

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD., SAMSUNG ELECTRONICS
AMERICA, INC.,
Petitioner

v.

WHIRLPOOL CORPORATION
Patent Owner.

Case No. IPR2026-00337
U.S. Patent No. 10,512,385

**DECLARATION OF DR. KIMBERLY K. CAMERON IN SUPPORT OF
PETITION FOR INTER PARTES REVIEW
OF U.S. PATENT NO. 10,512,385**

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LIST OF EXHIBITS¹

Ex. No.	Description
Ex-1001	U.S. Patent No. 10,512,385 (“the ’385 Patent”)
Ex-1002	Declaration of Dr. Kimberly K. Cameron
Ex-1003	Curriculum Vitae of Dr. Kimberly K. Cameron
Ex-1004	Prosecution History of U.S. Patent No. 10,512,385
Ex-1005	U.S. Patent Application Publication No. 2018/0220867 A1 to Carr (“Carr”)
Ex-1006	U.S. Patent Application Publication No. 2008/0169009 A1 to Mailander (“Mailander”)
Ex-1007	D.E. Patent No. 6810173 to Bosch (“Bosch”) (Certified English Translation)
Ex-1008	E.P. Patent No. 2368479 to Fumagalli (“Fumagalli”)
Ex-1009	U.S. Patent No. 9,445,703 B2 to Heidel et al. (“Heidel”)
Ex-1010	U.S. Patent No. 9,510,729 B2 to Fey et al. (“Fey”)
Ex-1011	U.S. Patent No. 6,869,029 B2 to Ochoa (“Ochoa”)
Ex-1012	U.S. Patent No. 10,045,681 B2 to Schessl et al. (“Schessl”)
Ex-1013	INTENTIONALLY LEFT BLANK
Ex-1014	D.E. Patent No. 6810173 to Bosch (“Bosch”)
Ex-1015	INTENTIONALLY LEFT BLANK

¹ Four-digit pin citations that begin with 0 are to the branded numbers added by Samsung in the bottom right corner of the exhibits. All other pin citations are to original page, column, paragraph, or line numbers.

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Ex-1016	INTENTIONALLY LEFT BLANK
Ex-1017	INTENTIONALLY LEFT BLANK
Ex-1018	INTENTIONALLY LEFT BLANK
Ex-1019	INTENTIONALLY LEFT BLANK
Ex-1020	Claim Mapping Table
Ex-1021	U.S. Patent No. 2,734,520 to Abresch et al. (“Abresch”)
Ex-1022	Decl. of Emad Tanbour, Ph.D., in Reply to the Expert Decl. of Dr. Kimberly K. Cameron Regarding Non-Infringement and Invalidity of the Asserted Patents, <i>Whirlpool Corp. v. Samsung Elecs. Co., Ltd.</i> , No. 25-cv-01042-JRG-RSP (Jan. 16, 2026)
Ex-1023	U.S. Patent No. 2,648,588 to Ruspino (“Ruspino”)
Ex-1024	U.S. Patent No. 4,402,556 to Schwind (“Schwind”)
Ex-1025	U.S. Patent No. 3,464,566 to Gilson (“Gilson”)
Ex-1026	U.S. Patent No. 4,475,656 to Collier (“Collier”)
Ex-1027	U.S. Patent Application Publication No. 2010/0051069 A1 to Schessl et al. (“Schessl”)
Ex-1028	U.S. Patent Application Publication No. 2013/0002107 A1 to Paschini et al. (“Paschini”)
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Ex-1036	INTENTIONALLY LEFT BLANK
Ex-1037	U.S. Patent No. 3,044,842 to Abresch et al. (“Abresch”)
Ex-1038	U.S. Patent No. 7,032,604 B2 to Welch (“Welch”)
Ex-1039	U.S. Patent No. 2,745,707 to Sebens (“Sebens”)
Ex-1040	U.S. Patent No. 5,332,105 to Standfield (“Standfield”)

I. INTRODUCTION

1. I, Kimberly K. Cameron, submit this declaration to state my opinions on the matter described below.

2. I have been retained by Petitioners Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. (collectively, “Petitioner”), as an independent expert in this proceeding before the United States Patent and Trademark Office. ESi is being compensated at my usual and customary rate of \$590 per hour. My compensation does not depend on the outcome of this proceeding, and I have no other interest in this proceeding.

3. I understand that this proceeding involves U.S. Patent No. 12,232,385 (“’385 Patent”) (Ex-1001), which I understand is currently assigned to Whirlpool Corp. (“Patent Owner”). I have been asked to consider the validity of Claims 13–21 of the ’385 Patent. My opinions and the bases for my opinions are set forth below.

II. BACKGROUND AND QUALIFICATIONS

4. I believe that I am well qualified to serve as a technical expert in this matter based upon my educational and work experience. My curriculum vitae (“CV”) is submitted as Exhibit 1003.

5. I am a Principal Engineer at Engineering Systems Incorporated (ESi), a leading scientific and engineering firm. I specialize in mechanical engineering, materials science and metallurgy, and have extensive experience with materials

evaluation, mechanical design, mechanical testing, stress analysis, failure analysis, fatigue analysis, and fracture mechanics.

6. I graduated with high honors from Princeton University with a degree in Mechanical Engineering and minors in Materials Science, Applied Mathematics and Engineering Physics. I have also received a master's and doctorate in Mechanical Engineering with a minor in Materials Science and Engineering from Stanford University.

7. I have received numerous awards including fellowships from the Department of Defense, the National Science Foundation, and Lucent Technologies. I am a Registered Professional Engineer in both Mechanical Engineering and Metallurgy in the State of California. I am also a registered patent agent. I have taught classes for engineers studying to take the fundamentals of engineering exam and the licensing exam for mechanical engineering.

8. Throughout my career, I have applied my deep understanding of the fundamentals of metallurgy, materials science, engineering physics, computational mathematics, and engineering mechanics to help understand and solve complex problems.

9. Particularly relevant to my declaration here, I have worked on numerous projects for various consumer products. For example, I have experience with

dishwashers, refrigerators, washing machines, irons, as well as various consumer electronics and medical devices.

III. INFORMATION CONSIDERED

10. In preparing this Declaration, I considered the various materials I discuss in this Declaration, including, for example, the '385 Patent, the references cited by the '385 Patent, the prosecution history of the '385 Patent (including the references cited therein), various background articles and materials referenced in this Declaration, and the prior art references I identify in this Declaration. In addition, my opinions are further based on my education, training, experience, and knowledge in the relevant field.

IV. RELEVANT LEGAL STANDARDS

11. I am not an attorney and offer no legal opinions. For the purposes of my Declaration, I have been informed about certain aspects of the law that are relevant to my analysis, as summarized below.

A. Claim Interpretation

12. I have been informed and understand that in an IPR proceeding, claims are to be interpreted according to the Phillips claim construction standard. I understand that under this standard, the meaning of claim terms is considered from the viewpoint of a hypothetical “person of ordinary skill in the art” (“POSITA”) at the time of the alleged invention. I have been informed and understand that claim construction is a

matter of law and that the final claim constructions for this proceeding will be determined by the Patent Trial and Appeal Board (“PTAB”).

13. I provide my opinions regarding terms that may require explicit construction to resolve the grounds I present in my Declaration in Section XI.

B. Claim Interpretation

14. I have been informed and understand that a patent is to be understood from the perspective of a hypothetical POSITA. Such an individual is considered to possess normal skills and knowledge in a particular technical field (as opposed to being a genius). I understand that in considering what the claims of a patent require, what was known prior to that patent, what a prior art reference discloses, and whether an invention is obvious or not, one must use the perspective of such a POSITA.

C. Obviousness

15. I have been informed and understand that a patent claim is obvious under 35 U.S.C. § 103, and therefore invalid, if the claimed subject matter, as a whole, would have been obvious to a POSITA as of the priority date of the patent based on one or more prior art references and/or the knowledge of a POSITA.

16. I understand that an obviousness analysis must consider (1) the scope and content of the prior art, (2) the differences between the claims and the prior art, (3) the level of ordinary skill in the pertinent art, and (4) secondary considerations, if

any, of non-obviousness (such as unexpected results, commercial success, long-felt but unmet need, failure of others, copying by others, and skepticism of experts).

17. I understand that a prior art reference may be combined with other references to disclose each element of the invention under 35 U.S.C. § 103. I understand that a reference may also be combined with the knowledge of a POSITA, and that this knowledge may be used to combine multiple references. I further understand that a POSITA is presumed to know the relevant prior art. I understand that the obviousness analysis may take into account the inferences and creative steps that a POSITA would employ.

18. In determining whether a prior art reference would have been combined with other prior art or other information known to a POSITA, I understand that the following principles may be considered:

- a) whether the references to be combined involve non-analogous art;
- b) whether the references to be combined are in different fields of endeavor than the alleged invention in the Patent;
- c) whether the references to be combined are reasonably pertinent to the problems to which the inventions of the Patent are directed;
- d) whether the combination is of familiar elements according to known methods that yields predictable results;

- e) whether a combination involves the substitution of one known element for another that yields predictable results;
- f) whether the combination involves the use of a known technique to improve similar items or methods in the same way that yields predictable results;
- g) whether the combination involves the application of a known technique to a prior art reference that is ready for improvement, to yield predictable results;
- h) whether the combination is “obvious to try”;
- i) whether the combination involves the known work in one field of endeavor prompting variations of it for use in either the same field or a different one based on design incentives or other market forces, where the variations are predictable to a POSITA;
- j) whether there is some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill in the art to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention;
- k) whether the combination requires modifications that render the prior art unsatisfactory for its intended use;
- l) whether the combination requires modifications that change the principle of operation of the reference;
- m) whether the combination is reasonably expected to be a success; and

n) whether the combination possesses the requisite degree of predictability at the time the invention was made.

19. I understand that in determining whether a combination of prior art references renders a claim obvious, it is helpful to consider whether there is some teaching, suggestion, or motivation to combine the references and a reasonable expectation of success in doing so. I understand, however, that a teaching, suggestion, or motivation to combine is not required.

V. LEVEL OF ORDINARY SKILL IN THE ART

20. I am familiar with the level of ordinary skill in the art with respect to the '385 Patent around its filing date and its claimed priority date. Based on my experience working, teaching, and conducting research in the relevant field, and based on my review of the '385 Patent specification, claims, file history, and prior art, I believe one of ordinary skill in the art around the time of the alleged invention of the '385 Patent would have had at least a bachelor's degree in mechanical engineering or a related field, and two years of experience in the design or development of consumer appliances, including dishwashers or comparable fluid-delivery systems, with additional education substituting for experience and vice versa.

21. In determining the level of ordinary skill in the art, I considered, for example, the type of problems encountered in the art, prior art solutions to those problems, the

rapidity with which innovations are made, the sophistication of the technology, and the educational level of active workers in the field.

22. I met or exceeded the knowledge and experience that a POSITA would have had in 2020.

VI. SUMMARY OF MY OPINIONS

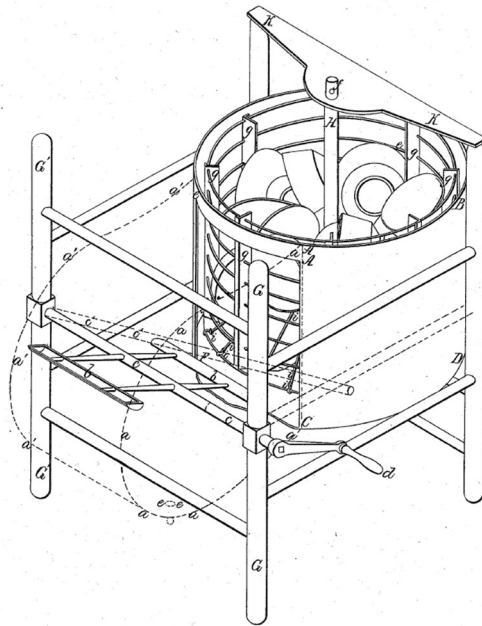
23. As I explain in detail below, it is my opinion that Claims 13–21 of the '385 Patent would have been obvious under 35 U.S.C. § 103 on the following grounds:

- **Ground 1:** Claims 13–17 and 21 are obvious over Bosch (Ex-1007) in view of Ochoa (Ex-1011)
- **Ground 2:** Claims 18–20 are obvious over Bosch in view of Ochoa (Ex-1011) and Schessl (Ex-1012)

VII. TECHNOLOGY BACKGROUND

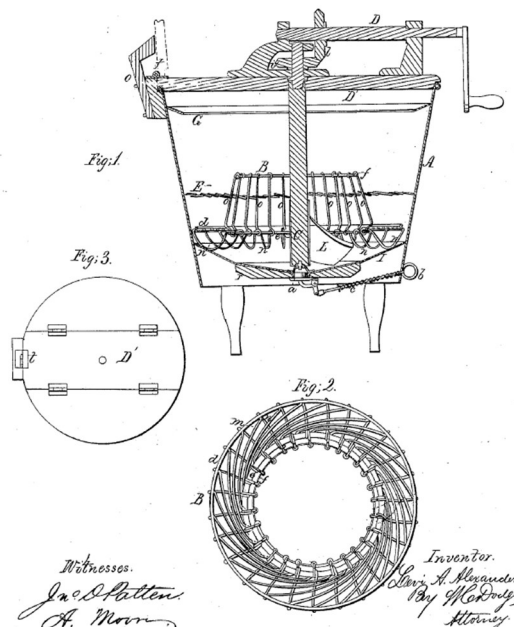
A. Historical Development

24. Modern automatic dishwashers trace their roots to the late nineteenth century, with early designs being manually powered. The first patented mechanical dishwashing device was invented by Joel Houghton, who received U.S. Patent No. 7,365 on May 14, 1850, for his “Improvement in Machines for Washing Table Furniture.” Ex-1015 (US 7,365). In Houghton’s wooden machine, illustrated below, dishes were arranged within a cylindrical rack, and a shaft with arms and buckets arranged on it was turned, “to throw [] water upon the crockery with force.” *Id.*



Ex-1015 (US 7,365)

25. Another early design appeared in 1865, with L. A. Alexander's patented "Machine for Washing Dishes," illustrated below, in which washing was achieved by rotating a dishrack within a water-filled tub. Ex-1017 (US 51,000).



Ex-1017 (US 51,000)

Neither Houghton's nor Alexander's dishwasher ever achieved commercial success.

26. The first commercially successful hand-powered dishwasher was invented in 1886, by Josephine Cochrane, and patented as U.S. Patent No. 355,139. Ex-1018 (US 355,139). Cochrane, motivated by frustration over her fine china being chipped during handwashing, developed a device in a shed behind her home. See "Josephine Cochrane – Dishwashing Machine," Lemelson-MIT, available at <https://lemelson.mit.edu/resources/josephine-cochrane>. She measured her dishes, constructed wire compartments to hold them securely, and mounted these on a wheel inside a copper boiler. Powered by a motor, the wheel would turn while soapy water was sprayed over the dishes. Cochrane began producing dishwashers for friends and commercial establishments, eventually founding the Crescent Washing Machine Company. Her machine gained wider attention after being exhibited at the 1893 Chicago World's Fair, where it won an award for design and durability. *Id.*

27. The first modern dishwasher, incorporating many features recognizable in today's models, was created in 1924 by English army officer William Howard Livens, who was granted British Patent GB 219103 for his innovations. Ex-1019 (GB 219103). Livens' design included a loading door, a wire rack to hold dishes, and a rotating spray arm for cleaning, with drying elements added in 1940. *See, e.g.,* <https://en.wikipedia.org/wiki/Dishwasher>. However, Livens' dishwasher did not achieve commercial success, and it was not until the postwar economic boom of the

1950s that dishwashers began to be widely sold for domestic use, initially as standalone or portable devices, and then later, as modular units, integrated under kitchen countertops. *Id.* Today, dishwashers are found in over 75% of US households.²

B. Features of Conventional Dishwashers

28. Automatic dishwashers have evolved through a series of incremental design changes aimed at improving versatility, washing effectiveness, and efficient use of limited internal space. While early dishwasher designs established the basic framework of a washing chamber supplied with spray fluid and one or more racks for supporting dishes, subsequent developments increasingly focused on how rack structures, component placement, and wash-fluid delivery systems could be refined to accommodate a wider range of dishware while maintaining or improving cleaning and drying performance.

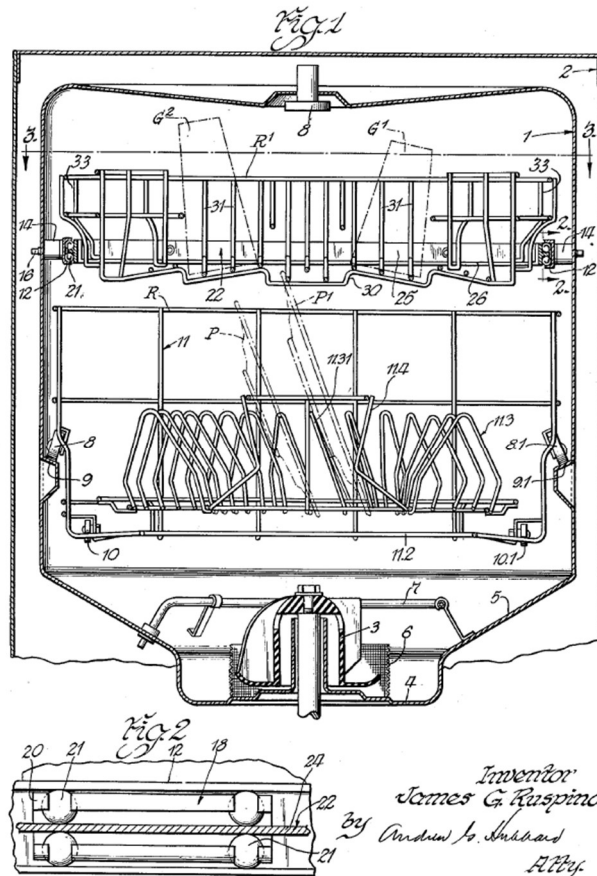
C. Moveable Racks

29. The ability to move a rack into and out of the washing chamber (e.g., by sliding or rolling) was a key innovation in the development of modern dishwashers, greatly enhancing user convenience by making it easier to load and unload dishes

² Data obtained from the US Census Bureau, at <https://www.census.gov/programs-surveys/ahs/data.html>, indicates that in 2023, out of 133,231 households surveyed, 100,437 had a dishwasher.

without heavy lifting or awkward maneuvering. By at least the early-to-mid 1950s, patents described dishwasher racks that could be moved into and out of the dishwasher. For example, U.S. Patent No. 2,745,707 (“Sebens”), which issued in 1956, describes “a dish rack and supporting frame structure, which is slidably mounted for movement into and out of the machine.” Ex-1039 (US 2,745,707). According to Sebens, not only did this “facilitate[] loading and removal of the dishes, silverware and utensils” placed in the rack, it also provided “complete access to all parts” of the racks, “effectively utiliz[ing] all available space within the washing compartment, with sections of the rack being capable of being withdrawn from the machine individually.” ’707 Patent, 1:15–32.

30. Similarly U.S. Patent No. 2,648,588 (“Ruspino”), which issued August 11, 1953, discloses a “Dishwashing Machine,” illustrated below, that provides improved “accessibility and utility of [the] racks by independently mounting on roller supports a bottom plate rack and an upper cup and glass rack.” Ex-1023 (US 2,648,588), 1:6–10.



Ex-1023 (US 2,648,588)

31. Ruspino further discloses means to adjust the roller supports, thereby enabling “adjustment of the clearance between [the] bottom and upper racks.” *Id.*, 1:10–12.

32. Later developments refined these concepts, for example, by disclosing dedicated roller assemblies and track/liner interfaces. *See, e.g.*, Ex-1024 (US 4,402,556).

D. Grid-Like Construction of Dish Rack Bottom Walls

33. In order to secure cups and glasses in place during a wash cycle, dish racks have implemented grid-like constructions along their bottom wall since at least the

1980s. U.S. Patent No. 4,475,656 (Ex-1026, “Collier”), for instance, teaches a “dishwasher tray” consisting of a bottom “mat [which] is created by welding orthogonally a plurality of longitudinal rods to a plurality of transverse rods, creating such a grid-like construction along the bottom of the dish rack. Ex-1026, 1:37–41, 2:9–11; *see also id.*, Figs. 1–2.

