomplish this, each of McMillan's food passageways has a display panel (18a-d) having a food product display (180a-d) for each food holding location/bay. EX1019: 9:58-61, 10:5-10.

643. Each of these food product displays (180a-d) include a message area (183a-d) for displaying information to the user, such as the name of the food product being held in the food holding location/bay 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.").

644. McMillan's 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.").

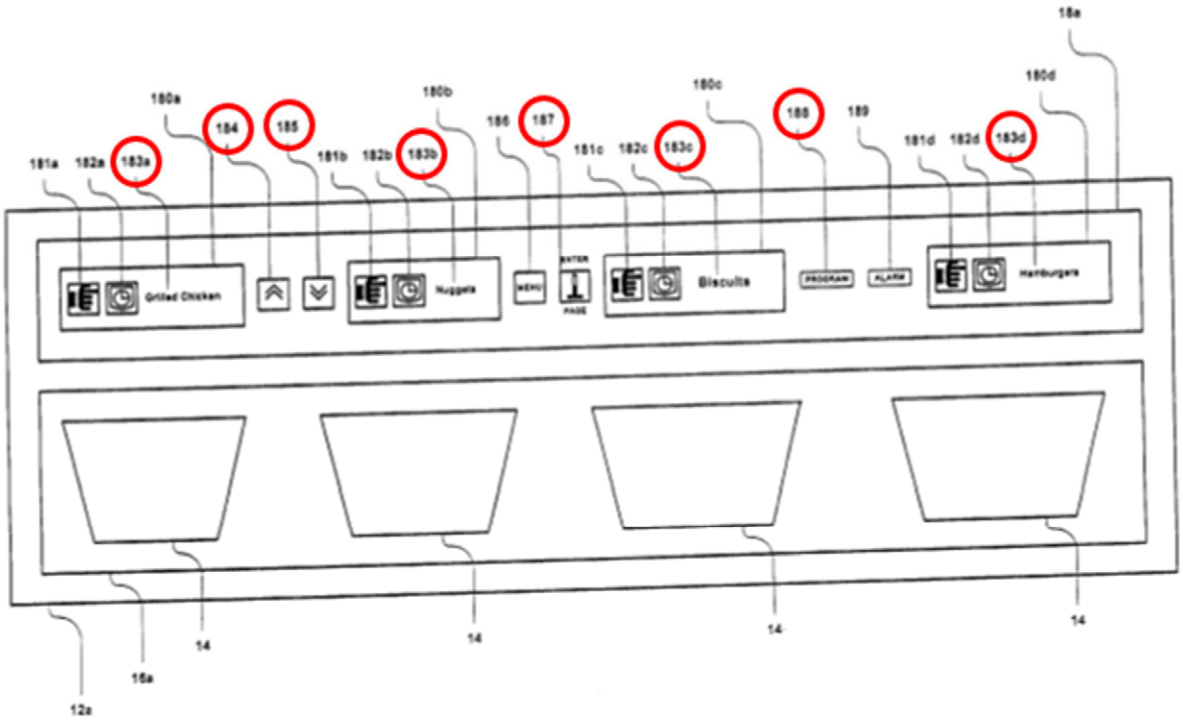


Fig. 5a

EX1019: Fig. 5a (annotated).

645. The POSA would have found it obvious to modify the display devices of Vaseloff (and/or programming of Fortmann'748's control system) to include the ability to display current temperatures and setpoint temperatures in the display device (60) for each pan location/bay as taught by McMillan. EX1019: 10:30-32 ("display areas [] may present a numeric value indicating the current and/or set temperature").

646. Moreover, in view of McMillan, it would have been obvious to incorporate McMillan's controls to change the setpoint temperatures. EX1019: 10:43-58 ("allow an operator to change or select … holding temperatures"). Fortmann'748 generally explains its input device allows "the user to select a desired temperature within the specific … heat zone" and McMillan provides a specific example of how this can be implemented. EX1010: ¶[0027].

647. Incorporation of McMillan's controls for displaying and setting temperature would have provided an easy, fast, and intuitive way for a user to see current and setpoint temperatures in a manner associating them with the corresponding pan location/bay. EX1019: 10:6-10; EX1026: 4:20-22, 4:25-30.

648. Incorporation of McMillan's controls for displaying and setting temperature would have also allowed the user to change the holding temperatures as needed, such as to accommodate changes in the types of food being held.

649. In making this modification, it would have been obvious for the POSA to incorporate McMillan's arrow keys (184, 185) to "allow an operator to increase and decrease displayed values (*e.g.*, temperature, time) or change selections," as taught by McMillan. EX1026: 7:30-32; EX1019: 10:46-48.

650. It would have been further obvious for the POSA to incorporate McMillan's temperature button (187) to "allow a user to display temperature information, enter operational changes, and/or scroll to different pages" and/or the program button (188) to permit the user to "change or select … holding temperatures." EX1019: 10:52-58.

651. It would have been well within the skill in the art to implement the arrow keys, temperature button, and program button as physical buttons. EX1026: 2:60-3:19 (teaching physical programming buttons), 7:29-32 (teaching physical up-arrow and down-arrow buttons).

652. It would have been obvious to the POSA to program Fortmann'748's controller, as modified in view of Vaseloff, to permit a user to display the current and setpoint temperatures for each pan location/bay in the associated display (60) and to change the setpoint temperature for individual pan locations/bays by use of the up-arrow and down-arrow buttons (184, 185), the temperature button (187), and/or the program button (188), similar to the teachings of McMillan. EX1019: 10:6-8, 10:20-33, 10:42-58.

653. For example, a first press of the temperature button (187) could cause each display (60) to display a current temperature of its associated pan location/bay. Additional presses of the temperature button (187) could cause each display (60) to display an upper setpoint temperature then a lower setpoint temperature of its associated pan location/bay. The program button (188) could be pressed as needed to cycle through the displays (60) (*e.g.*, from left to right) to select a desired pan location/bay for temperature programming and the arrow buttons (184,185) could be pressed to adjust the displayed setpoint temperature for that pan location/bay.

654. Implementation of McMillan's control operations would have been nothing more than the application of a known technique (incorporating actual and set-point temperature display and the operations to change the set-point temperature of McMillan) to improve a similar device (Fortmann'748's cabinet) in the same way (displaying actual and set-point temperatures for each pan holding location to a user and providing the ability for the user to change the set-point temperature).