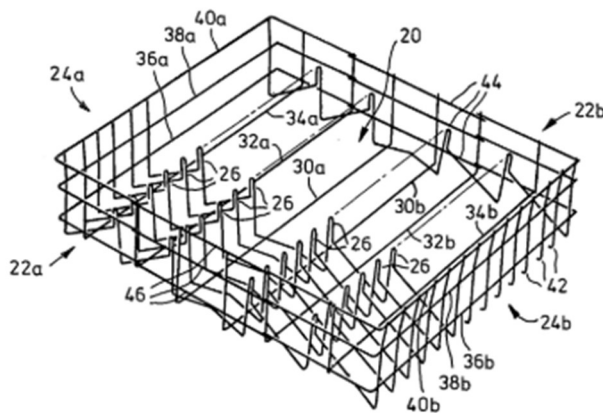


FIG. 1

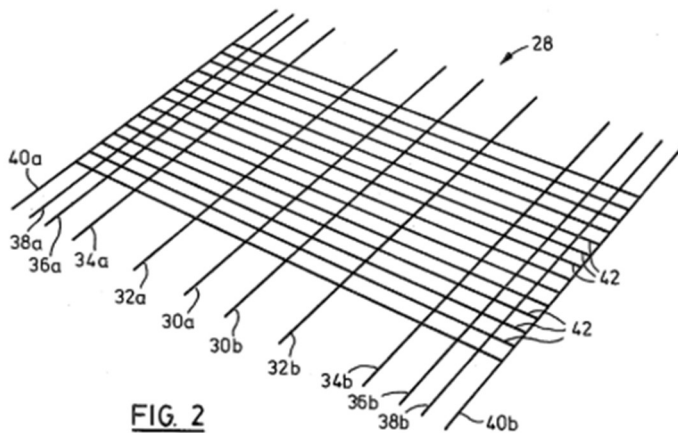
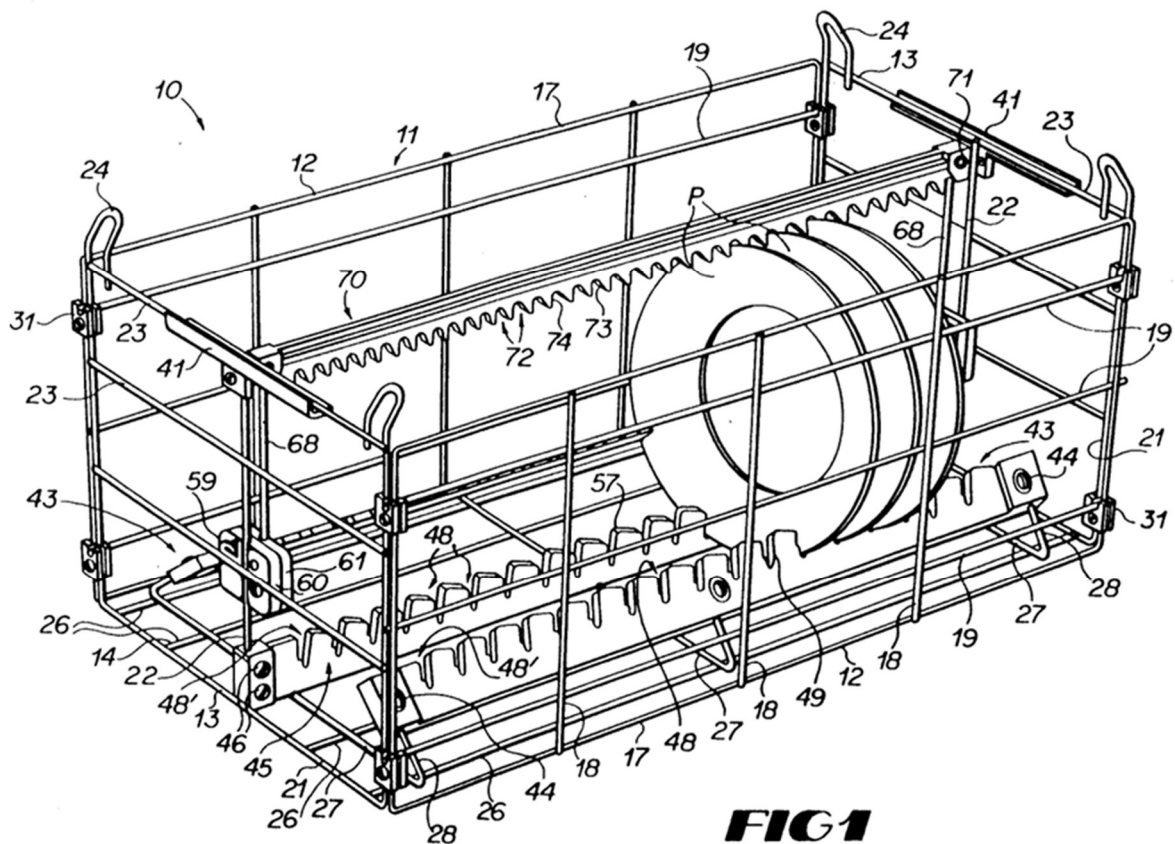


FIG. 2

Ex-1026 (US 4,475,656)

E. Horizontal Wiring in Front of Dish Racks

34. Dishwasher designers have also include multiple horizontal wires within the fronts of dish racks to secure dishes in place since at least since at the earliest days of wire racks. For example, U.S. Patent 5,332,105 (Ex-1040), issued on July 26, 1994, to John Stanfield, includes such a wire rack in as its Figure 1.



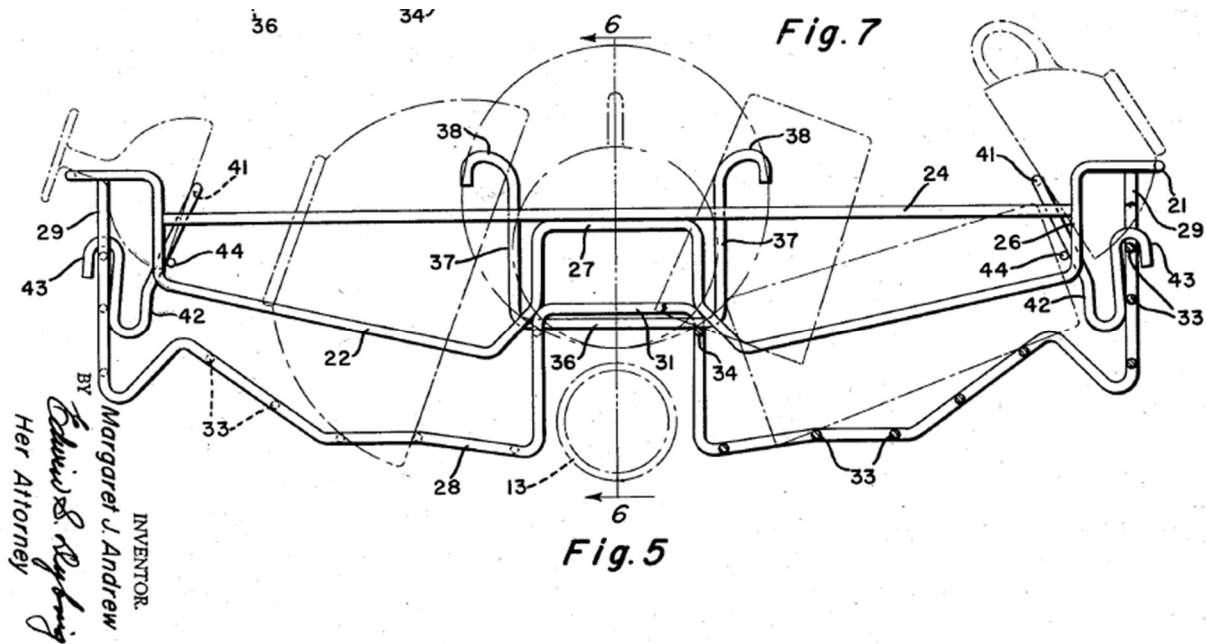
35. As the patent explains “the end walls 13 have a generally U-shaped wire 21 to which an upright wire 22 and a set of three cross wires 23 are bonded.” Ex-1040, 2:45–50. The multiple “cross wires” form both the front and back “end walls” that define the outer periphery of the basket walls, and provide structural support to the

upstanding side and end walls. Further, the bottommost portion of “U-shaped wire 21” is located at the intersection of both “end wall 13” and “bottom wall 14”, and is thus a part of both of those walls. But “cross wires 23” and “longitudinal wires 26” form parts of only the end wall or the bottom wall, respectively.

F. Cup Supports and Inclined Portions

36. Cups and glasses introduce another recurring design consideration: they should be held securely in a stable orientation that both (i) exposes surfaces to wash fluid, and (ii) avoids pooling, by encouraging drainage. Dishwasher designers have long addressed these objectives through the use of inclined or angled support geometries that hold cups and glasses at an angle, relative to horizontal.

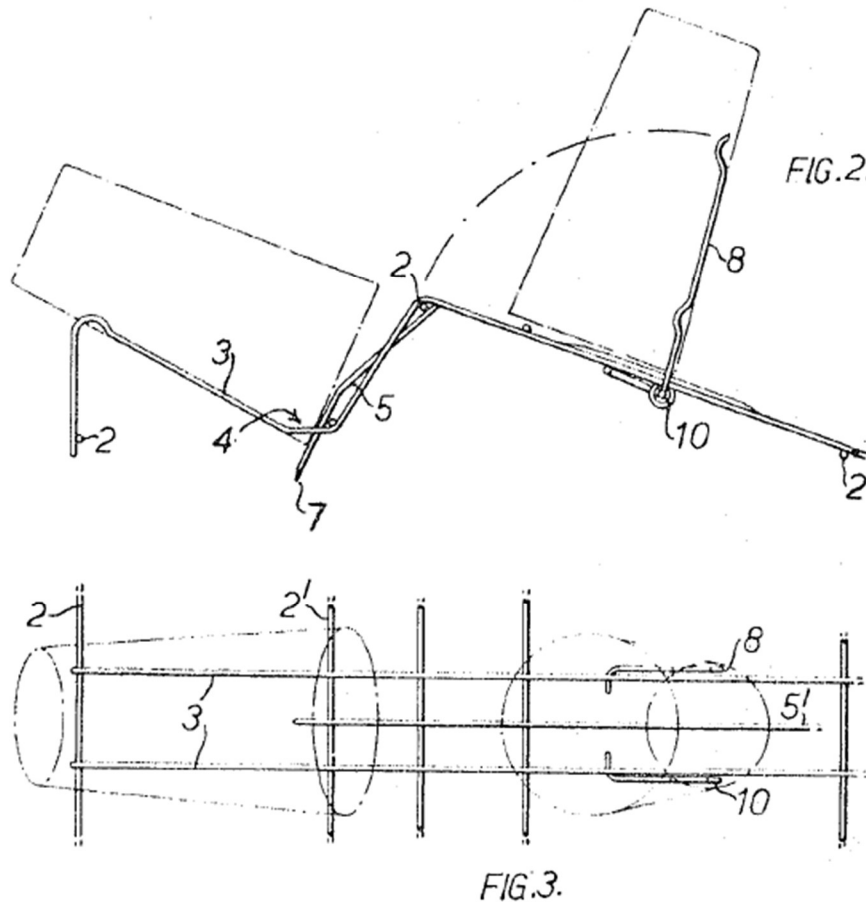
37. For example, as early as the 1950s, patents described rack structures in which posts supported drinking glasses and cups in an inclined position, for cleaning and draining purposes. U.S. Patent No. 2,910,207 (“Andrew”), for instance, teaches a dishwasher rack designed to hold “all different sorts or combinations and varieties of utensils in such a compact way that none will block the liquid cleansing stream from another and all are held to drain adequately after being washed without trapping liquid therein.” Ex-1013 (US 2,910,207), 1:35–39. Thus, Andrew teaches “posts 37,” which “are adapted to invertedly receive and support drinking glasses, tumblers, cups of the like in an inclined position above other utensils placed on the rails 33 of the bottom portions of the rack,” as illustrated in Figure 5, below. *Id.*, 3:41–45.



Ex-1013 (US 2,910,207)

38. Additionally, Andrew teaches that the bottom portion of the rack is configured to receive cups “in an edgewise liquid spill-out position,” further reinforcing the importance of inclined geometries to promote drainage. *Id.*, 3:49–54.

39. Similarly, Gilson teaches a dish rack configured to hold glasses in two different angled orientations, as illustrated in Figures 2 and 3, below. Ex-1025 (US 3,464,566).



Ex-1025 (US 3,464,566)

40. As illustrated above, for the glass on the left, Gilson's rack includes spaced apart "transverse member[s] 3," where "the member[s] 3 hav[e] a bend 4 providing a recess in which the glass is located." *Id.*, 2:28–31. Gilson's rack additionally includes "a bracket 8 which is hingedly supported at 10 so that in its operative position, *i.e.* when used to support a glass, it is swung to its full line position," as show above, for the glass on the right. *Id.*, 2:38–42. When not in use to support a

glass, this bracket “folds down flat against the transverse members 3 of the rack.”
Id., 2:44–45.

41. Consistent with these teachings, inclined bottom walls are a common feature of patented dishwasher rack designs. *See, e.g.*, Ex-1026 (US 4,475,656) (“The floor 20 is made of angled sections for supporting dishes in various positions for enhanced water drainage.”); Ex-1027 (US 2010/0051069) ¶5 (“There is provision for sections of the floor area or the entire floor area to slope,” resulting in an improvement in “the draining-off of water during the drying process”); Ex-1028 (US 2013/0002107), ¶12 (describing support surfaces for drinking vessels that are “inclined by 20 to 30 degrees,” resulting in improved drying, because “the drinking vessels are tilted in such a way that water or cleaning liquid can effectively drain off from the drinking vessels”).

G. Sprayer Systems

42. Dishwashers employ a variety of sprayer systems to deliver wash liquid to items placed within the appliance. The primary function of these sprayer systems is to ensure thorough coverage and cleaning of dishware, utensils, and cookware within the wash chamber. Sprayer systems can take many different forms, including: rotatable spray arms, spray tubes, and spray nozzles, among others.

43. U.S. Patent No. 3,044,842 (“Abresch”), which issued July 17, 1962, teaches the use of a “rotatable molded plastic hollow spray tube,” extending horizontally

from the rear wall of the dishwasher towards the dishwasher door, with dish racks provided above and below the spray tube. Ex-1037 (US 3,044,842), 1:32–38, 1:50–52. Abresch’s spray tube 131 is illustrated in Figure 1, below:

52. Abresch's spray tube 131 is illustrated in Figure 1, below:

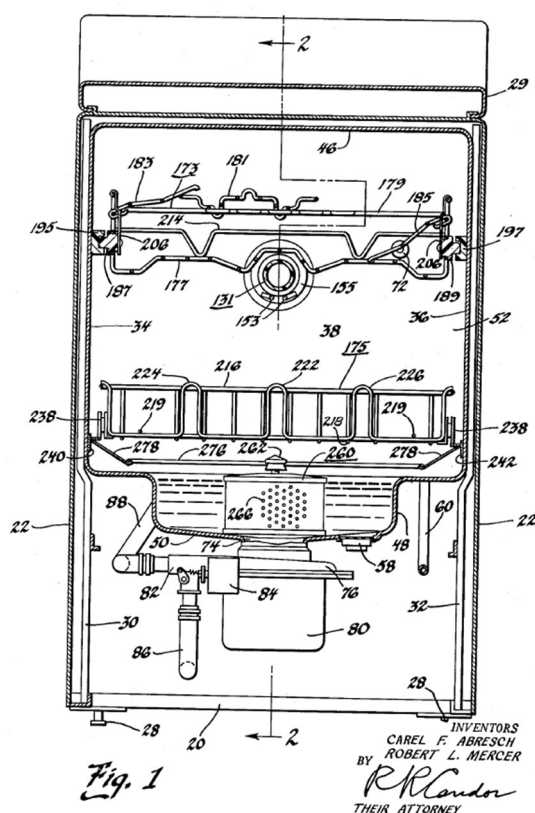


Fig. 1

INVENTORS
CAREL F. ABRESCH
BY ROBERT L. MERCEK
R L Mercek
THEIR ATTORNEY

Ex-1037 (US 3,044,842)

44. Abresch’s upper rack “is humped over the spray tube 131” (*id.*, 2:63–64) such that “[t]he rotatable spray tube 131 sprays into the inverted cups, glasses, pans and receptacles upon the upper rack 173 located above and onto the plates and dishes located in the lower rack 175 below.” *Id.*, 2:54–57.

45. The evolution of rack structures occurred alongside corresponding developments in dishwasher spray systems. While early dishwashers often relied on

a single spray arm, by at least the early 2000s, patents described dishwashers with multiple racks and dedicated sprayers/spray arms associated with each rack. For example, U.S. Patent No. 7,032,604 (“Welch”) discloses a three-rack dishwasher, where “[e]ach rack has a spray arm associated therewith.” Ex-1038 (US 7,032,604), Abstract. Welch further teaches that “[a] fourth spray arm may also be provided for enhanced cleaning of objects in the racks.” *Id.*

VIII. THE CHALLENGED PATENT

46. The ’385 Patent relates to an automatic dishwasher that shares “many features of a conventional automatic dishwasher.” Ex-1001, 2:9-10. For example, the ’385 Patent explains that some “dishwashers typically include one or more dish racks for holding various types of dishes in the dishwasher tub. Traditionally, a dishwasher includes an upper rack that holds glassware and small dishes, and a lower rack that holds larger dishes, such as plates.” *Id.*, 1:17–21. The ’385 Patent notes that “dishwashers may also include a third dish rack, often for silverware and other low profile utensils.” *Id.*, 1:23–26. The ’385 Patent seeks to address the alleged inefficient accommodation of glassware, indicating that “dish racks usually consume most of the space inside the dishwasher tub.” *Id.*, 1:21–22.

47. As shown in Figure 8 below, the ’385 Patent teaches a wire frame glasses dish rack that includes a “contoured bottom wall,” (purple) “side walls” (yellow), and

“spray tubes (green),” for “emitting spray (blue)” along the “upwardly angled portion (red) formed in the bottom wall” within an automatic dishwasher. Ex-1001, 5:50–53.

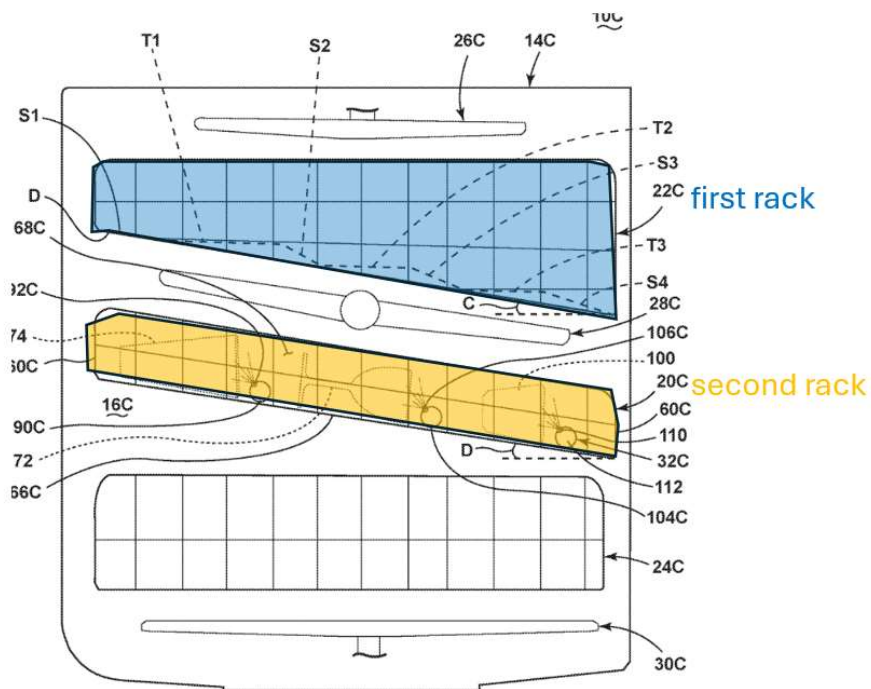
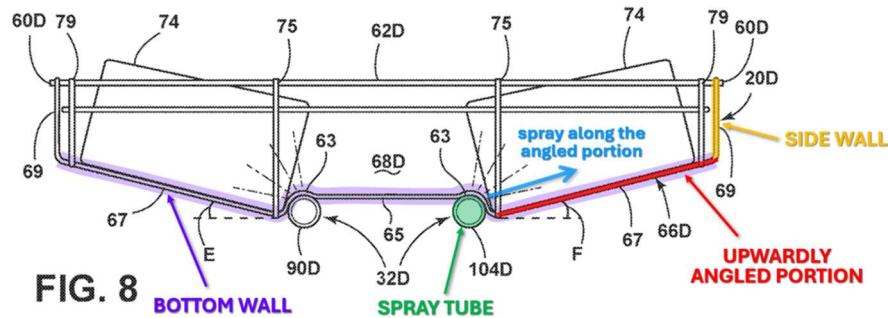


FIG. 7

48. The '385 Patent purports to provide a benefit of having a “glasses dish rack [that] may also be modified for use below a tiered dish rack.” *Id.*, 7:18–19. For

instance, a “tiered dish rack 22C may be positioned as the uppermost rack (blue)” and a “lowermost dish rack 24C, upper spray assembly 26C, middle spray assembly 28C, and the lower spray assembly 30C can also be included in the dishwasher 10C.” *Id.*, 7:39–41. However, such dishwasher racks were well known, as I explain in detail below in Bosch and Ochoa.

IX. PROSECUTION HISTORY OF THE '385 PATENT

49. The '385 Patent, filed March 30, 2018, is a continuation of U.S. Patent No. 10,349,804, filed on January 26, 2017, which is a continuation of U.S. Patent Application No. 14/620,688 (now abandoned), filed on February 12, 2015.

50. The '385 Patent was allowed after three office actions. On June 15, 2018, the Examiner rejected Claims 1–10 as being obvious in view of U.S. Patent Publication No. 2003/0226580 to Welch in view of U.S. Patent No. 4,064,887 to Geiger and Claims 11–26 as obvious in view of U.S. Patent No. 2,910,207 to Andrew (“Andrew”) in view of U.S. Patent Publication No. 2003/0192578 to Ochoa (“Ochoa’578”). Ex-1004, 66–75. After several amendments were made by the Applicant, the Examiner issued a Notice of Allowance on September 5, 2019. *Id.*, 252–261.

51. I understand that the prior art relied upon in this Declaration was not considered by the PTO during prosecution of the '385 Patent.³

X. PRIORITY DATE

52. For purposes of this Declaration, I have been asked to assume a priority date for the '385 Patent of February 12, 2015.

XI. CLAIM CONSTRUCTION

53. I understand that Patent Owner has not yet proposed any terms for construction in the underlying litigation. However, based on my review of the parties' filings in the related litigation, I understand that Patent Owner has taken certain positions that appear to, at least, reflect implied claim scope arguments. Ex-1022. As I will explain in the element-by-element analysis below, I do not agree with Patent Owner's implied positions.

54. For clarity, I have set forth my understanding of the plain meaning of certain terms, below:

³ I understand that the application version of Ochoa was considered during prosecution (U.S. Publication No. 2003/0192578), but that Petitioner relies on the final issued version (U.S. Patent No. 6,869,029), and relies on it in a manner different than what was applied by the Examiner. I also understand that the application version of Ochoa was considered in combination with a separate reference during prosecution (U.S. Patent No. 2,910,207 to Andrew). I am thus considering and using Ochoa in a different manner than the examiner.

55. **“Tub”**: The plain meaning of this term includes an open-faced component that defines an access opening for the treating chamber. Ex-1001, 2:22–23; Fig. 1.

56. **“bottom wall”**: The plain meaning of this term means the structures that form the bottommost portion of the dish rack. Ex-1001, Figs. 3, 8.

57. **“an upwardly angled portion formed in the bottom wall comprising a plurality of spaced apart inclined portions forming the bottom wall and terminating at the side wall”**: The plain meaning of this term means that an upwardly angled portion of a dish rack must terminate at the side wall. Ex-1001, 12:44–47, Fig. 8.

58. **“a spray tube having nozzles”**: The plain meaning of this term means that the nozzles are located on the spray tube. Ex-1001, 12:53–54; Fig. 5.

59. **“a curved mounting portion adjacent which the spray tube is mounted”**: The plain meaning of this term means that the spray tube is mounted on the dish rack with a nearby curved mounting portion. Ex-1001, 12:55–56, Fig. 8.

XII. OVERVIEW OF THE APPLIED PRIOR ART REFERENCES

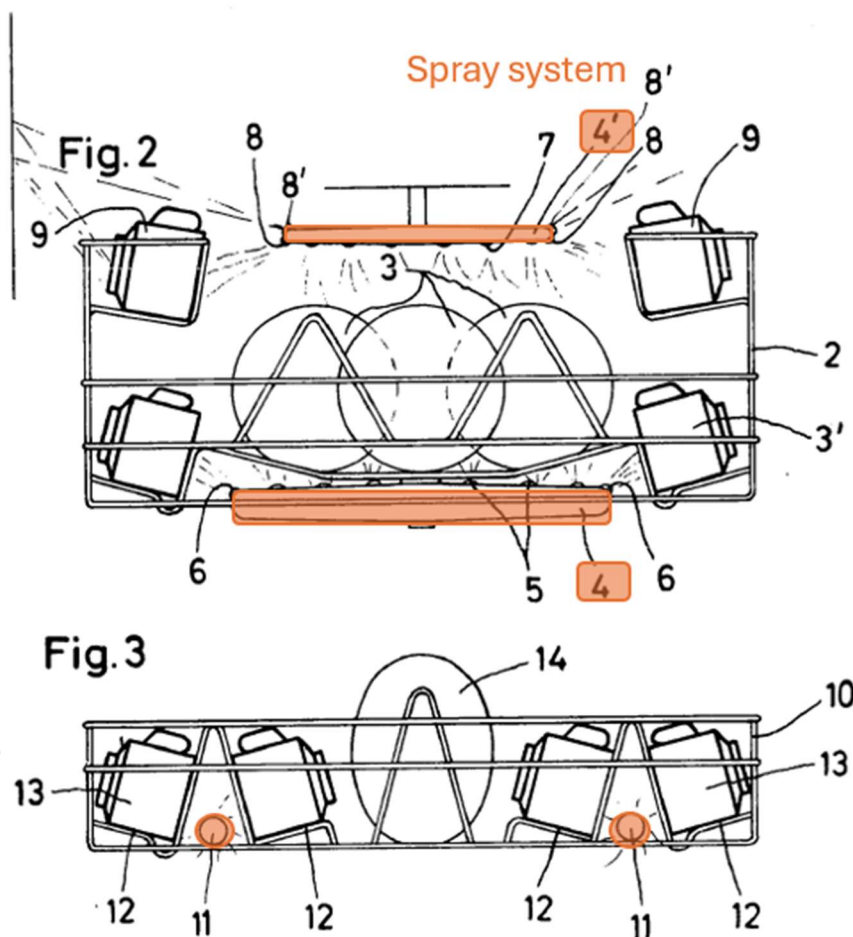
A. Bosch (Ex-1007)

60. Bosch (D.E. Patent Publication No. 3850173) was published June 12, 1968, and is prior art to the '385 Patent under 35 U.S.C. § 102(a)(1).

61. Bosch teaches a dishwasher with a device for spraying dishes in a way where “lifting of the lightweight hollow vessels and thus damage to these items is avoided

and in which the washing liquid can drain completely from the dish items.” Ex-1007, 004.

62. According to Bosch, its objective of fully washing dishes while avoiding damage to them, is “achieved by a design and arrangement of the dish rack and of the spraying device such that the spray jets hit the inside of the hollow vessels placed in the dish rack at least approximately horizontally.” *Id.*, 004; *see also id.*, Figs. 2–3.



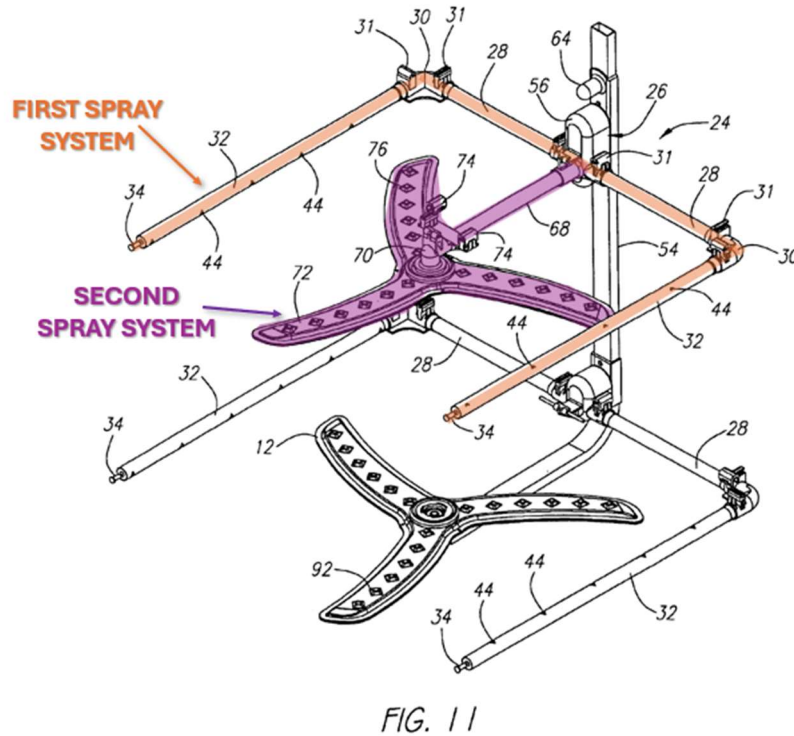
B. Ochoa (Ex-1011)

63. Ochoa (U.S. Patent No. 6,869,029) issued March 22, 2005, and is prior art to the '385 Patent under 35 U.S.C. § 102(a)(1).

64. Ochoa teaches a dish rack comprising of a “wire basket constructed in a conventional manner with a plurality of crisscrossing and encircling wire segments connected to each other to provide space for supporting cups, glasses, small dishware, long utensils and the like in the usual manner.” Ex-1011, 3:4–9. Ochoa also teaches that the upper rack 12 includes a “water spraying system ... that is mounted on the underside of the rack 6 and moves into and out of the front of the dishwasher 10 with the rack 16.” *Id.*, 3:16–19.

65. Ochoa teaches a spray system in which “a plurality of water spray outlets 44 are provided along the length of spray tube 32 and preferably the water spray outlets 44 are also circumferentially offset along the length of the spray tube 32.” Ex-1011, 3:63–68. Ochoa further teaches a second sprayer in its “spray spinners,” which are mounted below each dish rack. . *Id.*, Abstract, 5:1–20, Cls. 7, 8, 27–29. As shown in Figure 11 below, Ochoa teaches that water spray outlets 44 are sprayers at each end of the dish rack and spinner 72 includes “somewhat conventional design having a plurality of spray outlets 76 directed upwardly and downwardly to spray the contents of the upper and lower racks.” Ex-1011, 5:14–17; *see also id.*, Abstract. Ochoa ensures that “lateral sides and corners of a modern premiere dishwasher of increased

width ... receive the same amount of water spray from the spinners as the center portion.” Ex-1011, 1:26–29.

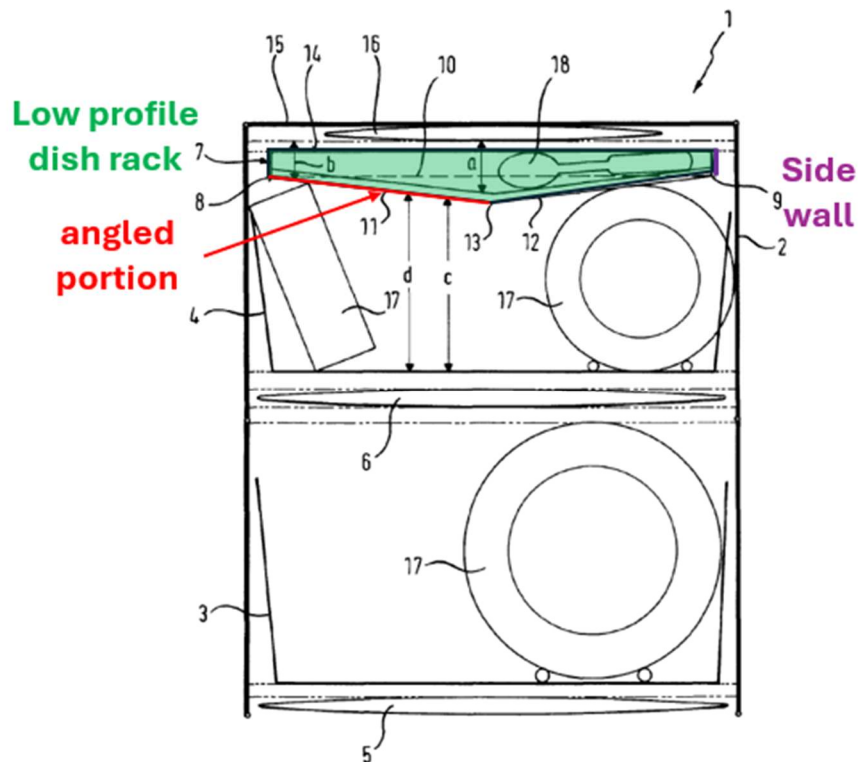


C. Schessl (Ex-1012)

66. Schessl (U.S. Patent No. 10,045,385), filed on November 5, 2007, and issued August 14, 2018, and is prior art to the '385 Patent under 35 U.S.C. § 102(a)(1).

67. Schessl teaches a dishwasher with various compartments and sections that have “different clearance heights.” Ex-1012, Abstract. Schessl contains “an arrow-shaped design of [a] cutlery basket 7 having sections with continuously varying clearance heights.” Ex-1012, 3:9–11. Schessl teaches that a benefit of its design is that due to “the ‘angled’ storage of the cutlery items the draining-off of water during

the drying process of the cutlery items is improved, meaning that less energy is required for drying by comparison with cutlery baskets in which the cutlery items are essentially held horizontally.” *Id.*, 1:48–53.



XIII. DETAILED EXPLANATION OF THE UNPATENTABILITY GROUNDS

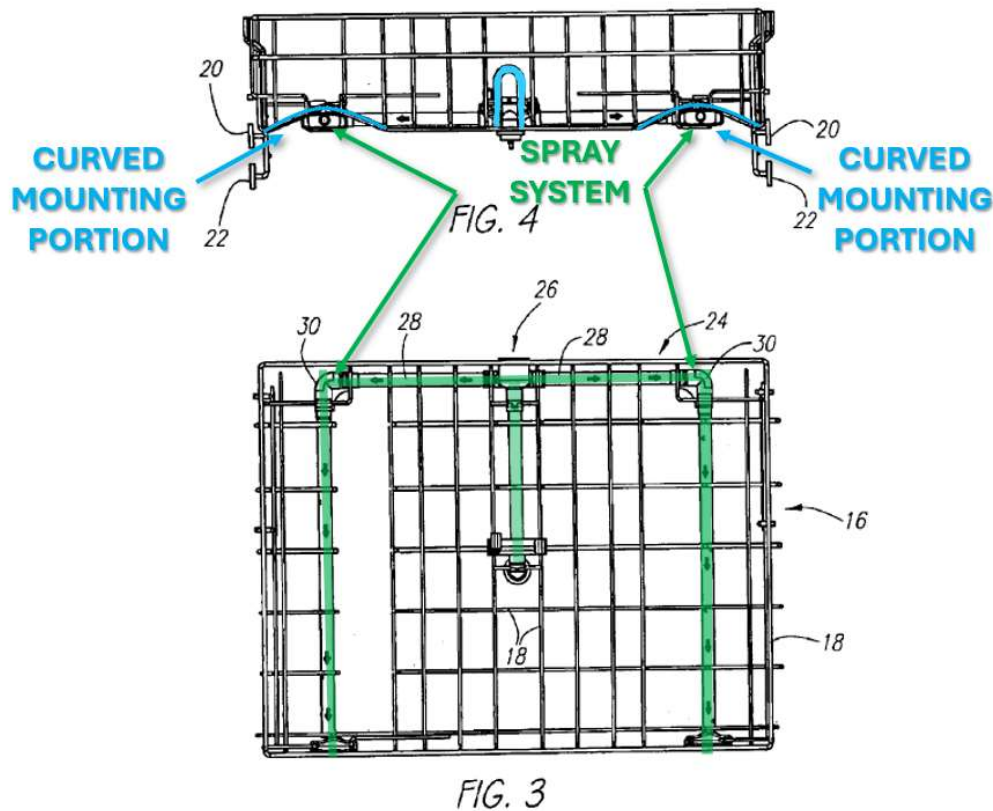
A. Ground 1: Claims 13–17 and 21 are obvious over Bosch in view of Ochoa.

1. A POSITA would have been motivated to combine Bosch’s and Ochoa’s teachings and would have had a reasonable expectation of success.

68. A POSITA would have been motivated to combine Bosch’s and Ochoa’s teachings and would have had a reasonable expectation of success in doing so

because each addresses dishwashing performance at a dishwasher wirerack's lateral regions by using spray streams that reach the interiors of vessels from the side, while employing rotating spray tubes to deliver thorough coverage, thereby improving cleaning while avoiding lifting and allowing better drainage. Ex-1007, 007, 009; Ex-1011, 4:8–25.

69. Bosch expressly teaches arranging a rack and spray device “such that the spray jets hit the inside of the hollow vessels placed in the dish rack at least approximately horizontally,” which “ensures that these dish items are no longer lifted by the spray jets” and that “the washing liquid can drain completely.” Ex-1007, 004. As shown in annotated Figures 3–4, Ochoa similarly teaches a “water spray system for a dishwasher with an upper dish rack and a lower dish rack,” in which “a spray tube is rotatably mounted on the bottom of each lateral side portion of each said dish rack,” and each tube has “a plurality of spray outlets... directed generally tangentially... for causing rotation of the tube.” Ex-1011, Abstract.

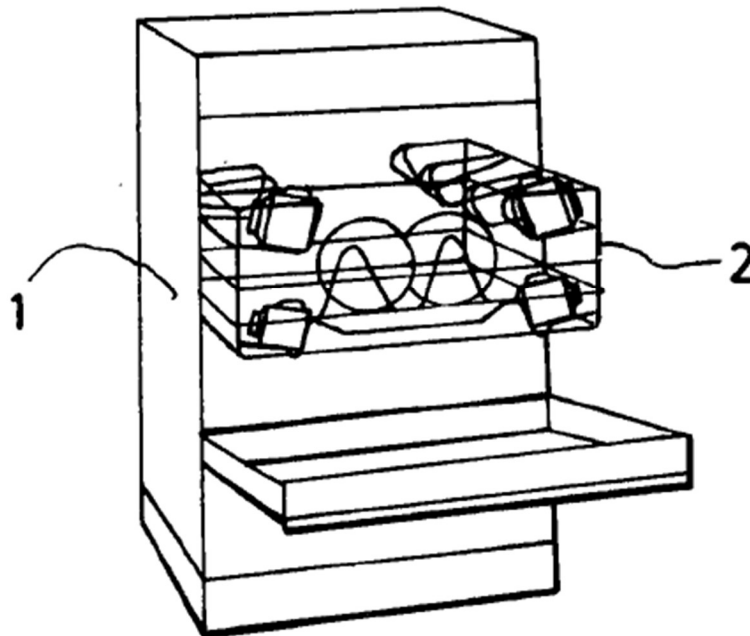


70. Ochoa emphasizes that conventional central spinners have a diameter “limited by the front-to-back depth,” so “the lateral sides and corners...do not receive the same amount of water spray,” and therefore it seeks to ensure the lateral extremities and vertical corners are “adequately sprayed.” Ex-1011, 1:25–29, 1:40. Accordingly, a POSITA would have recognized that Bosch’s side-directed, approximately horizontal spray into hollow vessels directly addresses the lifting and drainage shortcomings of traditional under-rack spray, while Ochoa is designed to “adequately” spray “the lateral extremities and vertical corners.” Ex-1007, 004–005; Ex-1011, 1:39–40. Bosch already teaches using “spray tubes...arranged within the

dish rack” that can “rotate about their longitudinal axis,” with rotation induced “by the recoil effect of the spray jets,” which is fully consistent with Ochoa’s use of “spray outlets directed...[]...to cause rotation of said tube.” Ex-1007, 007; Ex-1011, Cl. 1.