655. There would have been a high expectation of success in making these modifications given:

(1) the similarities between the Fortmann'748 cabinet, Vaseloff's unit, and the unit of McMillan (*e.g.*, all units with compartments for warming trays/pans of food via heating elements);

(2) that Vaseloff's display devices are already able to display numeric values (EX1026: 4:10-12, 7:26-32); and

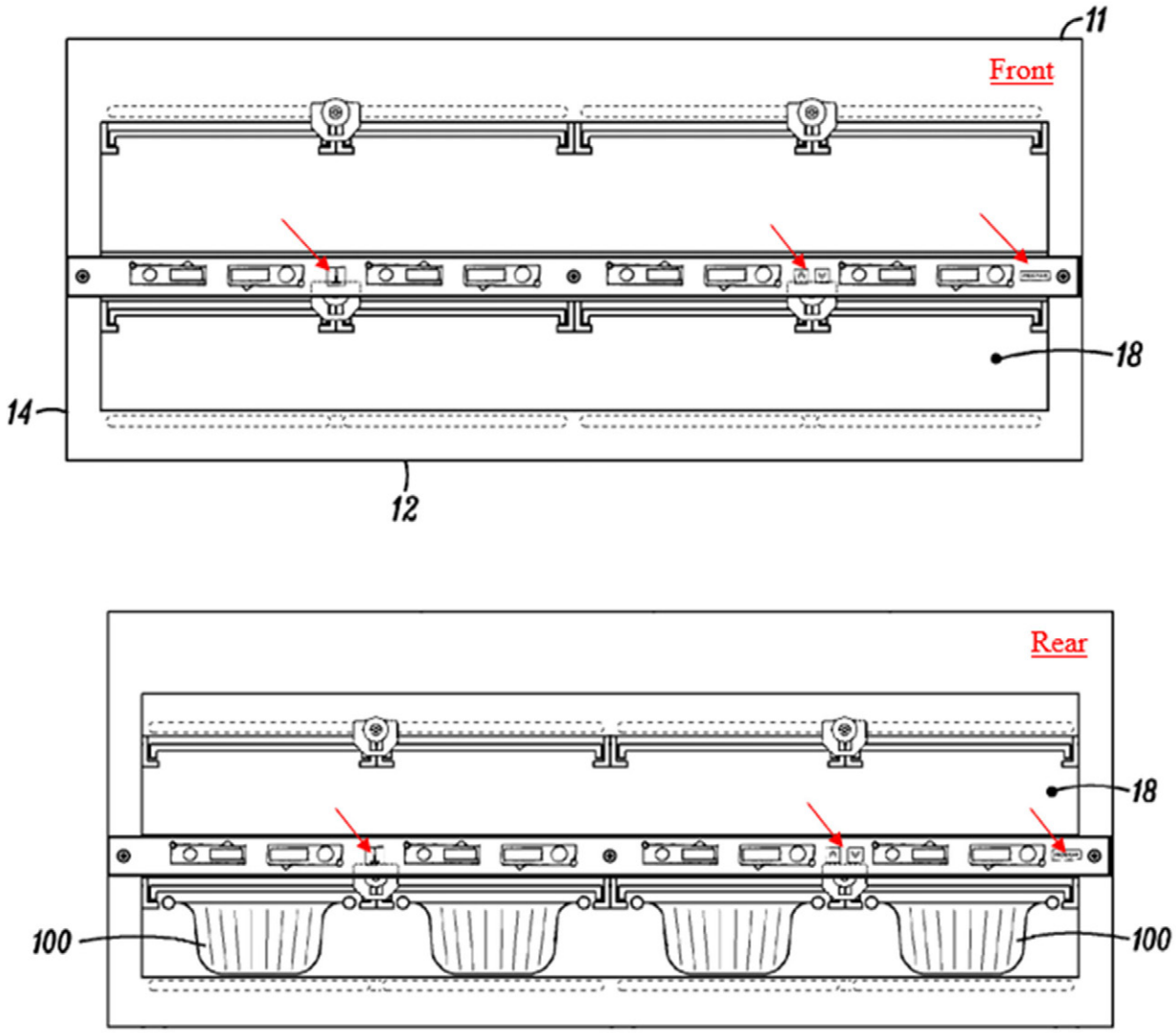
(3) McMillan's buttons would function in generally the same way when incorporated into Fortmann'748's cabinet.

656. When implementing this modification, it would have been obvious to the POSA to connect McMillan's controls (*e.g.*, arrow keys (184, 185), temperature button (187), program button (188)) to Fortmann'748's controller. EX1010: ¶[0027].

657. It would have been within the skill in the art to make any changes to Fortmann'748's controller and software to implement this ability to display and change temperatures. EX1019: 6:15-19 ("The main controller 34 may interface with the memory 32 and execute the control program. Under the direction of the control program, the main controller 34 may control the operation of the shelving unit 12a.").

658. Representative illustrations[5] of the 2x4 Fortmann'748 cabinet modified to have McMillan's controls (*e.g.*, arrow buttons, temperature button, program button) are shown below:

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



EX1010: Figs. 2 and 6 (modified).

6. Timer Bar/Bezel

659. As discussed above it would have been obvious to the POSA to modify Fortmann'748's cabinet to include Vaseloff's display/control groups and buttons per McMillan.

660. It would have further been obvious to locate these display/control groups and buttons on a time bar or time bezel as taught by Fortmann'197, the IRHS Documents, and Hartfelder.

661. Fortmann'197's holding cabinet (10) has control bars (60) spaced forward of the shelves (40) and control bars (70) spaced rearward of the shelves. EX1014: 2:58-59, 3:28-30, 3:55-56, 4:18-37, Figs. 1-3 and 5.

662. An "air gap" (80, 90) is established between each control bar (60) and its corresponding shelf. EX1014: 3:36-39, 4:18-25.

663. 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. The user would interact with the displays (130) and inputs (140) to control each respective heating zone. EX1014: 4:32-37, 9:56-65.

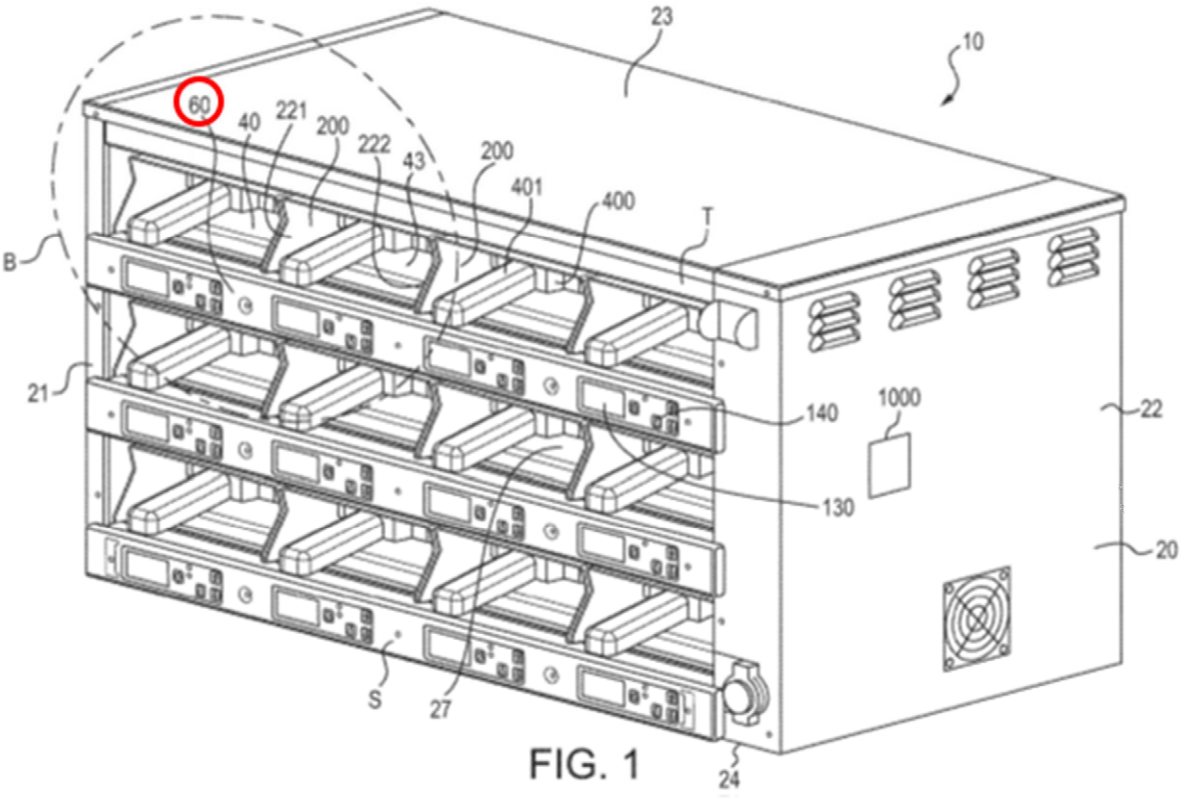

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FIG. 1

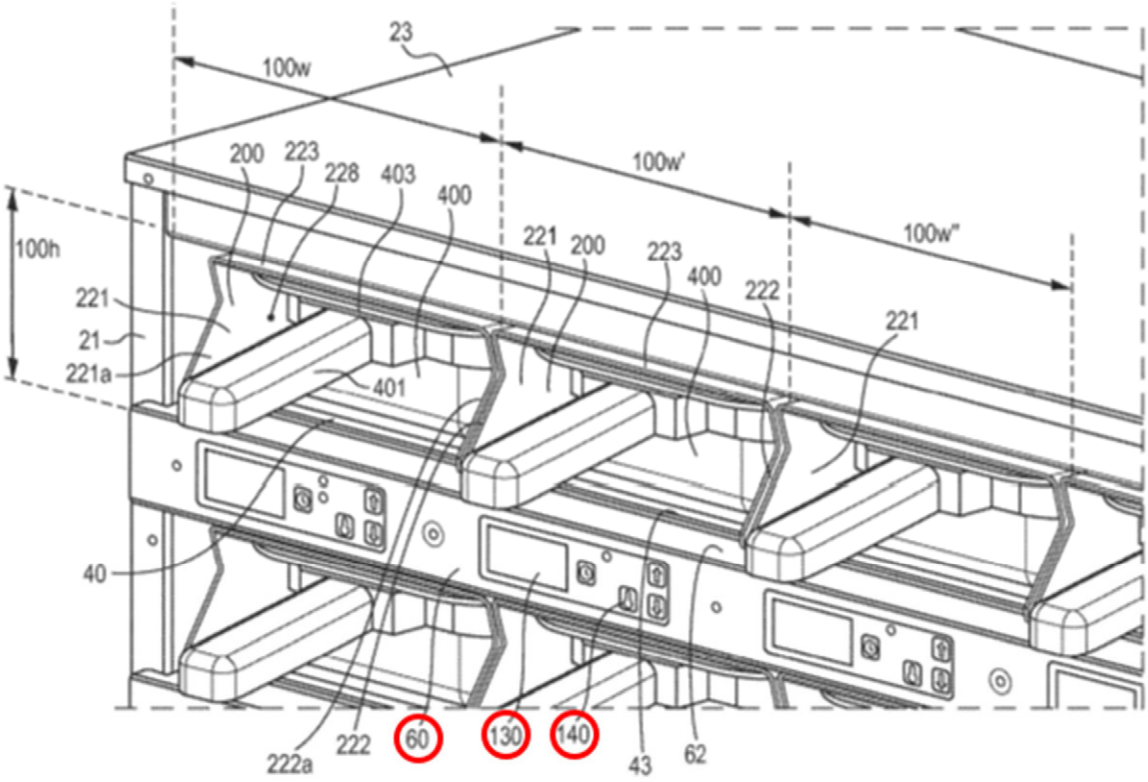

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FIG. 2

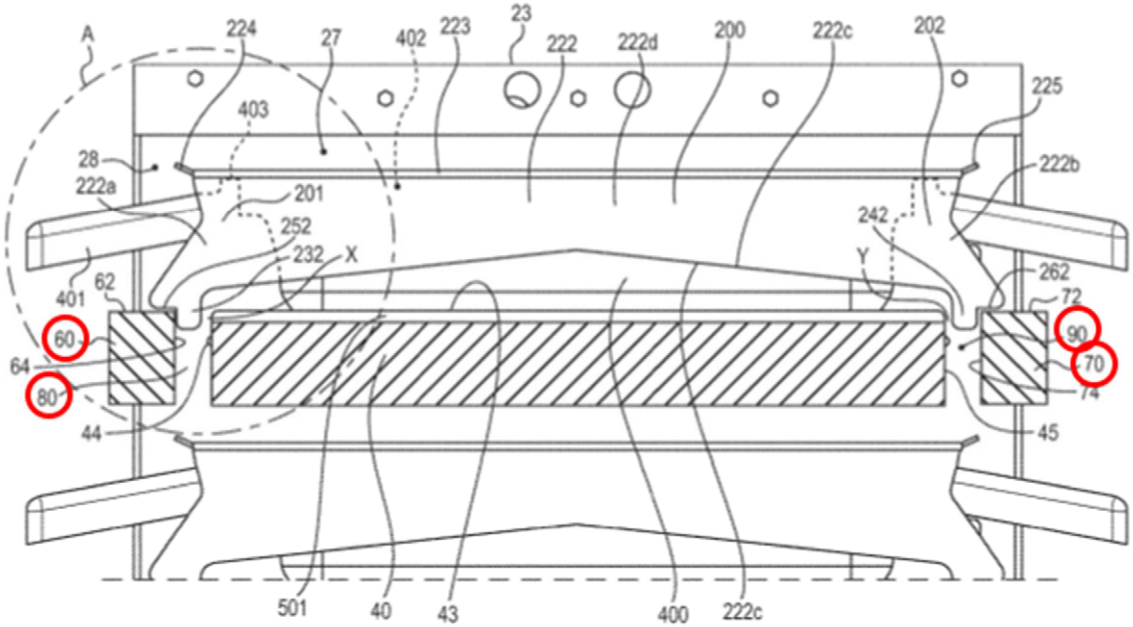
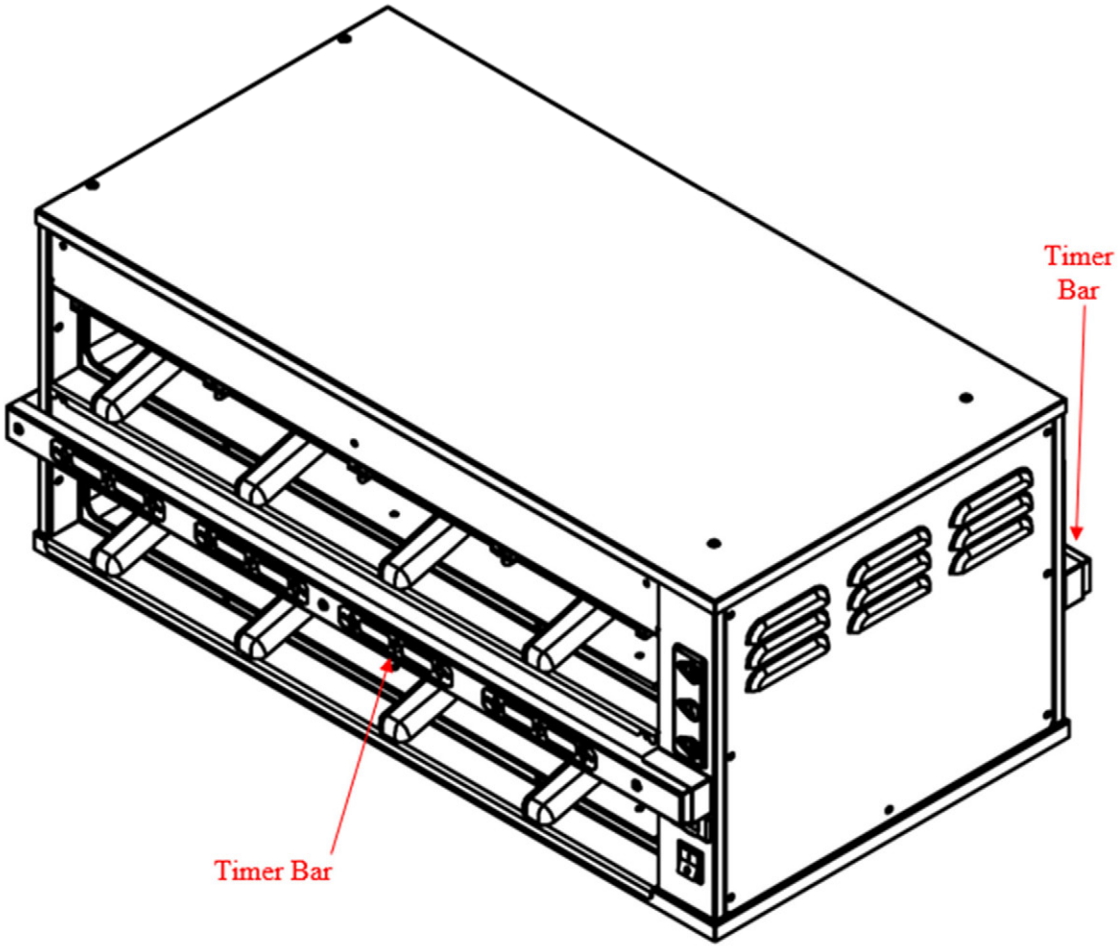