71. Bosch includes front-views of its dish rack, but does not include an isometric view of the bottom of the wire rack of its Figure 3. To be clear, Bosch’s Figure 3 is a front view of the dishrack, and does not depict all of the obvious details of the 3D depth of the rack. Bosch does, however, include an isometric view, in its Figure 1, of the rack shown in Figure 2.

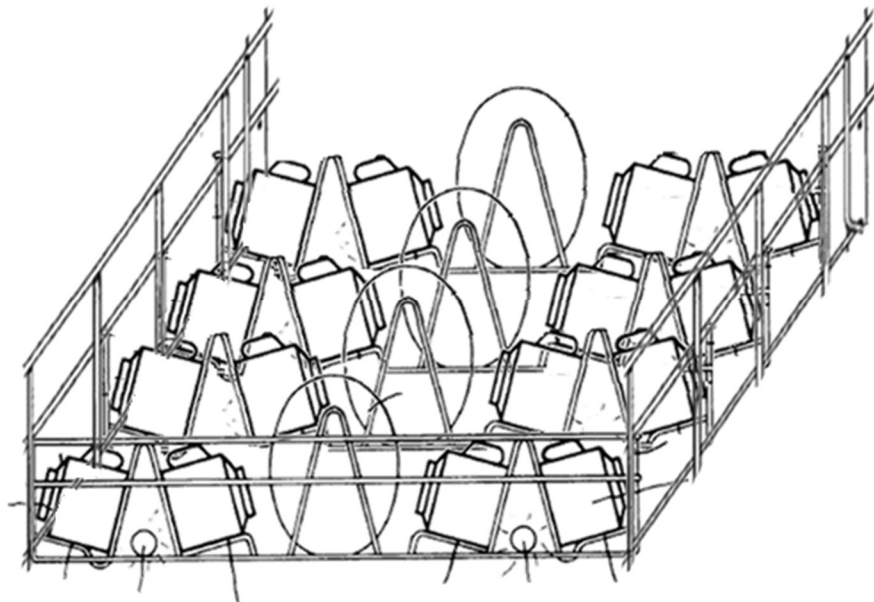
Fig. 1



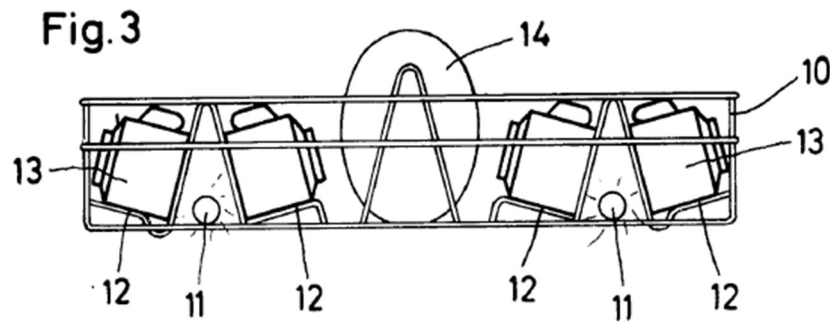
This figure makes clear, as would have been obvious to a POSITA, that Bosch's racks have a 3D depth, extending from the front to the back of the dishwasher.

72. A POSITA would have further understood from the front view of the wire rack, that the front wall (which is different than the repeated wire rows behind the front wall) may be distinguished from the repeated wire rows behind the front wall based on looking for continuity of the wires and their relative position. In Bosch Figure 3, it is apparent that the top two horizontal wires are continuous and part of the front wall. The other wires supporting the items to be washed (which in some locations are lined up behind the wire of the front wall) are repeated in rows behind the front wall to accommodate the dishes, classes, and sprayers of the rack.

73. I have created a modified Figure 3, based on Bosh's teachings, to depict the bottom-most wires that support the washed items in the rack's 3D depth.



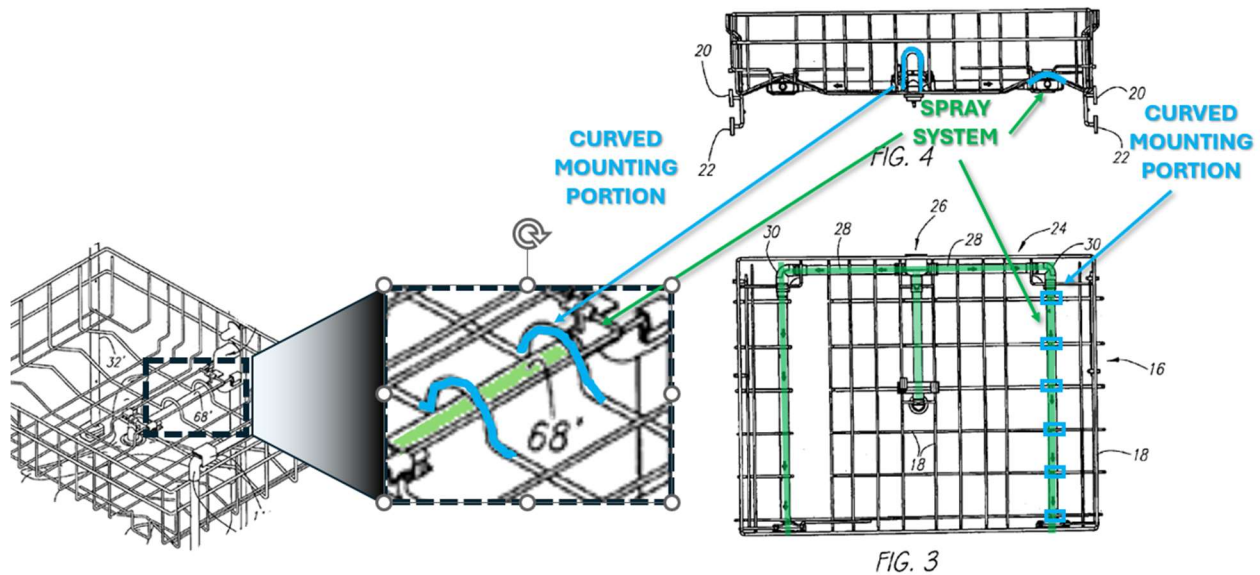
74. Bosch Figure 3 also includes two circles, 11, on the left and right of side of the rack, representing the front end of the sprayer tubes resting on top of the bottommost wire on the front edge of the rack.



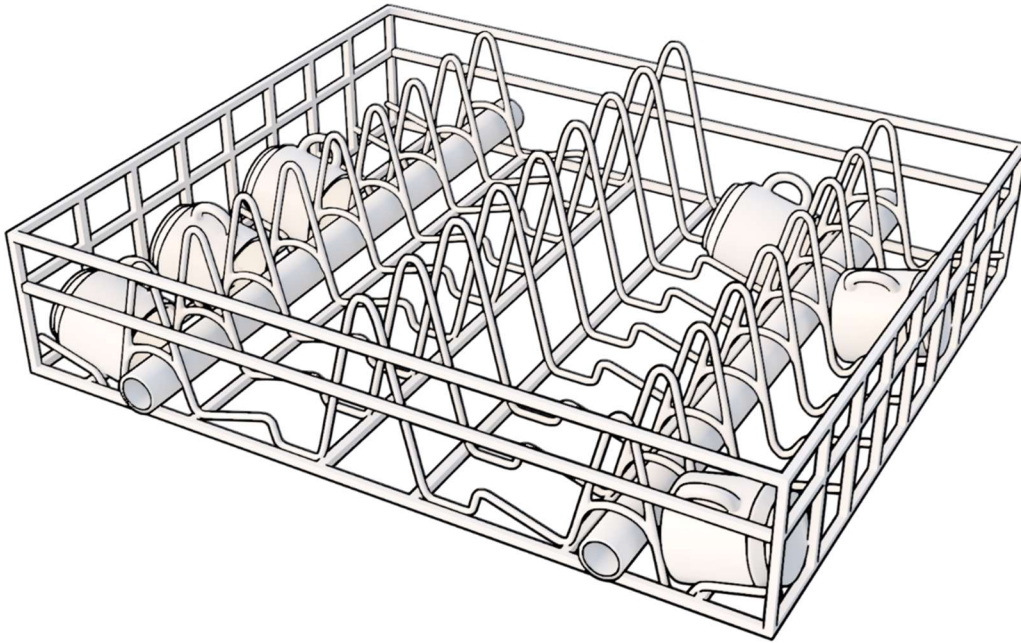
This bottommost wire forms a part of both the front wall and the bottom wall of the dishrack, since it is in the bottommost corner of the front of the dishrack.

75. Other than being supported on either end by this bottommost wire in Figure 3, Bosch does not depict how the sprayers 11 are supported along their 3D depth. But a POSITA would have understood that they would have been supported along their depth in any of a number of obvious ways. One such way is taught by Ochoa.

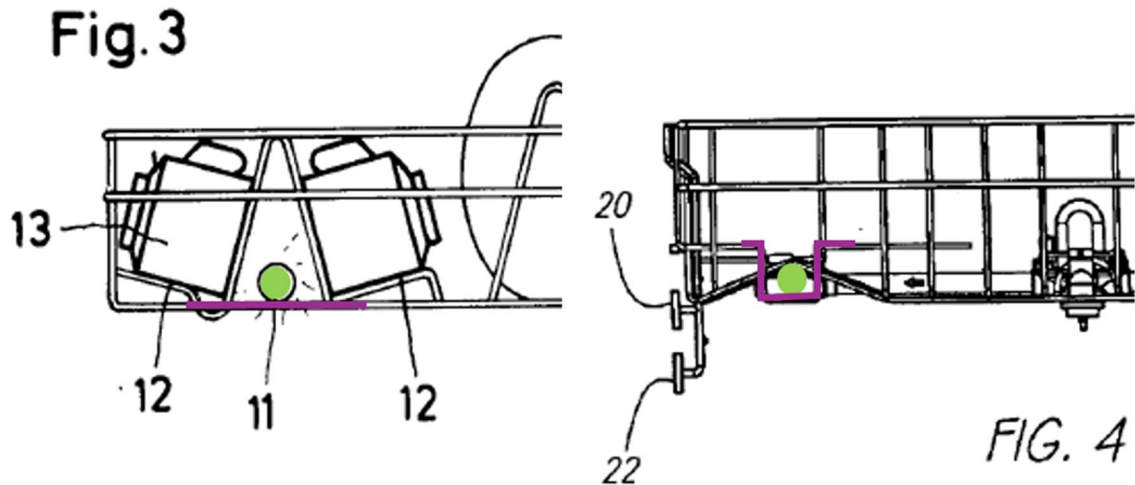
76. Ochoa specifically teaches that bottom wires may be curved over the top to mount the circular sprayer tubes along their length. This is shown below in my annotations of Ochoa Figures 3, 4, and 19



77. A POSITA would have combined the teachings of Bosch and Ochoa in this regard. Specifically, a POSITA would have been motivated to use Ochoa's curved wires, forming the bottom of the rack, to additionally mount Bosch's circular spray tubes 11 along their length, as taught by Ochoa. Bosch's spray tubes (light gray) and curved mounting portions (from Ochoa) are added below to show the Bosch-Ochoa combination in modified Figure 3'. In the element-by-element analysis that follows, the complete Bosch-Ochoa combination will generally be discussed with reference to Figure 3'.



78. A POSITA would have been motivated to make this combination based on the combined teachings of both Bosch and Ochoa. Specifically, both Bosch and Ochoa explain that the spray tubes rotate longitudinally about their axes. Ex-1007, 007; Ex-1011, 1:40-45. Moreover, both Bosch (Figure 3) and Ochoa (Figure 4) depict that the end of the spray tube is supported at least on the ends from its underside.



A POSITA would have been motivated to provide additional support on the top to further constrain the tube as it rotates longitudinally about its axes. Without this mounting support along its depth, the tube may warp or otherwise be displaced as it rotates.

79. Whirlpool's expert, Dr. Tanbour, has argued in the underlying litigation that a POSITA would not be motivated to combine Bosch with Ochoa because Ochoa "is directed specifically to a water spray system for a dishwasher" rather than a dish rack. Ex-1022 ¶133. Second, he argues that the combination fails because "the core teaching disclosed in Bosch does not solve the problems addressed by the '385 Patent," which he identifies as "the problem of the rolling and sliding of glasses on a dish rack, the problem of most space in household dishwasher tubs being taken up

by two racks or, at most, two racks and a third shallow rack for only silverware and other low-profile utensils, etc.” *Id.* I disagree with Dr. Tanbour.

80. First, contrary to Dr. Tanbour’s assertion, Ochoa provides teachings that go beyond a simple “water spray system,” because it includes the physical structure and composition of an upper dish rack with a wire basket construction. *See, e.g.*, Ex-1011 (Ochoa), 3:3–7 (“[A]n upper dish rack, generally designated 16, is comprised of a wire basket constructed in a conventional manner with a plurality of crisscrossing and encircling wire segments 18 connected to each other to provide a space for supporting cups [and] glasses”). Ochoa thus teaches more than a simple water spray system.

81. Second, contrary to Dr. Tanbour’s assertion, a POSITA would not have been limited in its understanding of Bosch or Ochoa, such that they would have required each reference to independently address what Dr. Tanbour believes are the limited objectives of the ’385 Patent. Regardless, the references teach very similar objectives to the ’385 patent. For example, Bosch teaches a dish rack designed to accommodate cups without lifting or breaking them, and Ochoa teaches a wire basket with a plurality of spaced apart portions forming the bottom wall and a spray to reach the entire bottom of the rack. In a similar fashion, the ’385 patent explains the relationship between holding cups at various inclined angles and drainage efficiency. Ex-1001, 4:55–67. The ’385 is also focused on creating a “cradle or

notch” for glasses to “prevent the glasses from rolling” while they are being washed. Ex-1001, 5:7–9. And it also is concerned with providing liquid to the “interior of the glasses” so that they do not receive “an insufficient amount of liquid.” Ex-1001, 5:25–36. Therefore, contrary to Dr. Tanbour’s opinion’s, the Bosch-Ochoa combination teaches to solve the problems contemplated by the ’385 Patent.

2. Independent Claim 13

a. Element 13[pre]: A dishwasher, comprising:

82. In my opinion, Bosch-Ochoa teaches the preamble of Claim 13, to the extent it is limiting.

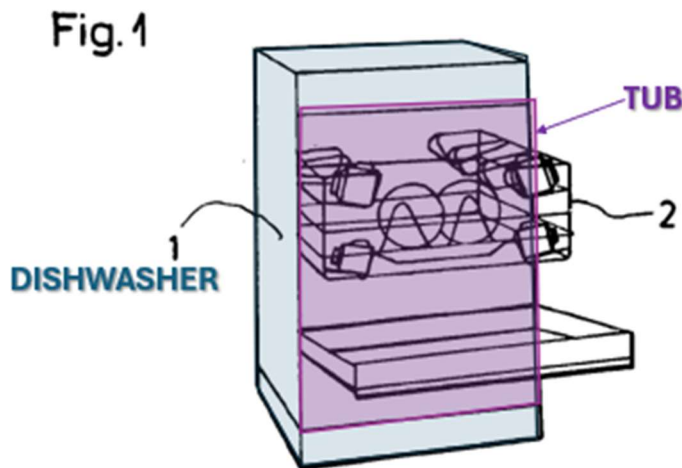
83. For example, Figure 1 of Bosch shows a “dishwasher having a dish rack 2.” Ex-1007 ¶5, Fig. 1.

b. Element 13[a]: a tub defining a treating chamber receiving dishes for treatment;

84. In my opinion, Bosch-Ochoa teaches element 13[a].

85. Bosch-Ochoa teaches a tub defining a treating chamber receiving dishes for treatment. Specifically, as shown below in Figure 1, Bosch’s dishwasher’s tub houses the dishracks that can be pulled out at the front to hold dishes. Ex-1007, 010. The dish rack has “dish holders 12 for accommodating hollow vessels 13, such as cups or glasses” and “dish holder for plates 14,” holding these dishes for treatment in the dishwasher. *Id.*, 007; *see also id.*, 003 (“The present innovation relates to a dishwasher with a dish rack *and a device for spraying the dishes.*”). As shown in

Figure 1, the dish rack holding the dishes for treatment is pulled out from the open face of Bosch's tub, which defines a treating chamber (below, purple) in the same way as described by the challenged patent. Ex-1001, 2:18–22. (“An open-faced tub 14 may be provided within the chassis 12 and may at least partially define a treating chamber 16 for washing or otherwise treating dishes. The open face of the tub 14 defines an access opening for the treating chamber 16.”). As Bosch depicts in its Figure 1, its open-faced opening to the treating chamber is further sealed by a door when in operation, thus corresponding to the claimed tub in the same manner described by the '385 patent.

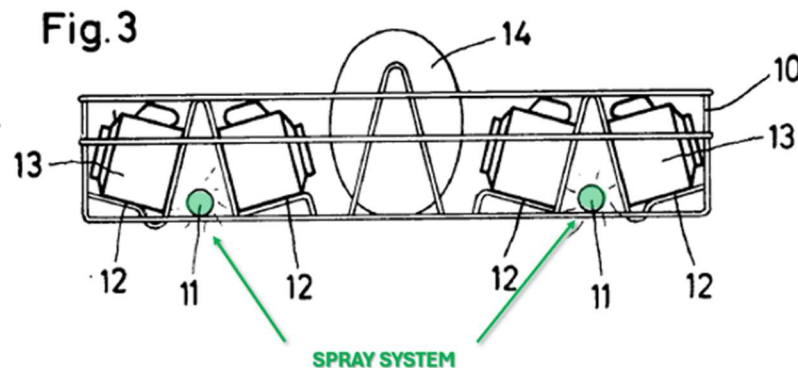


c. Element 13[b]: a spray system providing treating liquid to the treating chamber; and

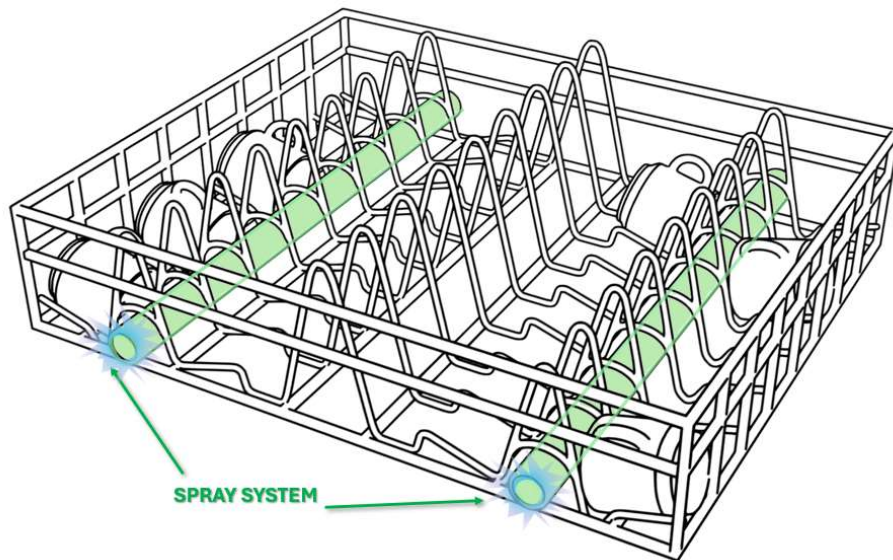
86. In my opinion, Bosch-Ochoa teaches element 13[b].

87. Bosch-Ochoa teaches a spray system providing treating liquid to the treating chamber. For example, Bosch teaches that “the device for spraying the dishes is

designed in the form of *two spray tubes 11.*” Ex-1007, 006–007. The device for spraying the dishes, via two spray tubes, acts as a spray system. In addition, and as shown in Figure 3 below, the “spray tubes are arranged within the dish rack between dish holders 12 for accommodating hollow vessels 13, such as cups or glasses.” *Id.*, 007. The spray tubes apply “washing liquid” to the dish items in the treating chamber. *Id.*, 006. This washing liquid acts as the “treating liquid.”