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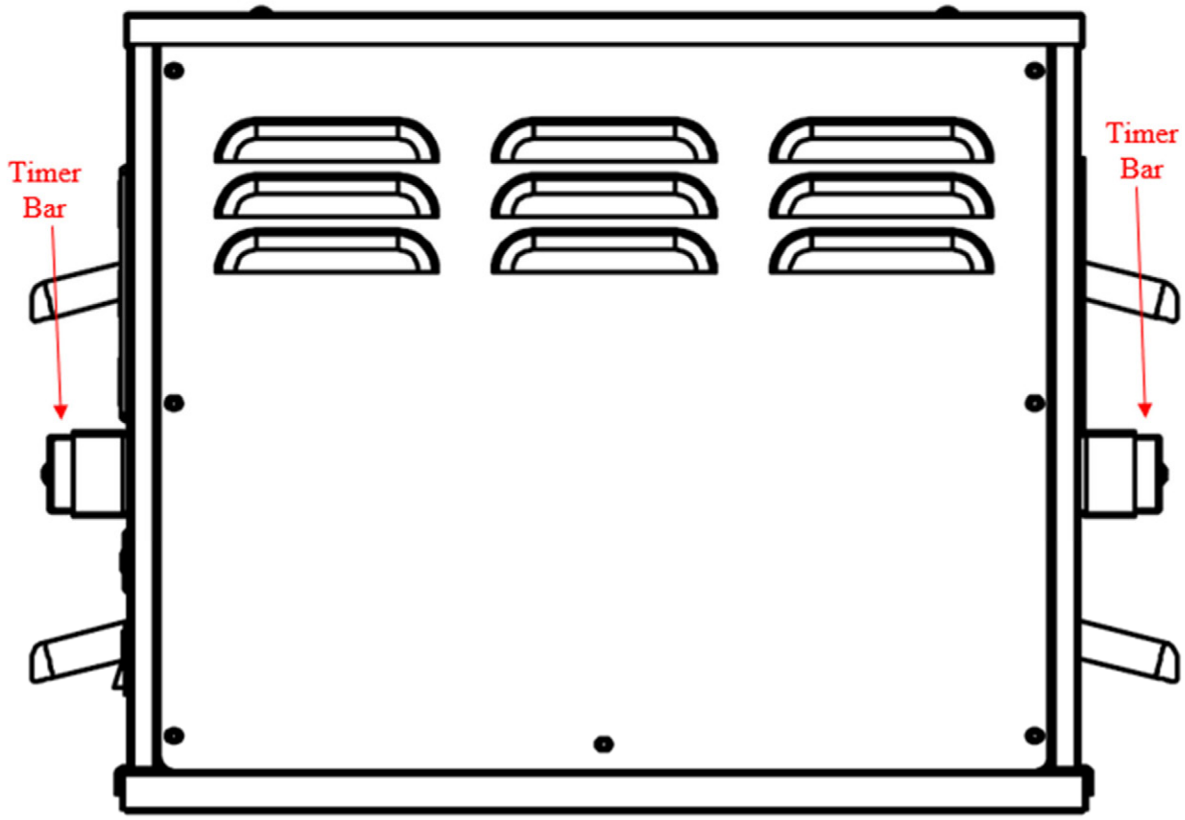
FIG. 5

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

664. Similarly, the IRHS Documents teach a holding unit with front and rear control (timer) bars. EX1005: 4 ("Duke timer bar and control system"), 7, 20 ("TIMER BAR"), 25 ("FRONT TIMER BARS" and "REAR TIMER BARS"); EX1006: 1 ("[a]alphanumeric displays to indicate product description, temp and hold time"); EX1007: 51 ("more robust Duke timer bars"), 52, 54 ("Duke Timer Bar … Double-sided"), 56 ("Controls … Double").

665. The timer bars as disclosed in the IRHS Documents have buttons and displays for each pan holding location/bay that allow the user to input commands and view information (*e.g.*, food name, temperature, etc.) for each pan holding location/bay. EX1005: 16-17 ("Pan Display … Displays Product Name and Hold Time Remaining," "DISPLAY LINK, HOLD TIME, TEMPERATURE," "This indicates the Heat Sink Temperature for BURG"); EX1006: 1


Timer
Bar
Timer Bar

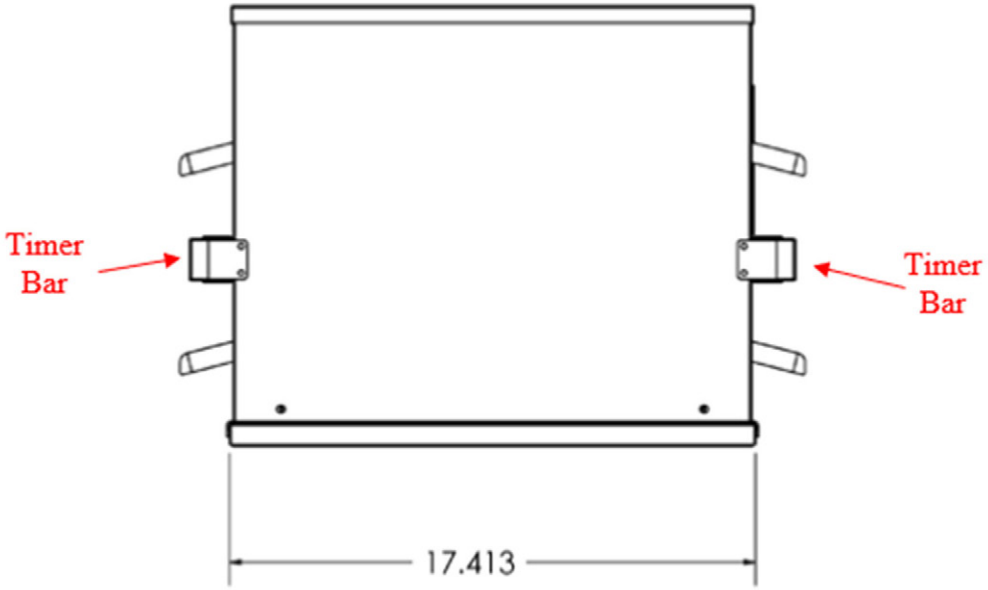


EX1005: 8 (annotated).

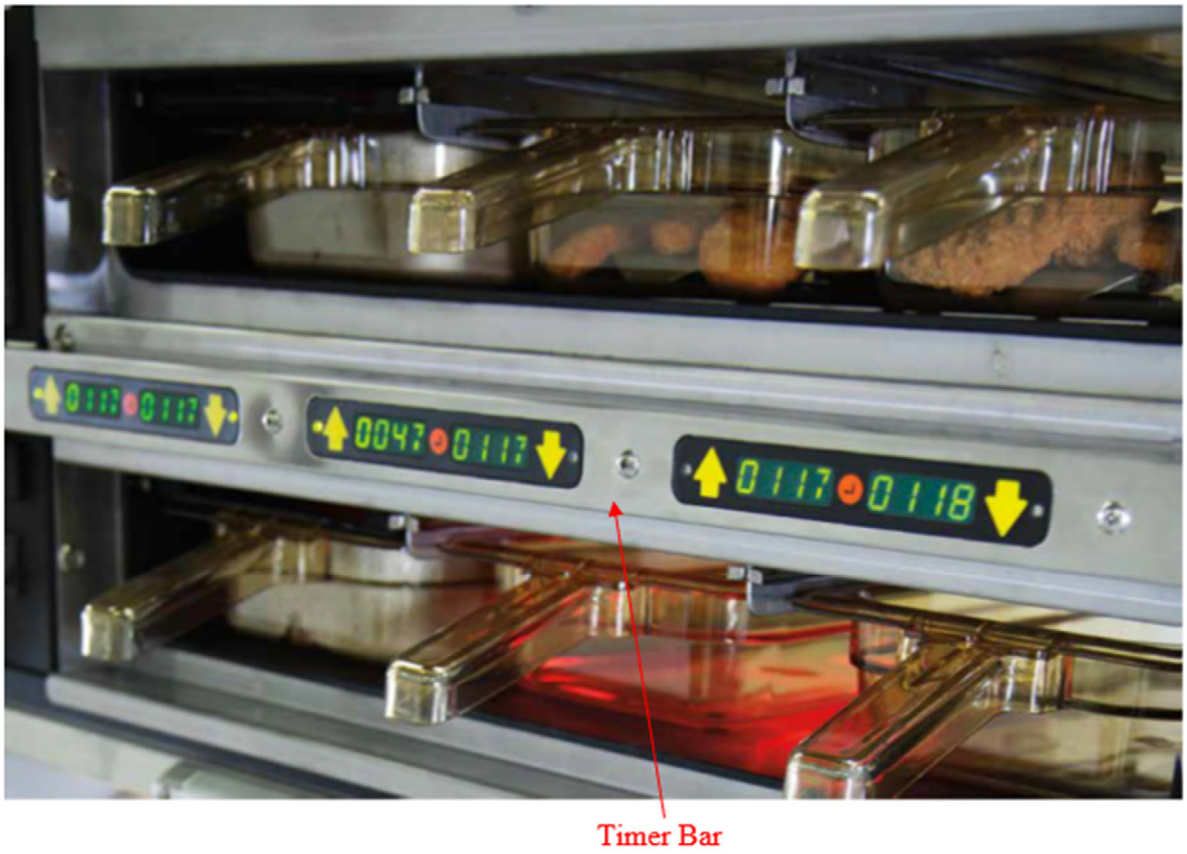


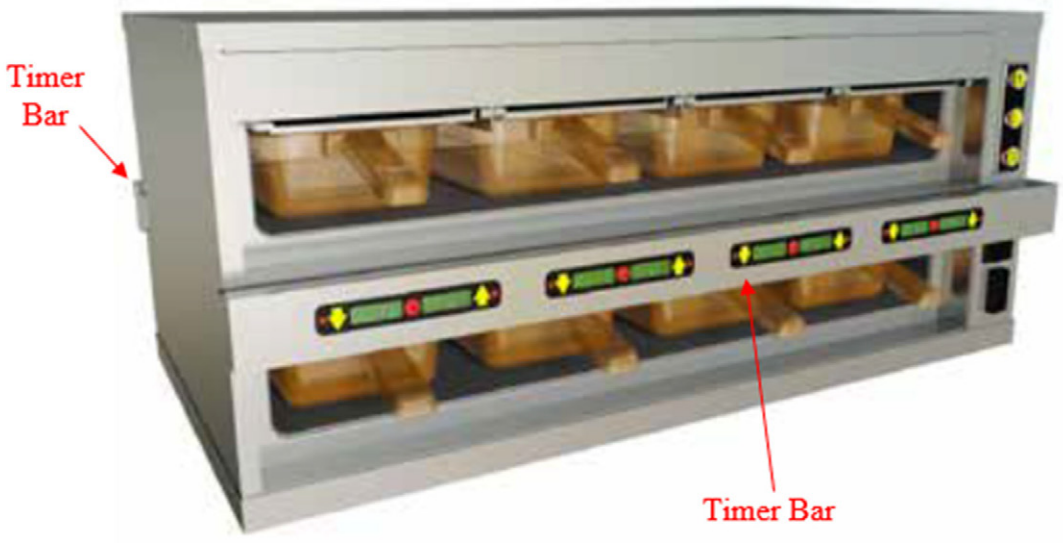
EX1005: 17.