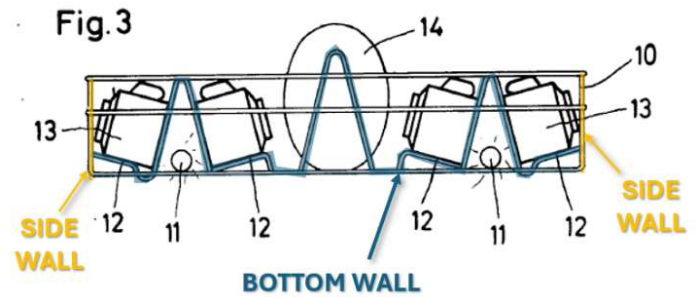
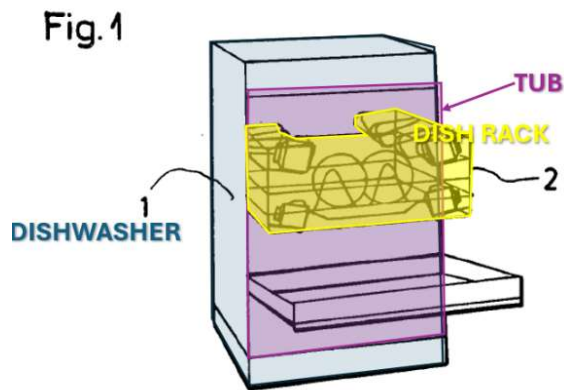
88. This is further depicted below in the Bosch-Ochoa Figure 3', which I discussed above in my motivation to combine analysis. Specifically the spray system consisting of two spray tubes is annotated in green.



- d. **Element 13[c(i)] a dish rack located in the tub and selectively moveable between a loading position, where at least a portion of the dish rack extends exteriorly of the tub, and a treating position where the dish rack is located entirely within the treating chamber and**

89. In my opinion, Bosch-Ochoa teaches element 13[c(i)].

90. Bosch teaches a dish rack located in the tub and selectively moveable into and out of a loading position. Bosch teaches a “tub” shown below displaying a dish rack holding dishes for treatment. *See also* Ex-1001, 2:18–22. Within this tub’s treating chamber, Bosch contains a movable dish rack. For example, as shown in Figure 1 below, Bosch’s dishwasher (blue) includes dish rack 2 (yellow) that “can be pulled out at the front” of the tub (purple). Ex-1007, 005. While Figure 1 shows the Figure 2 dish rack, a POSITA would understand that the dish rack in Figure 3 would similarly be located in a tub and be selectively moveable into and out of the tub.

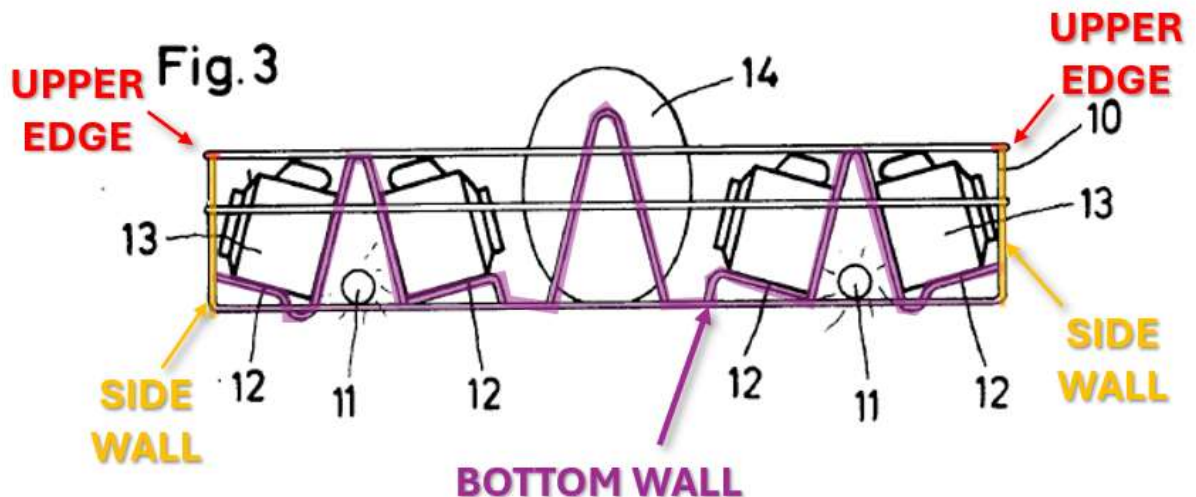


91. Bosch also teaches a treating position where the dish rack is located entirely within the treating chamber. In Figure 1, the dishrack is depicted in a loading position, in which a user can insert dishes and cups into the rack, with the rack “pulled out at the front” exterior of the tub. Ex-1007, 005. A POSITA would have recognized that, once the pulled-out rack is loaded, the user would push the rack back into the tub, the lowered front-door would be raised and closed, and the rack would be entirely contained within the tub’s treating chamber to wash the dishes without leaking dishwashing liquid from the treating chamber. *See also, e.g.,* Section VII.C (technology background discussing movable racks, e.g., U.S. Patent Nos. 2,745,707 and 2,648,588).

- e. **Element 13[c(ii)] having a bottom wall, a side wall extending upwardly from the bottom wall and terminating in an upper edge, the bottom wall including a flat central portion, curved mounting portions at opposing ends of the flat central portion and opposing inclined portions,**

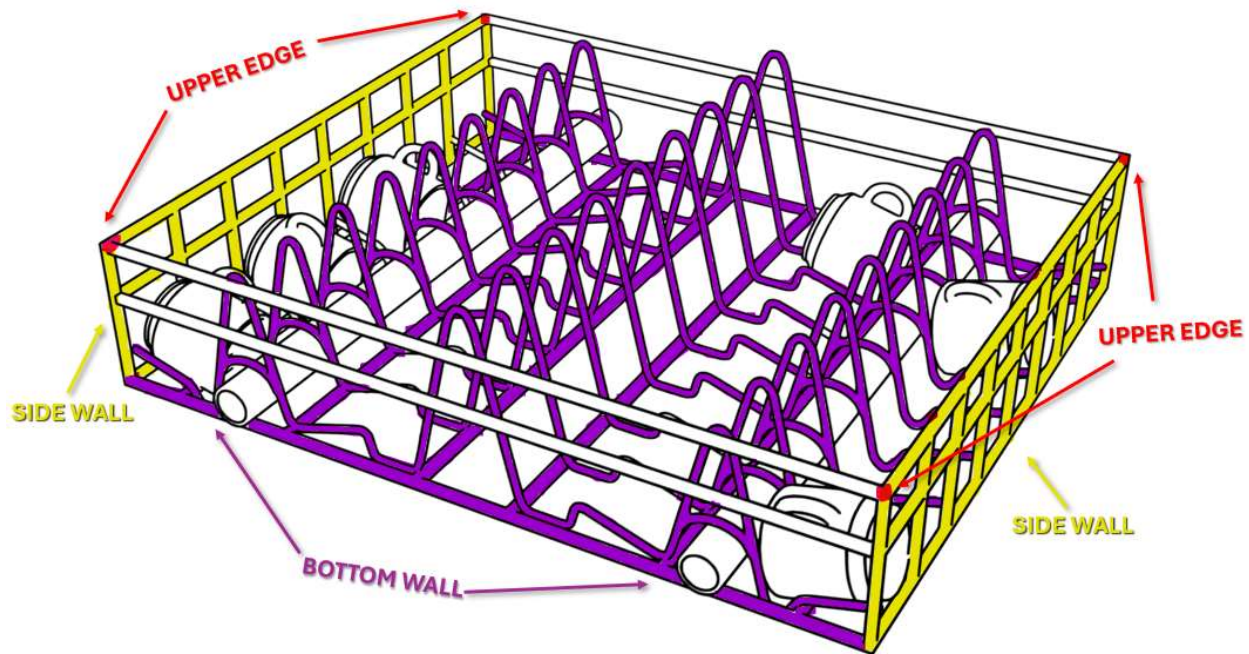
92. In my opinion, Bosch-Ochoa teaches element 13[c(ii)].

93. Bosch-Ochoa teaches a dish rack having a bottom wall, and a side wall extending upwardly from the bottom wall and terminating in an upper edge. As shown in Figure 3, one example embodiment of Bosch's dish rack 2 includes a bottom wall made of wire (purple) and a side wall (yellow) that extends upwardly from the bottom to provide the moveable dish rack structure. And the side wall terminates in an upper edge (red).



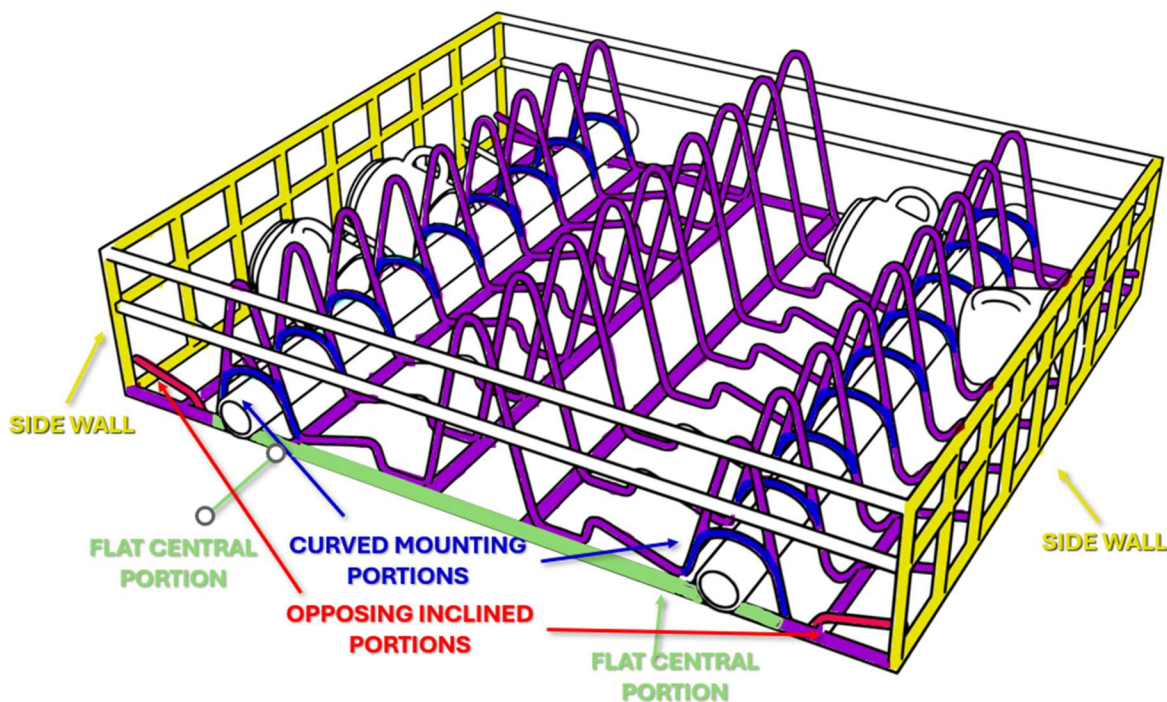
94. This is further depicted below in the Bosch-Ochoa Figure 3' I discussed above in my motivation to combine analysis. Specifically the combined figure teaches a

bottom wall (purple), a side wall (yellow) extending upwardly from the bottom wall and terminating in an upper edge (red).



95. As I explained above in my motivation to combine analysis, Bosch's Figure 3 shows 3 horizontal wires going across the front of the dishrack. The upper two wires provide structural support for the front wall, as has been done for decades in the art. *See, e.g.*, Section VII.E (technology background discussing front horizontal wiring, e.g., U.S. Patent No. 5,332,105). The bottommost of those 3 wires forms the front-bottom corner of the dishrack. This bottommost wire also forms part of the bottom wall of the rack, providing the bottom structure that supports the ends of sprayers 11 from the bottom.

96. Bosch-Ochoa also teaches the bottom wall including a flat central portion, curved mounting portions at opposing ends of the flat central portion and opposing inclined portions. As depicted in the Bosch-Ochoa Figure 3', a bottom wall (purple) containing flat central portions (green) as well as curved mounting portions (blue) at opposing ends of the flat central portions.

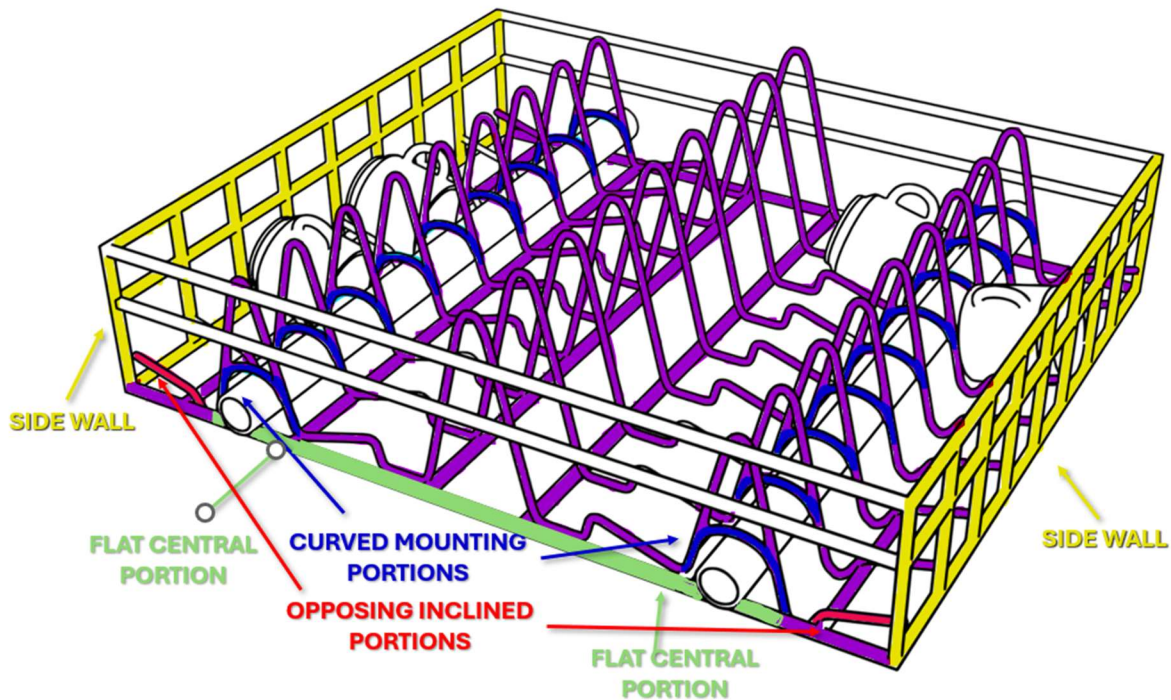


- f. **Element 13[c(iii)] each of the opposing inclined portions extending from one of the curved mounting portions to respective portions of the side wall, the opposing inclined portions configured to support a side wall of a glass; and**

97. In my opinion, Bosch-Ochoa teaches element 13[c(iii)].

98. Bosch-Ochoa teaches each of the opposing inclined portions extending from one of the curved mounting portions to respective portions of the side wall. For

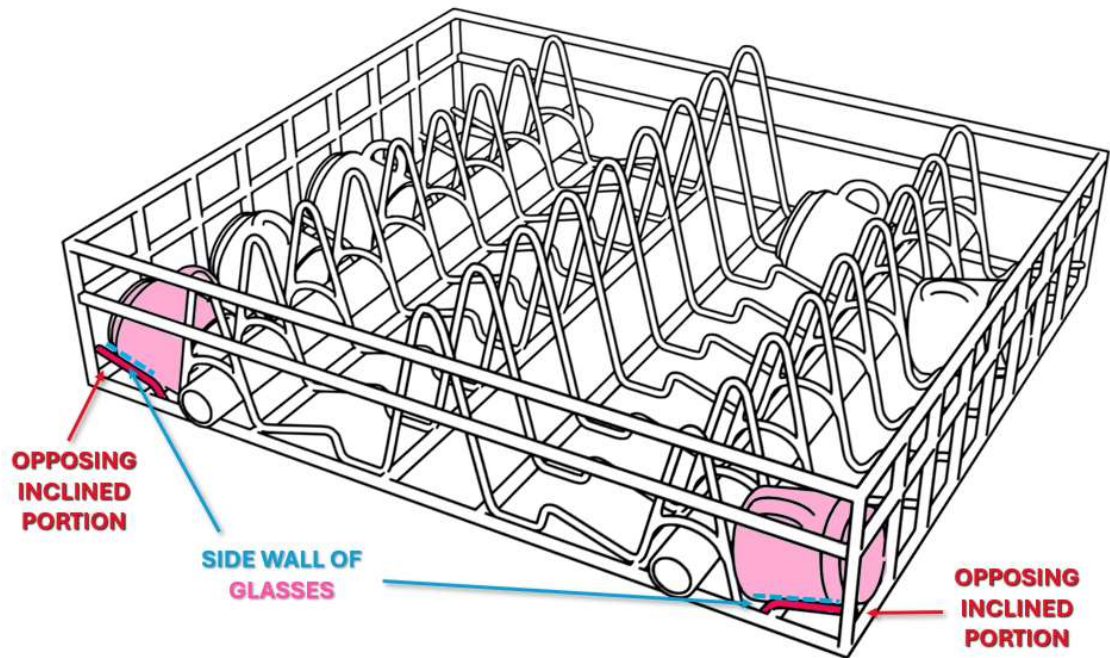
example, in Figure 3', each of the opposing inclined portions (red), extends from a curved mounting portion (blue) directly to a respective portion of the side wall (yellow).⁴



99. Bosch-Ochoa also teaches the opposing inclined portions configured to support a side wall of a glass. Bosch's dish rack 2 includes "dish holders 12 for accommodating hollow vessels 13, such as cups or glasses." Ex-1007, 007. As

⁴ The "curved mounting portion" of Claim 13 does not recite exactly what is "mounted" using the curved portion. In Bosch, at least the "opposing inclined portion" is "mounted" to the "curved mounting portion" because it is attached at one end to the curved portion, which provides the incline to the portion of the wall supporting the glass. Additionally, the "curved mounting portion" also "mounts" the adjacent sprayer to the dish rack in a configuration such that the sprayer can spray the inside the open glass that faces it.

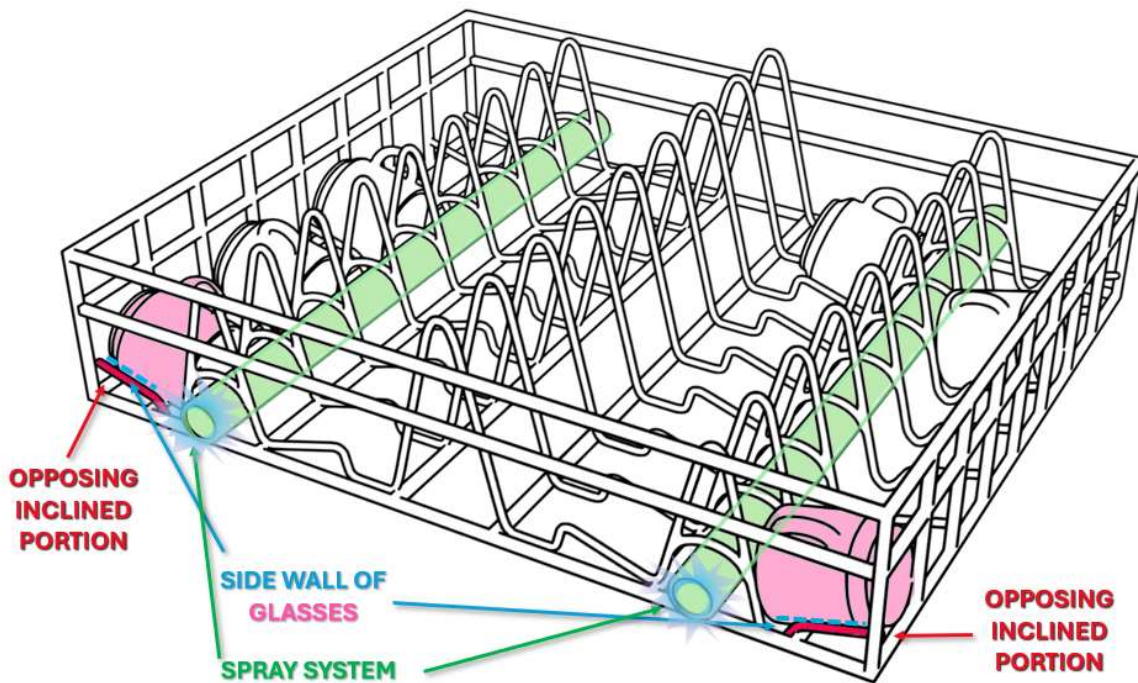
shown in Figure 3', a side wall (blue dotted) of a glass (pink) can be supported against an opposing inclined portion (red).