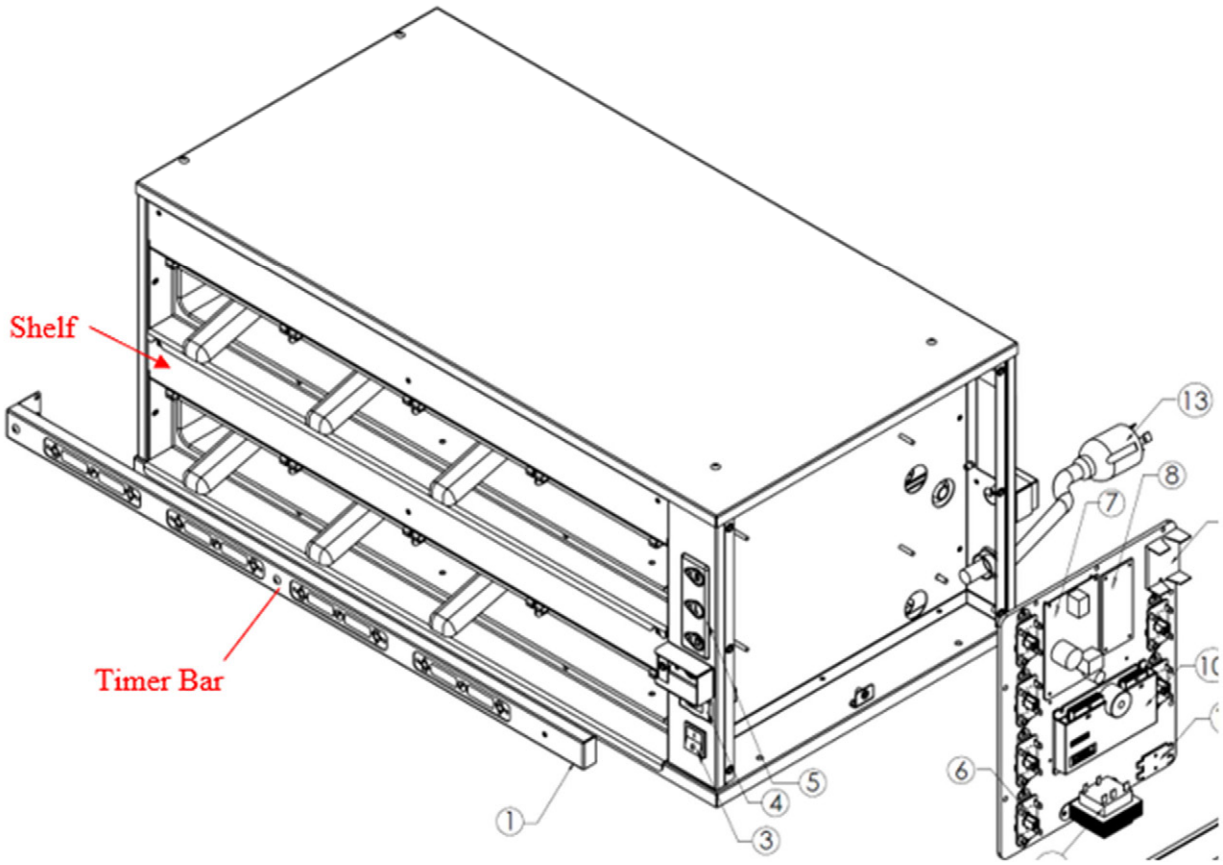
EX1006: 1-2 (annotated).



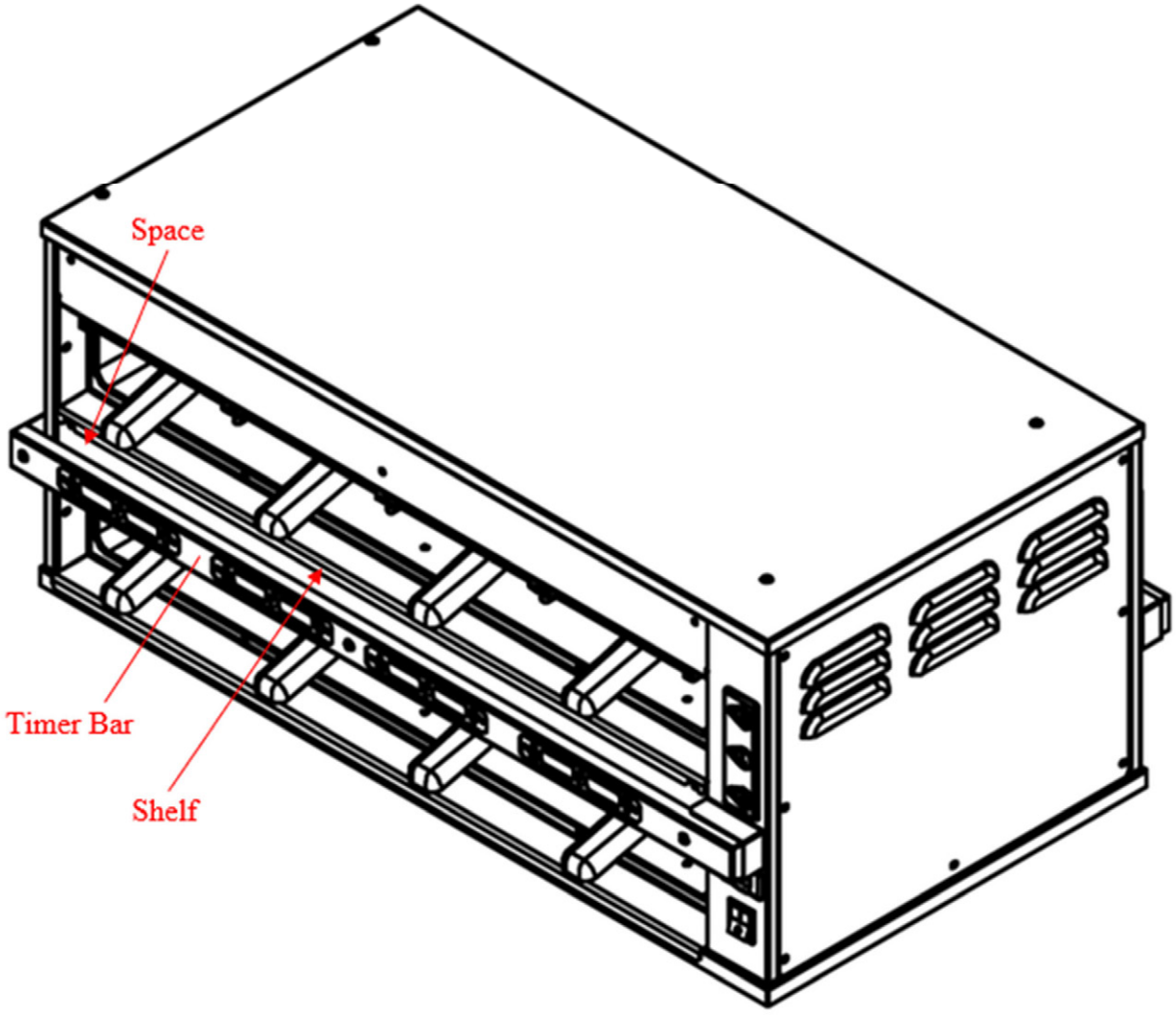


EX1007: 52, 56 (annotated).