- g. Element 13[d(i)] a spray tube having nozzles configured to emit spray along each of the opposing inclined portions into an interior of the glass,**

100. In my opinion, Bosch-Ochoa teaches element 13[d(i)].

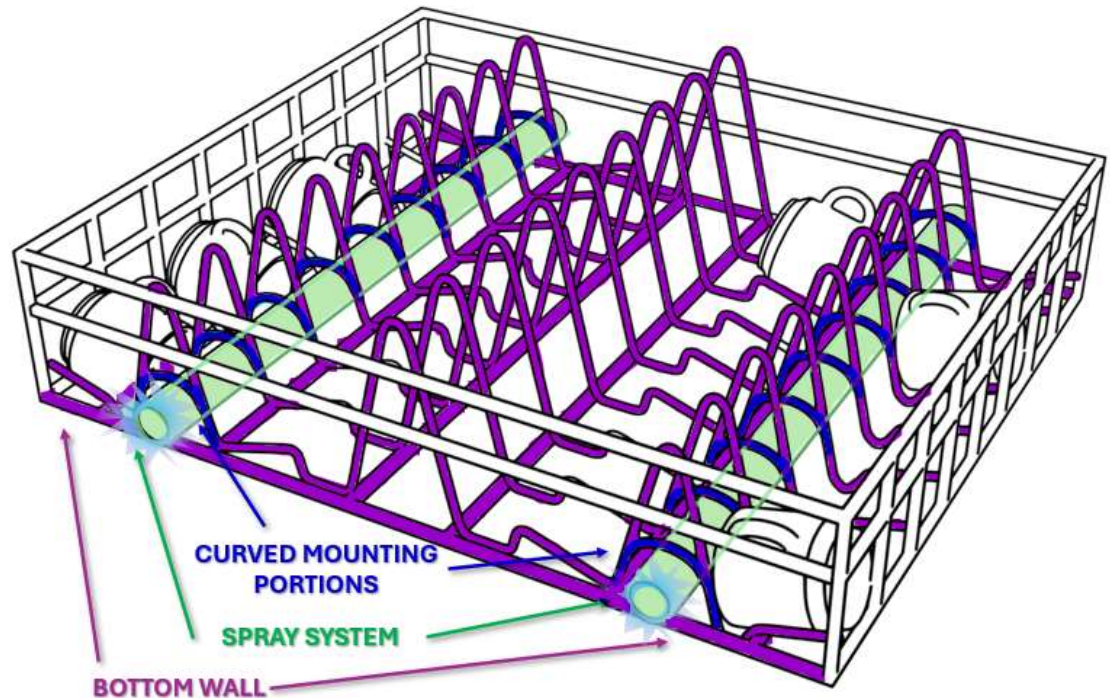
101. Bosch-Ochoa teaches a spray tube having nozzles configured to emit spray along each of the opposing inclined portions into an interior of the glass. For example, Bosch teaches two spray tubes 11, each of which may be “fixed[] or... rotate about their longitudinal axis.” Ex-1007, 007. As shown in Figure 3' below, Bosch's spray tubes (green) emit spray (blue) along each opposing inclined portion (red) into an interior of a glass (pink).



- h. Element 13[d(ii)] the spray tube located directly adjacent to one of the curved mounting portions of the bottom wall and carried with the dish rack between the loading position and the treating position.**

102. In my opinion, Bosch-Ochoa teaches element 13[d(ii)].

103. Bosch-Ochoa teaches the spray tube located directly adjacent to one of the curved mounting portions of the bottom wall. For example, Bosch teaches two spray tubes 11 that are arranged “fixedly” within the dish rack 10. Ex-1007, 007 (Cl. 4). Additionally, and as shown below, Figure 3’ teach a spray system (green) located directly adjacent to the curved mounting portions (blue) of the bottom wall (purple).



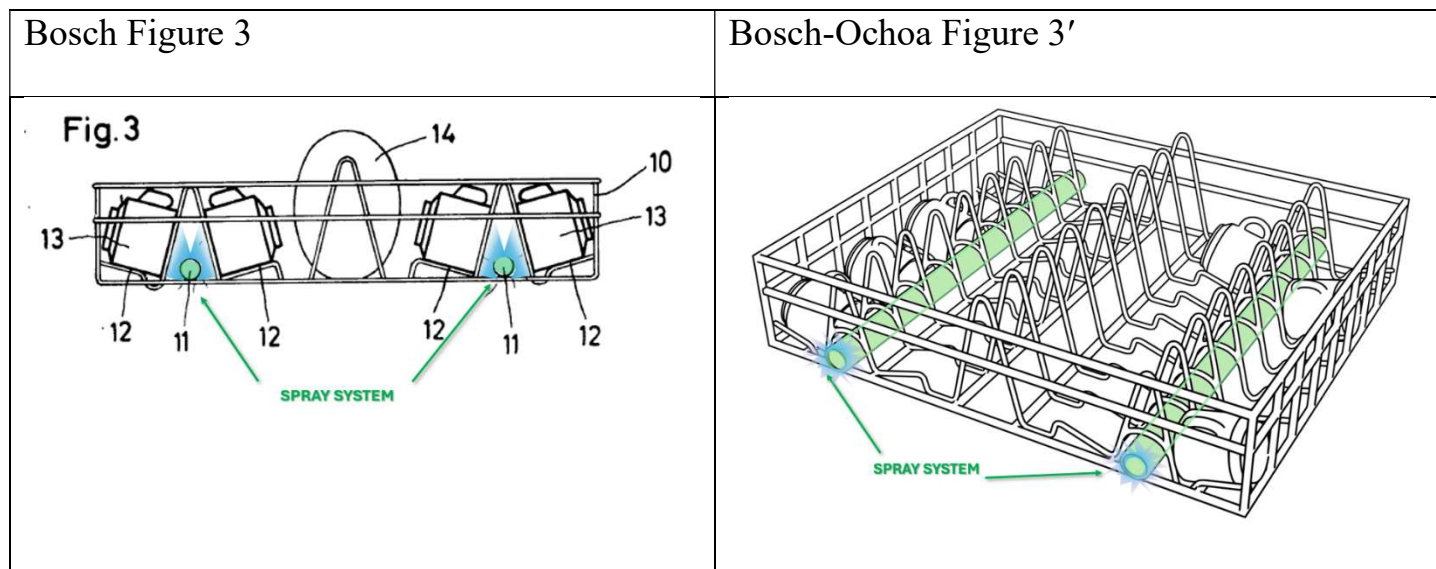
104. Bosch-Ochoa also teaches the spray tube being carried with the dish rack between the loading position and the treating position. For example, Ochoa teaches that the upper rack 12 includes a “water spraying system ... that is mounted on the underside of the rack 16 and moves into and out of the front of the dishwasher 10 with the rack 16.” Ex-1011, 3:16–19; Cl.14–16.

- i. **Claim 14: The dishwasher of claim 13 wherein the spray tube is configured to rotate about a longitudinal axis.**

105. In my opinion, Bosch-Ochoa teaches Claim 14.

106. Bosch-Ochoa teaches the dishwasher of Claim 13 wherein the spray tube is configured to rotate about a longitudinal axis. For example, as shown in Figure 3 of Bosch and Figure 3', Bosch-Ochoa teach two spray tubes 11 (green). The spray tubes

may be “fixed[] or... rotate about their longitudinal axis.” Ex-1007, 007. Similarly, Ochoa also teaches “a dishwasher spray system in which the rotating spray tubes are mounted on the lateral sides of the dishwasher” and that “the rotating spray tubes are mounted horizontally, vertically, or at an appropriate angle for accomplishing the most effective dishwashing and rinsing.” Ex-1011, 1:50–57.

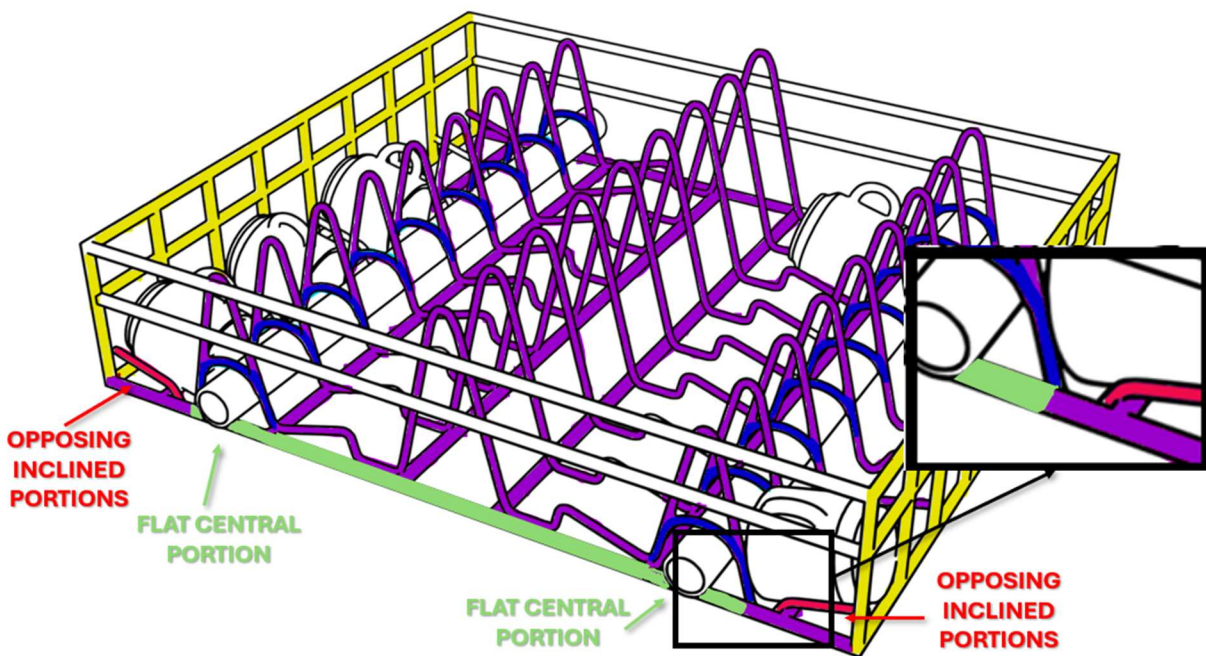


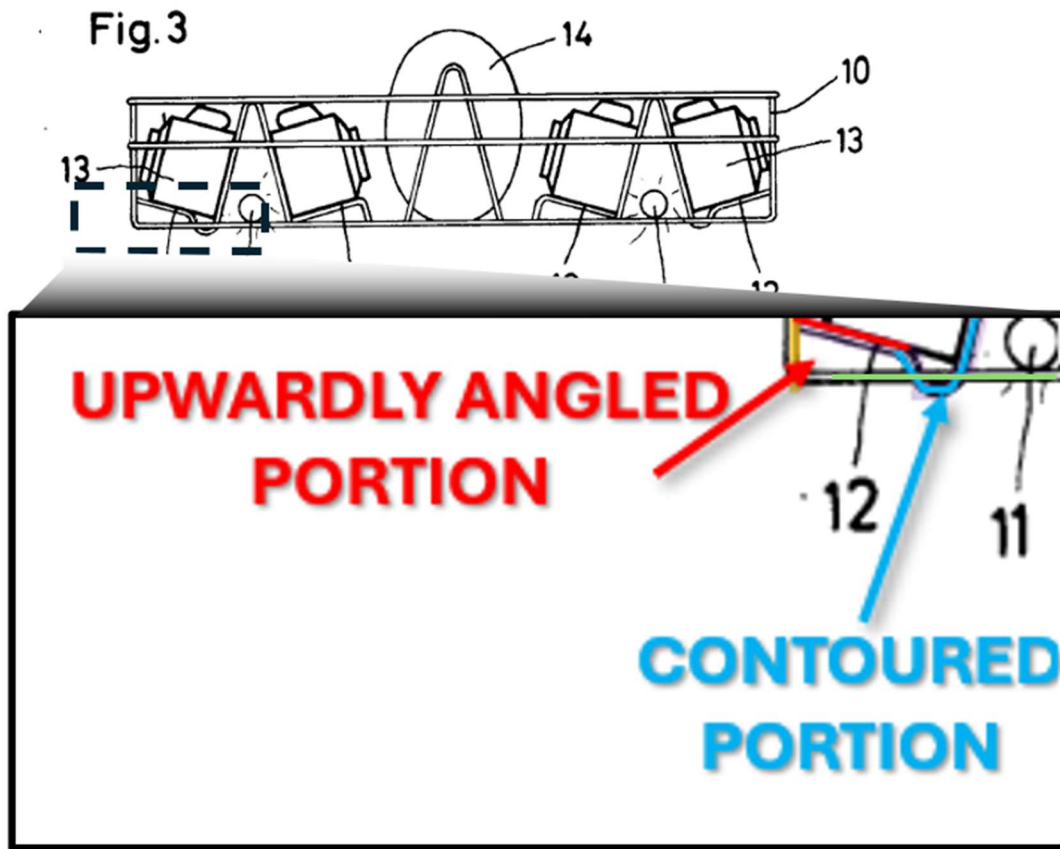
- j. **Claim 15: The dishwasher of claim 13 wherein the flat central portion is located above a terminal end of at least one of the opposing inclined portions.**

107. In my opinion, Bosch-Ochoa teaches Claim 15.

108. Bosch-Ochoa teaches the dishwasher of Claim 13 wherein the flat central portion is located above a terminal end of at least one of the opposing inclined portions. For example, in Figure 3' below, each flat central portion (green) can be seen as sitting above a terminal end of each opposing inclined portion (red).

Although the terminal end of the opposing inclined portion cannot be seen due to the bottom wall covering it, a POSITA would know from Figure 3' below that at least a portion of the opposing inclined portion (red) would necessarily need to fall below a portion of the flat central portion (green) in order to connect with the bottom wall (purple).





- a. **Claim 16:** The dishwasher of claim 13, further comprising a second spray tube configured to emit spray along an other of the inclined portions, the second spray tube located directly adjacent to an other of the curved mounting portions of the bottom wall and carried with the dish rack between the loading position and the treating position.

109. In my opinion, Bosch-Ochoa teaches Claim 16 for the same reasons as explained in Section XIII.A.2.g (element 13[d(i)] and Section XIII.A.2.h (element 13[d(ii)]).

3. Independent Claim 17

a. Element 17[pre]: A dishwasher, comprising:

110. In my opinion, Bosch-Ochoa teaches the preamble of Claim 17, to the extent it is limiting, for the same reasons as explained in Section XIII.A.2.a (element 13[pre]).

b. Element 17[a]: a tub defining a treating chamber receiving dishes for treatment;

111. In my opinion, Bosch-Ochoa teaches element 17[a] for the same reasons as explained in Section XIII.A.2.b (element 13[a]).

c. Element 17[b]: a spray system providing treating liquid to the treating chamber; and

112. In my opinion, Bosch-Ochoa teaches element 17[b] for the same reasons as explained in Section XIII.A.2.c (element 13[b]).

d. Element 17[c(i)]: a dish rack located in the tub and selectively moveable into and out of the tub,

113. In my opinion, Bosch-Ochoa teaches element 17[c(i)] for the same reasons as explained in Section XIII.A.2.d (element 13[c(i)]).

e. Element 17[c(ii)] the dish rack having a bottom wall, a side wall extending upwardly from the bottom wall and terminating in an upper edge,

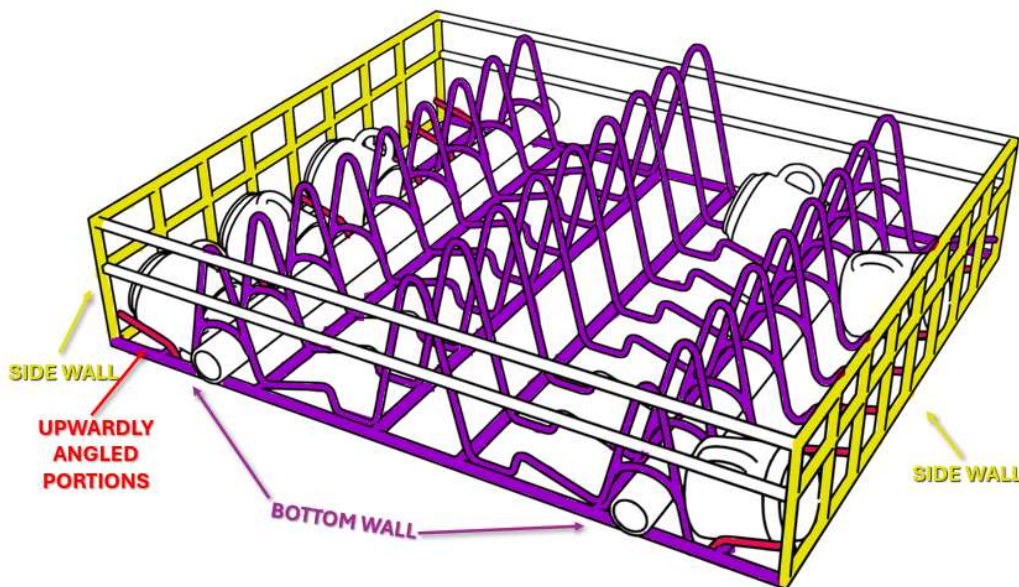
114. In my opinion, Bosch-Ochoa teaches element 17[c(ii)] for the same reasons as explained in Section XIII.A.2.e (element 13[c(ii)]).

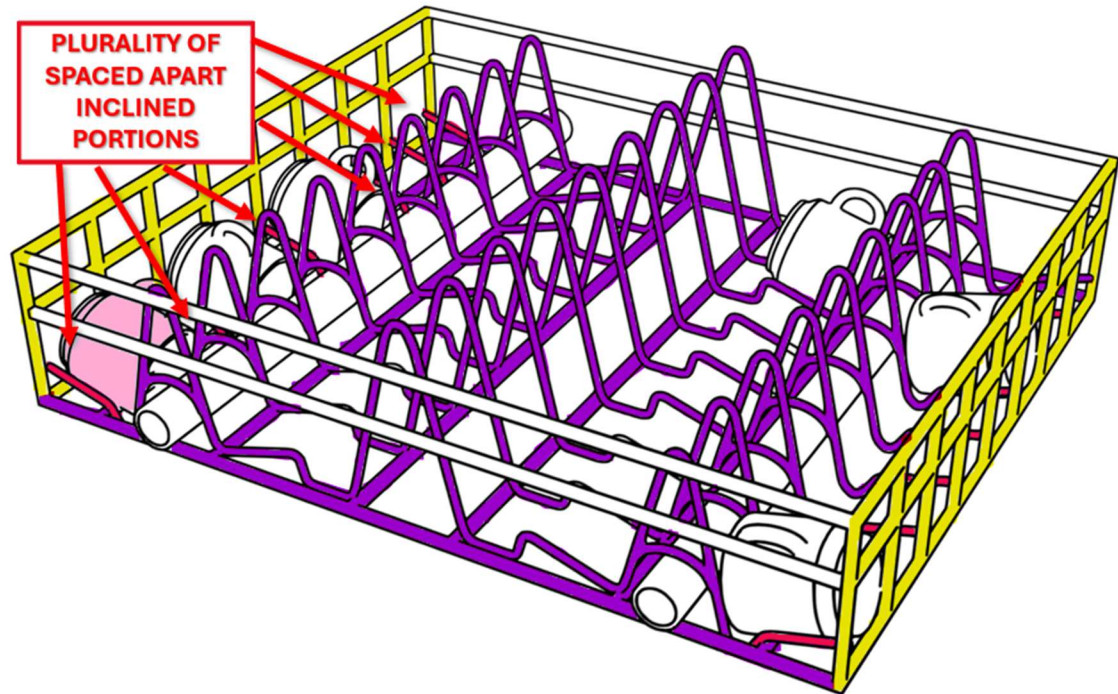
- f. **Element 17[c(iii)] with an upwardly angled portion formed in the bottom wall comprising a plurality of spaced apart inclined portions forming the bottom wall and terminating at the side wall,**

115. In my opinion, Bosch-Ochoa teaches element 17[c(iii)].

116. Bosch-Ochoa teaches an upwardly angled portion formed in the bottom wall comprising a plurality of spaced apart inclined portions forming the bottom wall and terminating at the side wall.