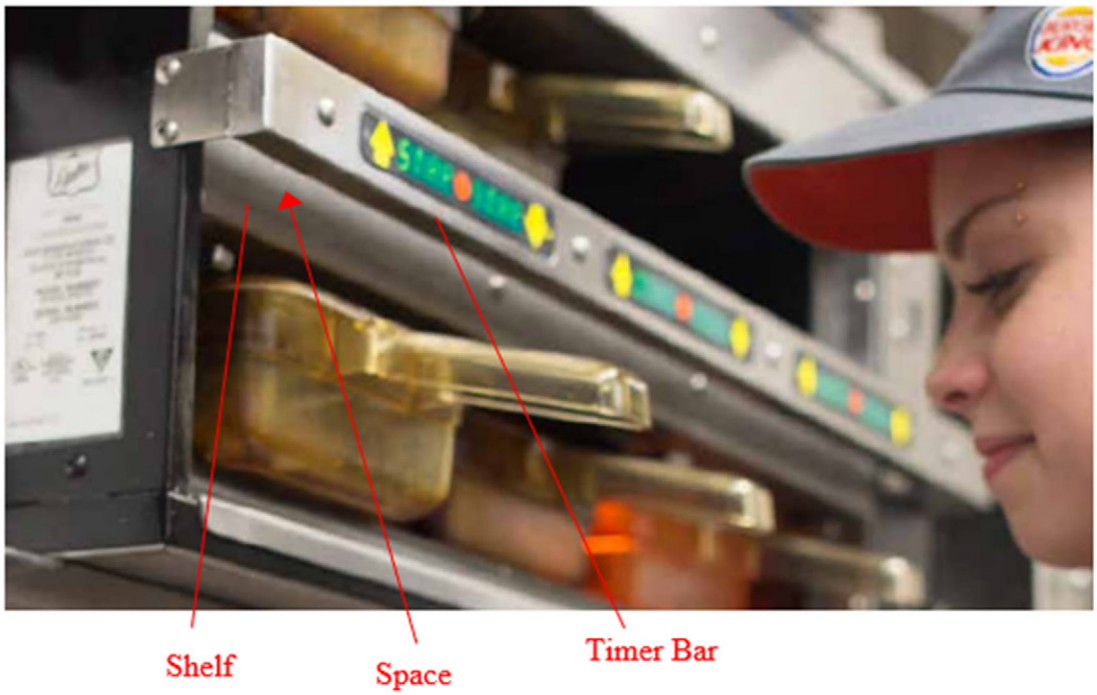
666. The front and rear timer bars of the IRHS Documents are spaced apart from the shelf.



EX1005: 19 (annotated).

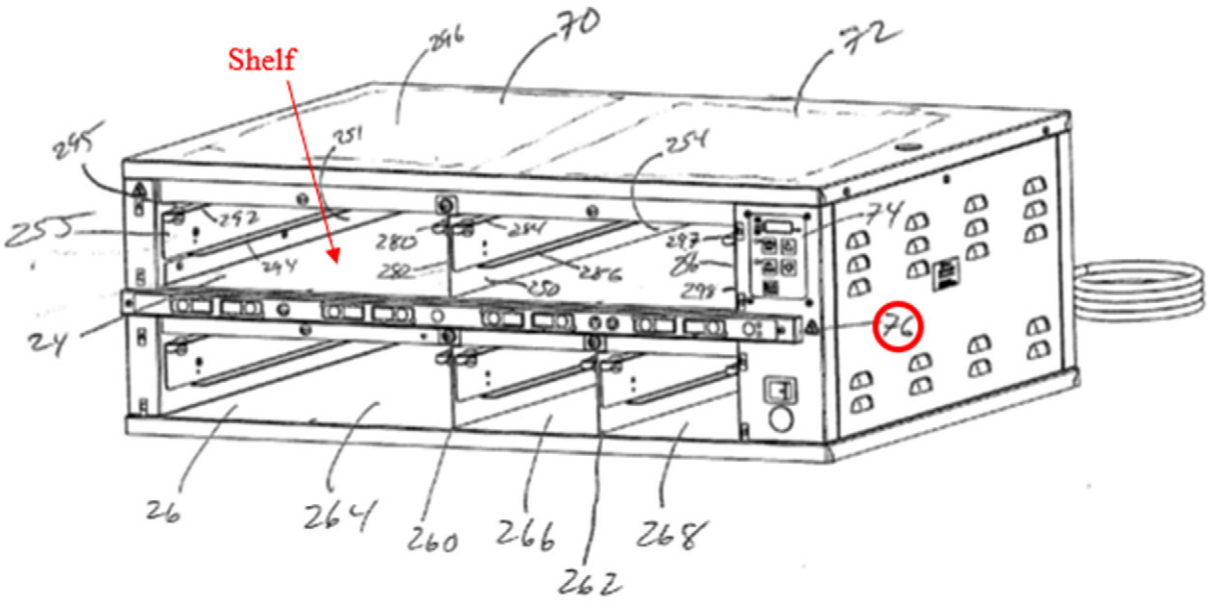


EX1005: 8 (annotated).



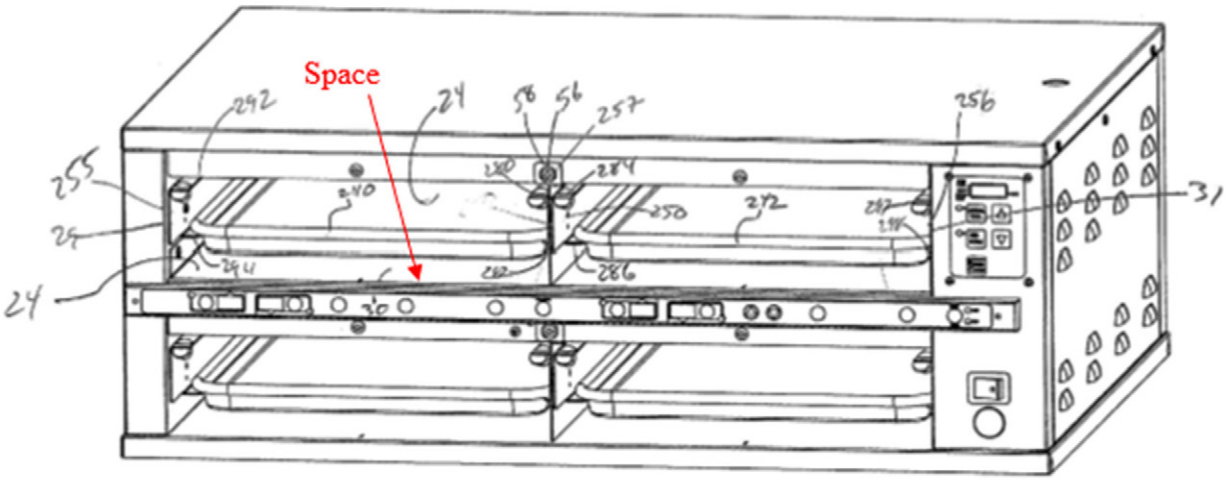
EX1007: 28 (annotated).