117. As shown in Figure 3', one example of Bosch's dish rack includes a bottom wall made of wire (purple), comprising a plurality of spaced apart inclined portions (red) that form the bottom wall, and that terminate at a side wall (yellow).

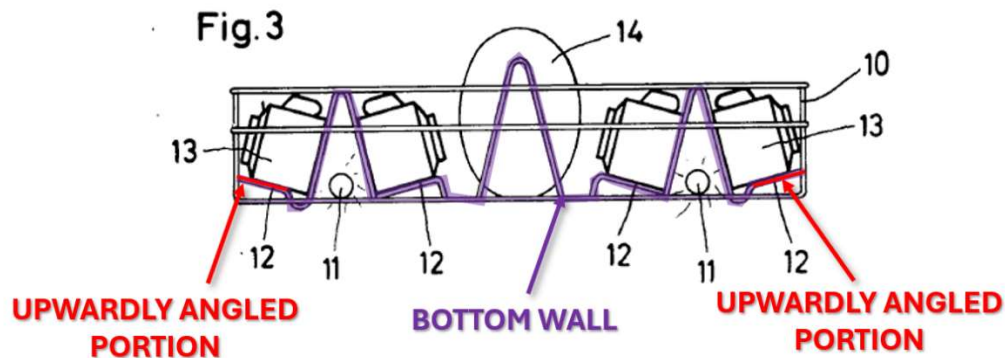




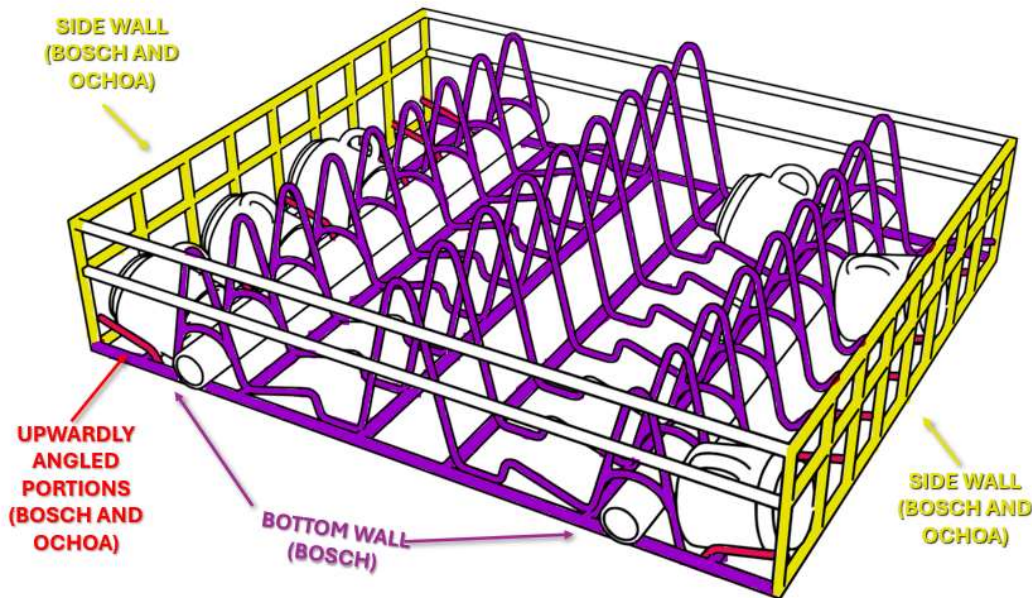
118. Whirlpool's expert Dr. Tanbour has characterized Bosch's teachings as focusing on the configuration of spray jets and hollow vessels. Ex-1022 ¶134 ("Bosch focuses on the spray jets of the dishwasher and the fact that the liquid from the jets 'hit the inside of the hollow vessels placed on the dish rack at least approximately horizontally.'"). He has also stated that Bosch's dish holders are not formed in the bottom wall as Claim 17 requires because they are "added-on or welded L shapes ... distinct from the bottom wall." *Id.* ¶134. I disagree.

119. Contrary to Dr. Tanbour's first assertion, Bosch clearly teaches an "upwardly angled portion formed in the bottom wall." Bosch teaches that "spray tubes are arranged within the dish rack between dish holders 12 for accommodating hollow

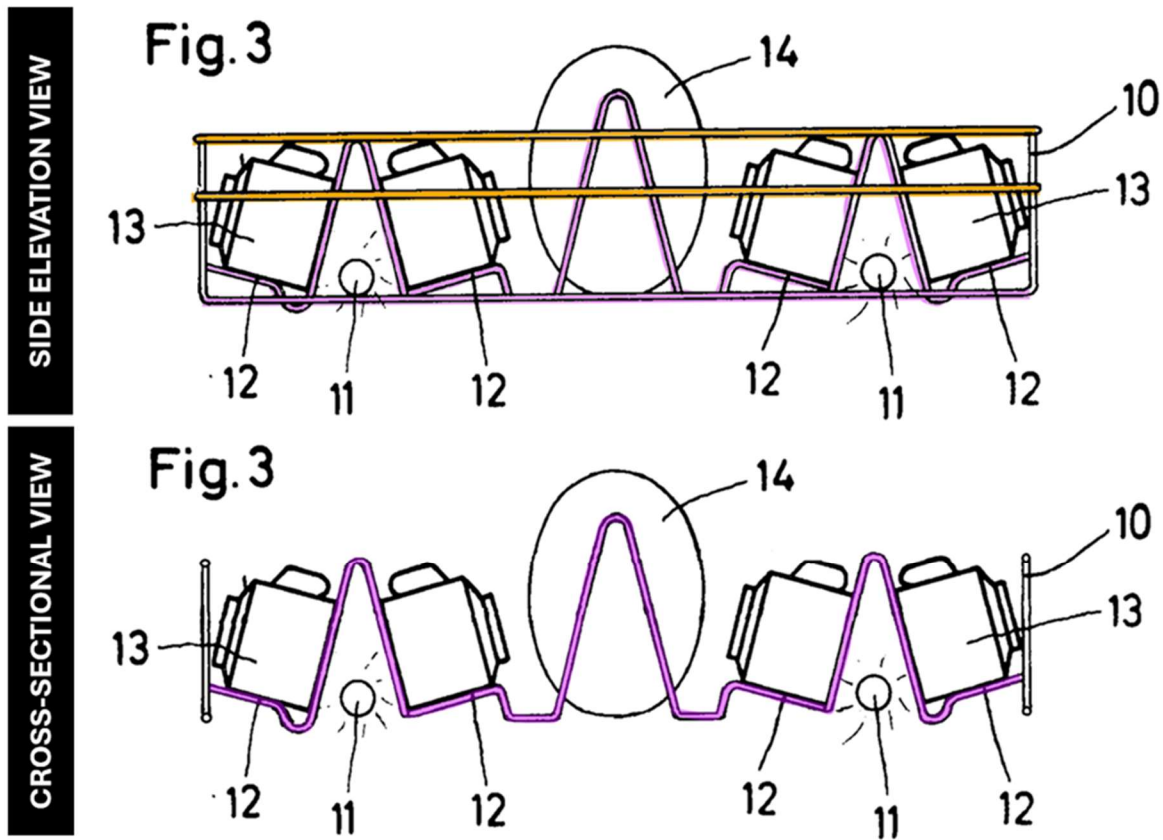
vessels 13.” Ex-1007, 007. As shown in Figure 3 below, the dish holders of Bosch (red) are “upwardly angled portion[s],” and are “formed in the bottom wall” (purple).



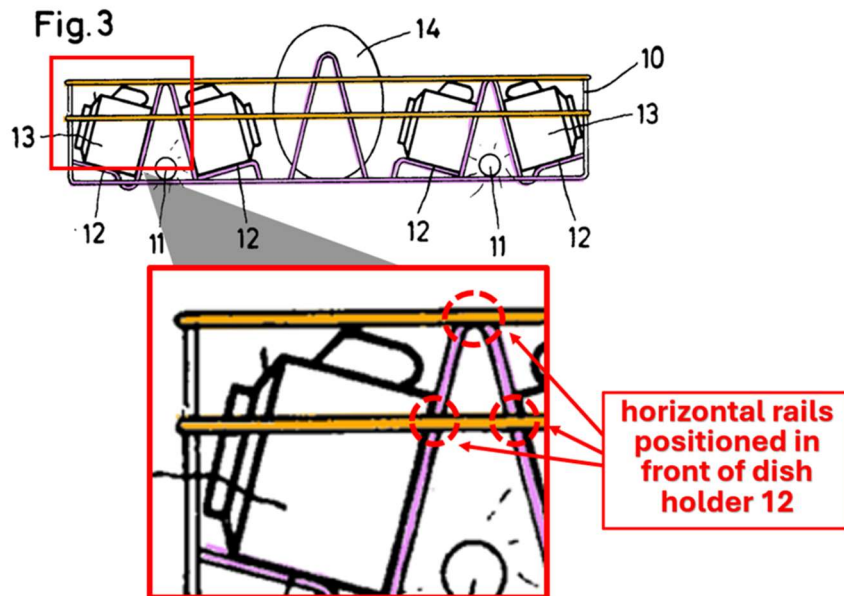
120. Moreover, Bosch's dish holders are not added or welded-on to the bottom wall, as Dr. Tanbour asserts. Bosch's dish holders are the structures that form the bottommost portion of the bottom wall. For example, as shown in Figure 3 of Ex-1007, Figure 19 of Ochoa, and Figure 3' below, upwardly angled portions (red) form segments of the overall bottom wall (purple). Contrary to Dr. Tanbour's assertion, Bosch does not describe that its dish holders are "welded" to a separate or distinct bottommost structure, as shown below in Figure 3'.



121. Specifically, a POSITA would recognize that Figure 3 of Bosch depicts a side elevation view of the rack—that is, a view looking directly at one of the rack’s sidewalls (e.g., the front sidewall)—rather than a cross-sectional view through the interior of the rack. From that perspective, a POSITA would understand the upper horizontal wires shown in Figure 3 to be part of the front-sidewall frame, and inclined dish holder 12, behind it, to be part of the bottom-wall structure. *See, e.g.*, Section VII.E (technology background discussing front horizontal wiring, e.g., U.S. Patent No. 5,332,105). This distinction is illustrated in the below image, which presents a comparison between the side elevation view presented in Figure 3 and what a POSITA would expect from a cross-sectional view through the rack interior (i.e. in the middle, rather than the front):



122. This understanding is supported by the figure itself. Figure 3 depicts the front horizontal wires as being positioned in front of the inclined dish holder 12 structure, consistent with perimeter frame rails defining the outer boundary of the rack:

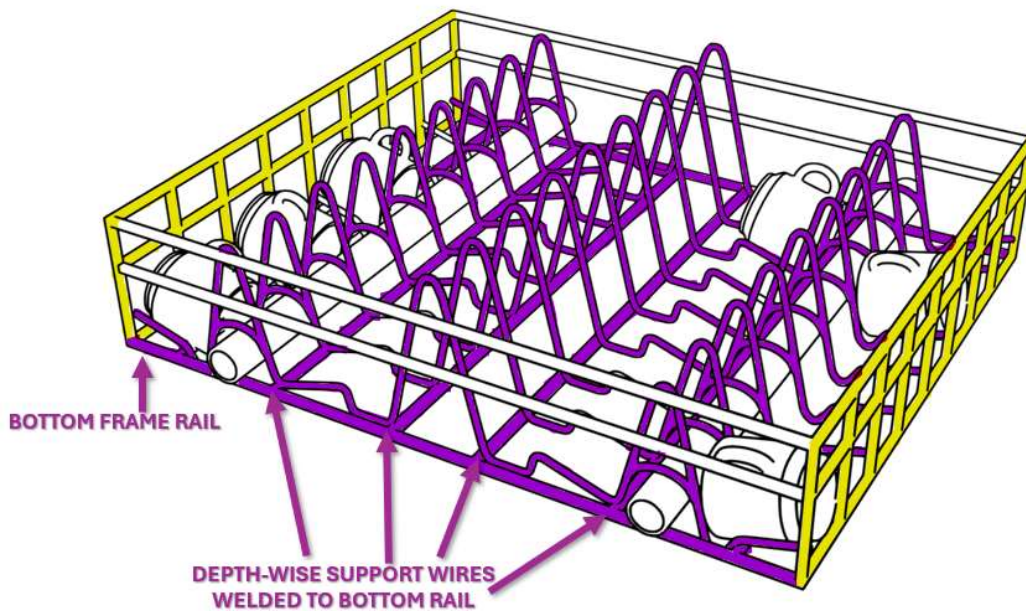


123. At the same time, it would be readily apparent to a POSITA that the intermediate and top horizontal wires shown in Figure 3 exist only on the rack front-perimeter, and do not extend across the depth of the rack; otherwise, they would obstruct the placement of cups and other large items on the rack. As I explained above in my motivation to combine analysis, the bottommost of those 3 wires forms the front-bottom corner of the dishrack. This bottommost wire also forms part of the bottom wall of the rack, providing the bottommost structure that supports the ends of sprayers 11 from the bottom.

124. This understanding is further reinforced by the way wire dish racks are conventionally constructed. A POSITA would understand that the bottom wall of such a rack consists of two intersection sets of wires arranged perpendicular to one another. One set runs parallel to one pair of opposing sidewalls (e.g., the front and

back sidewalls of the rack), and the other set runs perpendicular to that pair—that is, into and out of the page in a side elevation. Both sets are necessary. Without the perpendicular, depth-wise wires, the bottom wall would consist only of parallel members spaced apart from one another, such that thin items—e.g., utensils, plates, or other narrow items thinner than the spacing between the parallel wires—could simply fall through the rack. The perpendicular wires therefore provide not only structural rigidity, but also functional support across the wire grid forming the bottom of the rack. *See, e.g.*, Section VII.E (technology background discussing front horizontal wiring, e.g., U.S. Patent No. 5,332,105).

125. In light of that conventional rack construction (and as further evidence by, e.g. Ochoa's Figure 19), a POSITA would have implemented the inclined dish holder 12 (purple, below)—which runs generally parallel to the depicted sidewall—by joining the wire at discrete points to the perpendicular, depth-wise bottom-wall wires, as illustrated below:

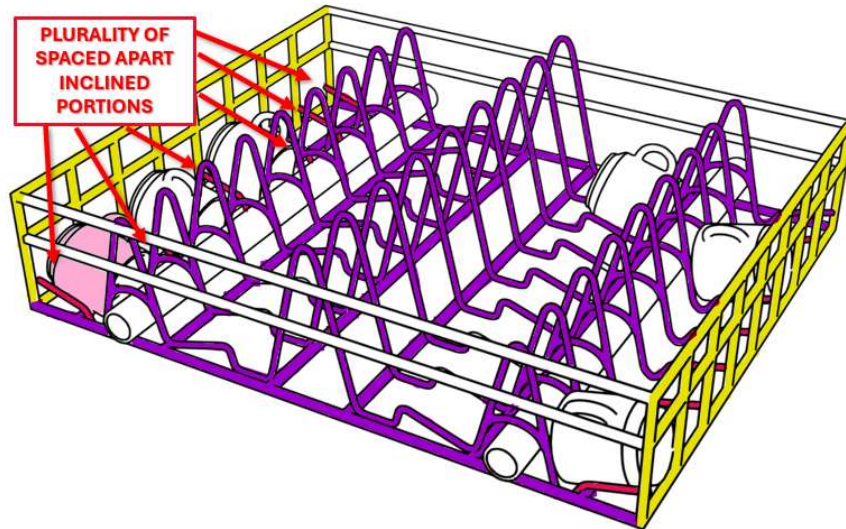


126. A POSITA would have been motivated to do so in order to stabilize the inclined dish holders 12 along their lengths. *See*, e.g., Section VII.E (technology background discussing front horizontal wiring, e.g., U.S. Patent No. 5,332,105). By contrast, welding each dish holder 12 to another wire running horizontally in the same direction would not meaningfully increase structural rigidity, as parallel wires do not brace one another against deflection in the same way that intersecting members do. Thus, a POSITA familiar with this conventional grid construction—including as depicted in Ochoa—would have been motivated to implement dish holders 12 and the perpendicular support wires as the structure forming the bottommost portion of the rack as shown in the above modified figures.

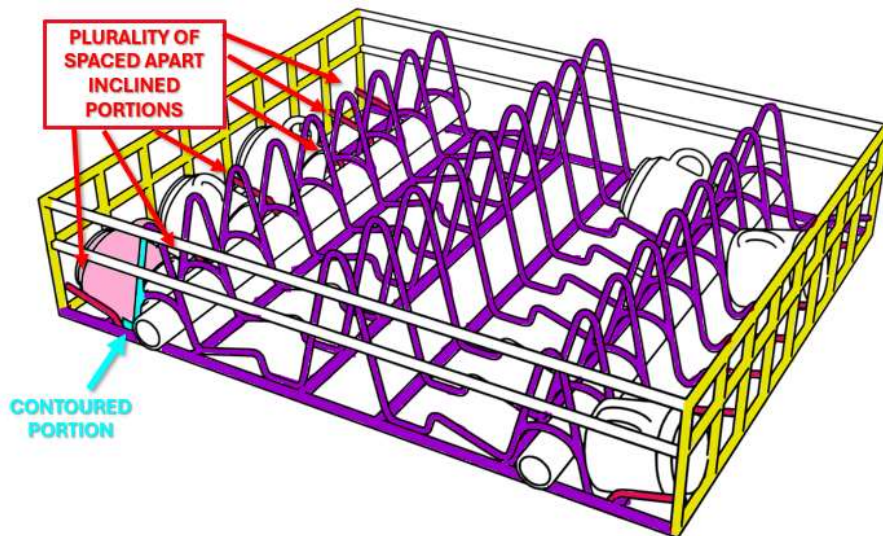
- g. Element 17[c(iv)] wherein two adjacent inclined portions of the plurality of spaced apart inclined portions are configured to cradle a glass at an inclined angle and prevent the glass from rolling and a contoured portion formed in the bottom wall configured to prevent glasses from sliding down the inclined angle; and**

127. In my opinion, Bosch-Ochoa teaches element 17[c(iv)].

128. Bosch-Ochoa teaches two adjacent inclined portions of the plurality of spaced apart inclined portions are configured to cradle a glass at an inclined angle. Bosch's dish rack 2 includes "dish holders 12 for accommodating hollow vessels 13, such as cups or glasses." Ex-1007, 007. For example, as shown in Figure 3' below, two adjacent inclined portions of the plurality of spaced apart inclined portions (red) cradle a glass (pink) at an inclined angle.



129. Bosch-Ochoa also teaches that the cradling of the glass at inclined portions prevent the glass from rolling and a contoured portion (light blue) formed in the bottom wall configured to prevent glasses from sliding down the inclined angle.



130. Bosch teaches that spray jets may lift the “cups and glasses” in a manner that can damage them “when they subsequently drop back onto the dish rack.” Ex-1007, 003 – 004. Bosch ensures that “these dish items are no longer lifted by the spray jets and therefore also cannot drop back into the disk rack.” *Id.*, 004. The inclined angles and corresponding contoured portions cradle the glass so that it is not lifted and dropped onto the dish rack. This also prevents glass from rolling or otherwise falling into the wrong position.