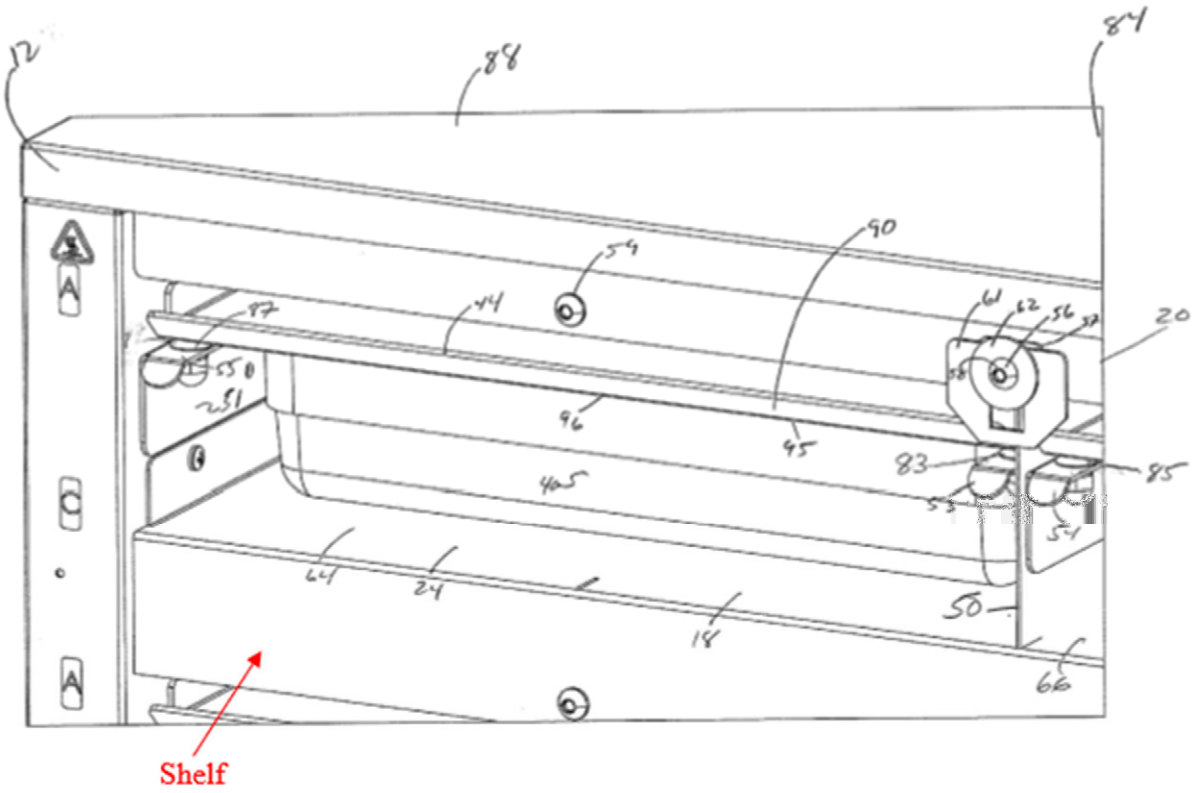
667. Hartfelder (EX1013) similarly teaches a food warming apparatus (10) having an interface bar (76) in front of a shelf for housing displays and controls.



EX1013: Fig 3.

668. Similar to Fortmann'197 and the IRHS Documents, the interface bar (76) of Hartfelder is spaced apart from the shelf. EX1013: Figs. 3, 4, and 9 (showing the front of the shelf spaced rearward of the front of the cabinet).





EX1013: Figs. 4 and 9 (annotated).

669. The POSA would have found it obvious to modify Fortmann'748's cabinet—modified to incorporate Vaseloff's display/control groups and McMillan's buttons/keys—such that the display/control groups and buttons would be located in timer bar housings in view of Fortmann'197, IRHS Documents, and/or Hartfelder.

670. As taught by Fortmann'197, IRHS Documents, and Hartfelder, the front and rear timer bars would each be spaced apart from the shelf of Fortmann'748's modified cabinet. This arrangement would protect Vaseloff's display/control groups and McMillan's buttons/keys from heat generated by the

heaters in Fortmann'748's shelf. EX1019: 3:52-55 (using "thermal barriers (not shown) to protect the display screen 21 from excessive temperatures"), 3:55-57 (explaining that the space allows "convection air flow" between the timer bars and the shelf further "protect[ing] the display screen 21 from excessive temperatures"); EX1029: 2:4-11 (explaining "control circuity has a shortened useful life span" when "located proximate to the heat source in the food warmer"), 5:41-49 ("locating the display drivers 30a-d remotely, the majority of the display control circuitry and the operator interface circuitry is located away from the heater plates 18a and 18b in cooler portions of the cabinet body … result[ing] in an extended service life of the circuitry"); *see also* EX1014: 3:32-36 (teaching placing the timer bars "out of the internal volume of the cabinet, which is the heated environment.").

671. Moreover, arranging Vaseloff's display/control groups and McMillan's buttons/keys in the timer bars would facilitate easy access to the electronics for maintenance, repair, and/or replacement. EX1008: 12-15; EX1013: Figs. 1-4 and 9 (Figs. 1, 2, and 9 showing interface bar not installed, Figs. 3 and 4 showing interface bar installed).

672. Locating the display/control groups and buttons in timer bar housings would have been nothing more than the application of a known technique (the spaced timer bars of Fortmann'197, IRHS Documents, and/or Hartfelder) to improve a similar device (the Fortmann'748 cabinet) in the same way

(incorporating front and rear timer bars on the cabinet for housing the displays/controls for the pan holding locations).

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

(1) the similarities between the Fortmann'748 cabinet and the units of Fortmann'197, IRHS Documents, and Hartfelder (*e.g.*, units with compartments for warming trays/pans of food via heating elements); and

(2) the functionality of display/control groups and buttons as incorporated from Vaseloff and McMillan would not change.

674. It would have been understood by the POSA that the timer bars could be added to either a single side (*i.e.*, just a front timer bar) or both sides (*i.e.*, both front and rear timer bars) of the Fortmann'748 cabinet. Adding the time bar on both sides of the Fortmann'748 cabinet would add the flexibility of operating the cabinet and changing its settings from either side, but at the tradeoff of increasing the cost.

675. In implementing this modification, the POSA would attach the front and rear timer bars to the chassis of Fortmann'748's cabinet proximate to the front and rear faces, respectively, as taught by Fortmann'197, IRHS Documents, and/or Hartfelder. EX1005: 8; EX1006: 1; EX1007: 28, 52, 56; EX1008: 12; EX1013: Fig. 3; EX1014: Figs. 1-3.