131. Ochoa also teaches a dish rack comprising a “wire basket constructed in a conventional manner with a plurality of crisscrossing and encircling wire segments 18 connected to each other to provide space for supporting cups, glasses, small

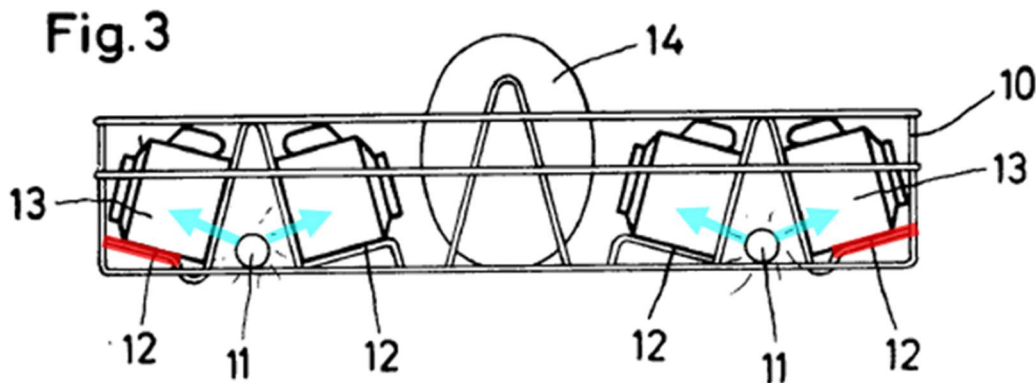
dishware, long utensils and the like in the usual manner.” Ex-1011, 3:4–9. By implementing Ochoa’s teachings of multiple spaced apart wire structures with Bosch’s inclined portions, the glass at the inclined portion and corresponding contoured portion is cradled securely in place. A POSITA would have understood that implementing Ochoa’s teachings with Bosch furthers Bosch’s goal of ensuring stability of the cup or other items in the treating chamber. *See also, e.g.*, Section VII.f (technology background discussing cup supports and inclined portions, e.g., U.S. Patent Nos. 2,910,207, 3,464,566, 4,475,656, and 2010/0051069).

h. Element 17[d(i)] a spray tube having nozzles emitting spray along the angled portion;

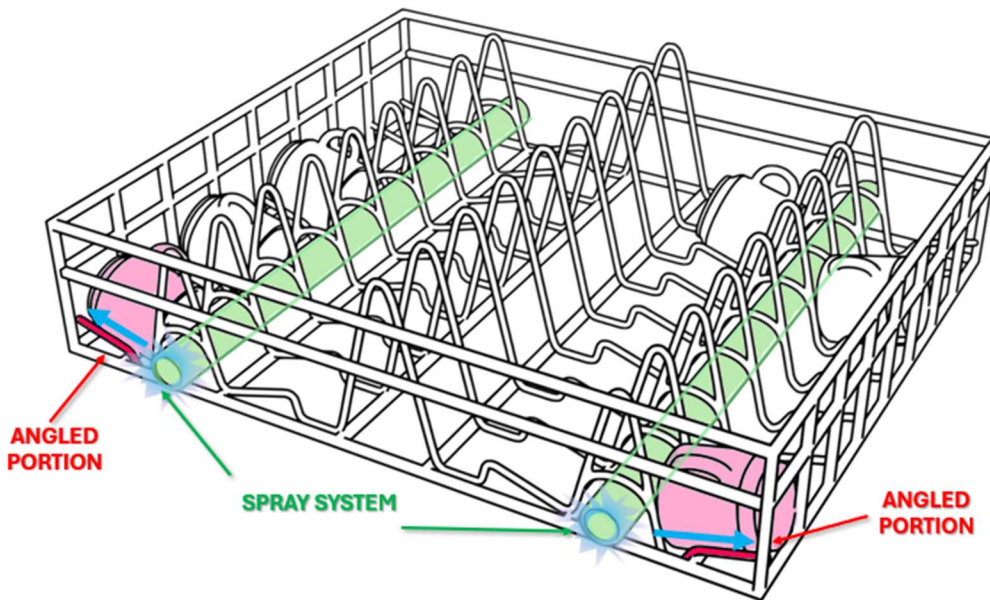
132. In my opinion, Bosch-Ochoa teaches element 17[d(i)] for the same reasons as explained in Section XIII.A.2.g (element 13[d(i)]).

133. Dr. Tanbour, however, has argued that Bosch does not contain an angled portion along which Bosch’s spray tubes to emit water. Ex-1022 ¶141. However, a POSITA would have recognized that each of Bosch’s spray tubes “emit[s] spray along the angled portion.” In particular, a POSITA would have understood Bosch’s disclosure that “all dish items are arranged with their vertical axis approximately horizontally” (Ex-1007, 004–005), as teaching that Bosch’s dish items are positioned on the inclined rack, as depicted in, for example, Figure 3. And such a POSITA would also have understood Bosch’s disclosure that “the spray jets hit the inside of

the hollow vessels placed in the dish rack at least approximately horizontally,” as teaching that Bosch’s spray tubes are configured to emit spray along the incline of the rack. Ex-1007, 004. In addition, Bosch also teaches two spray tubes 11, each of which may be “fixed[] or... rotate about their longitudinal axis.” Ex-1007, 007. This indicates that spray from Bosch’s spray tubes can be emitted in all directions. Indeed, Figure 3 of Bosch (highlighted below) illustrates Bosch’s spray tubes emitting spray (blue) along the incline of the angled portion (red):



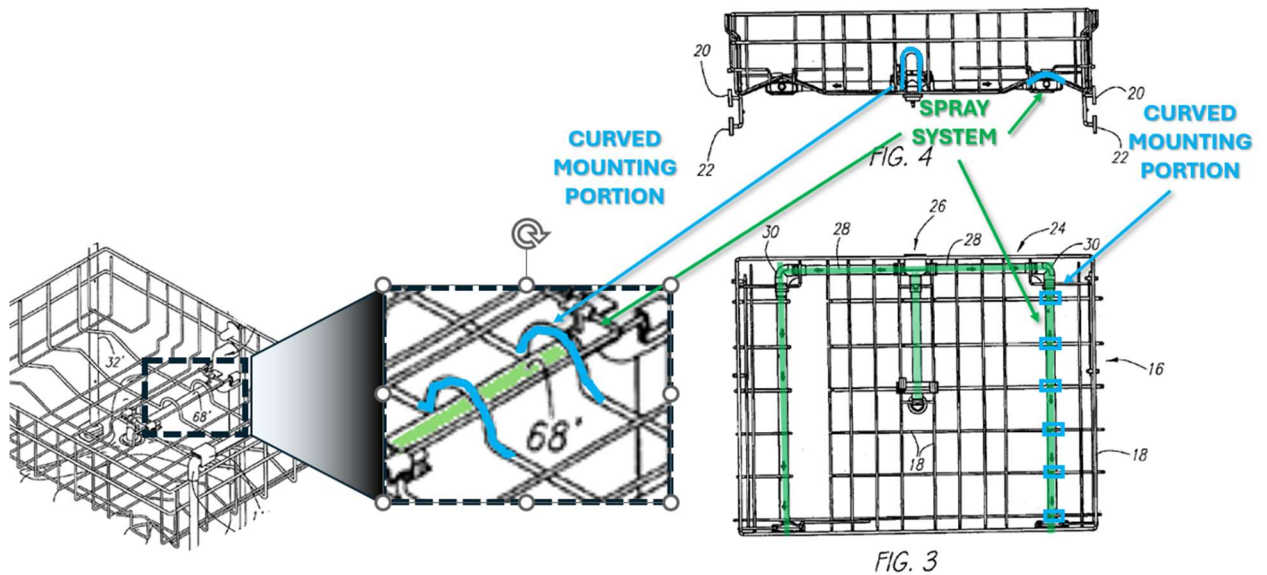
134. This is further depicted below in the Bosch-Ochoa Figure 3' I discussed above in my motivation to combine analysis. Specifically the spray system is annotated in green below. Bosch’s spray tubes (green) emit spray (blue) in many directions, which includes along the incline of the angled portion (red).



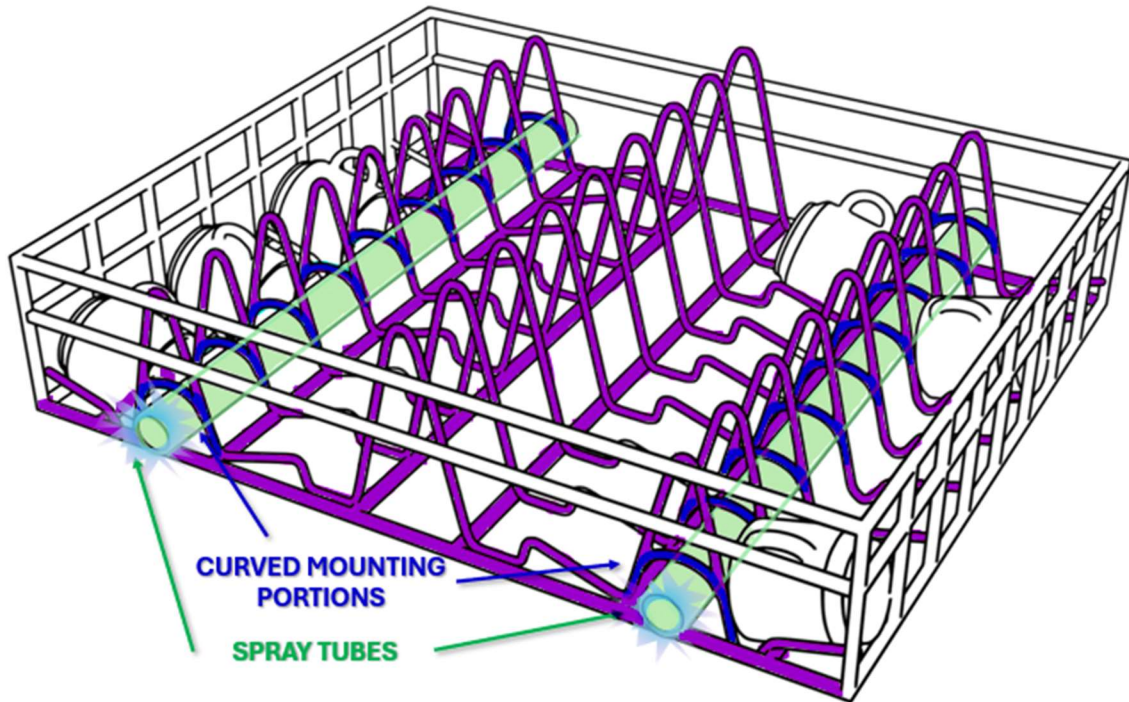
- i. **Element 17[d(ii)] wherein the contoured portion is further configured to form a curved mounting portion adjacent which the spray tube is mounted such that the spray tube is carried with the dish rack.**

135. In my opinion, Bosch-Ochoa teaches element 17[d(ii)].

136. As explained in my motivation combine analysis above, Bosch-Ochoa teaches that the contoured portion is further configured to form a curved mounting portion adjacent which the spray tube is mounted such that the spray tube is carried with the dish rack. For example, Bosch teaches two spray tubes 11 that are arranged “fixedly” within the dish rack 10. Ex-1007, 007 (Cl. 4). Additionally, Ochoa teaches that the upper rack 12 includes a “water spraying system ... that is mounted on the underside of the rack 16 and moves into and out of the front of the dishwasher 10 with the rack 16.” Ex-1011, 3:16–19. As shown in the below figures, Ochoa teaches to do this using curved mounting portions along the length of the spray tubes.



137. This is further depicted below in the Bosch-Ochoa Figure 3' I discussed above in my motivation to combine analysis. Specifically, the spray tubes are annotated in green below and are adjacent to the curved mounting portions (blue), such that the spray tube is carried with the dish rack.

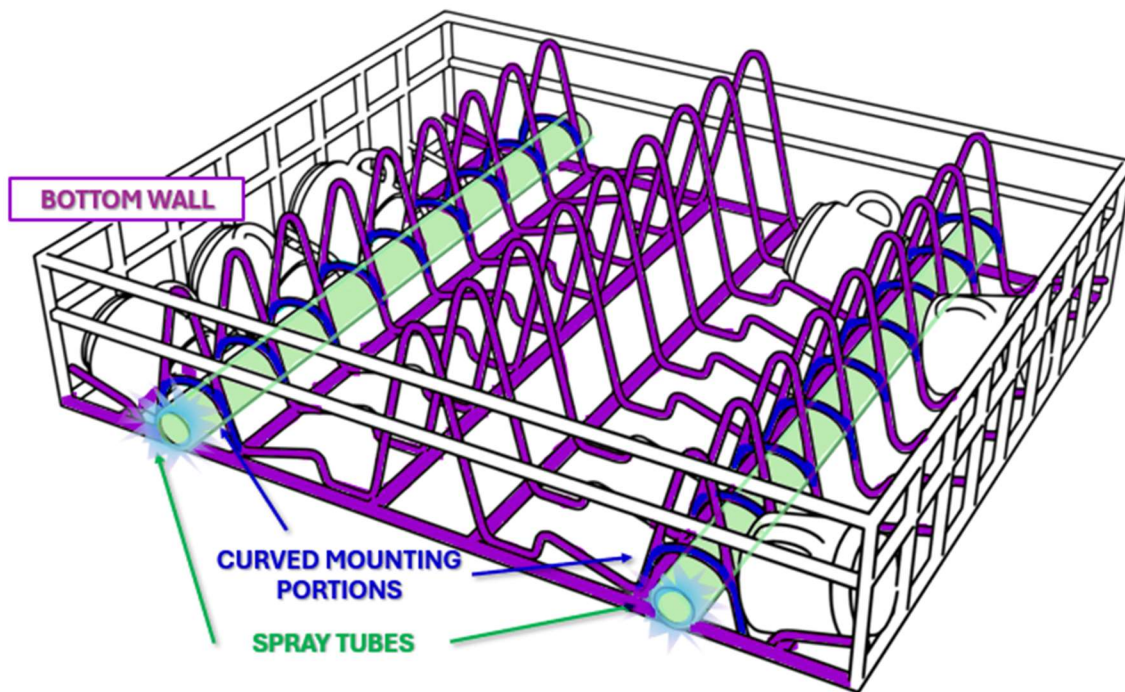


138. Dr. Tanbour disagrees that Bosch-Ochoa teach Element 17[d(ii)]. First, he argues that Bosch’s spray tubes are mounted to a flat bottom wall, rather than to any curvature. Ex-1022 ¶142. Second, Dr. Tanbour states that Ochoa does not contain a curved mounting portion, but rather contains “a protrusion to create space for the spray tube.” *Id.* Third, Dr. Tanbour argues that even if Ochoa discloses a curved mounting portion, Ochoa’s sprayer is mounted to a front “support mechanism 33” rather than a curved mounting portion. *Id.* ¶143. These arguments are incorrect.

139. First, contrary to Dr. Tanbour’s assertion, Bosch contains an angled bottom wall. For example, as shown in Bosch-Ochoa Figure 3’, the bottom wall (purple) has

an angled configuration. Moreover, as also shown in Figure 3', the spray system (green) is not mounted along this bottom wall (purple).

140. Second, Bosch's spray tubes are adjacent to the curved mounting portion element taught by Ochoa, when the two references' teachings are combined, with the spray tubes directly under the curved mounting. Figure 4 of Ochoa (blue) shows a curved mounting portion.



141. Third, contrary to Dr. Tanbour's assertion, Ochoa's sprayer is not limited to being mounted onto a front support mechanism. For example, Ochoa teaches that a "forward end 32a of spray tube 32 is rotatably supported *by any convenient support* mechanism 33, such as a pointed pin ... fixedly mounted in the front end 32a of the spray tube 32." Ex-1011, 3:30–33. Therefore, Ochoa teaches multiple configurations

for a spray tube, rather than limiting it being mounted to a front support mechanism. Ochoa's sprayer thus is not required to be mounted only to a front support mechanism as Dr. Tanbour suggests. Indeed, as I explained above in my motivation to combine analysis, a POSITA would have been motivated to support the sprayer at the ends from the bottom (as taught by both Bosch and Ochoa) and also using curved mounting portions along the tubes length (as taught by Ochoa), to constrain the tube as it rotates longitudinally, so it is not warped or otherwise displaced during operation.

4. Dependent Claim 21: The dishwasher of claim 17 wherein at least one of the nozzles is located above a portion of the angled portion.

142. In my opinion, Bosch-Ochoa teaches Claim 21.

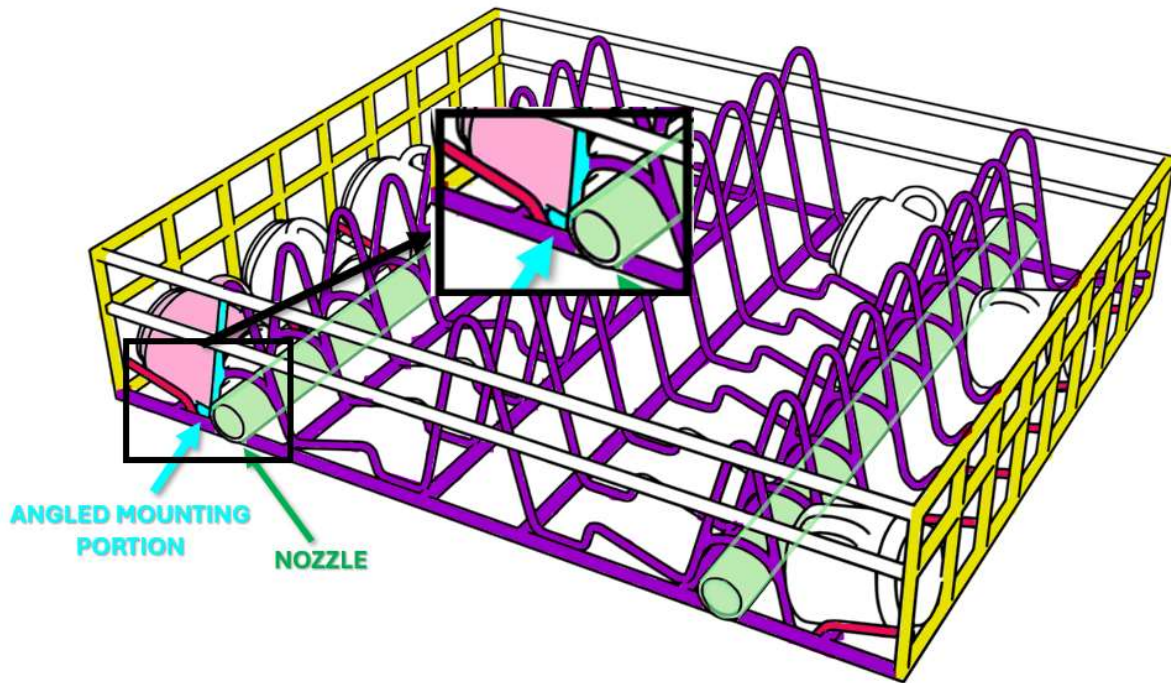
143. Bosch-Ochoa teaches the dishwasher of Claim 17 wherein at least one of the nozzles is located above a portion of the angled portion. As discussed previously, Bosch teaches two spray tubes 11, "fixed[] or ... rotate[d] about their longitudinal axis." Ex-1007, 007. As shown in Figure 3' below, the majority of Bosch's spray tube (green) is located above a portion of the angled portion (light blue). Additionally, the tube has its output nozzles located around the circumference of the tube that form "spray jets". Ex-1007, 007 ("[S]pray tubes 11 can be arranged in the dish rack 10 fixedly or so as to rotate about their longitudinal axis. The rotation can be caused by the recoil effect of the spray jets emerging from appropriately designed

nozzles....”). This is also seen in the generally circular fan of spray coming from the nozzles in Bosch’s Figure 3 (excerpted below).



144. These nozzle output are located on the spray tube. And several, if not most, of the tube’s output nozzles are located above at least a portion of the angled portion (i.e. the nozzle at the top of the tube are above the bottom of the angled portion, allowing for fluid to be sprayed onto the cups resting on the angled portion).

145. As shown below in Figure 3’, the nozzle of the spray tube (green) has at least a portion located above the angled mounting portion (light blue).



B. Ground 2: Claims 18–20 are obvious over Bosch in view of Ochoa and Schessl

- 1. A POSITA would have been motivated to combine Schessl’s teachings with Bosch-Ochoa and would have had a reasonable expectation of success.**

146. A POSITA would have been motivated to combine Bosch’s, Ochoa’s, and Schessl’s teachings and had a reasonable expectation of success in doing so because each addresses dishwashing compartment and other feature organizations tactics to deliver thorough washing coverage and allowing better drainage.

147. Bosch expressly teaches ways to design and arrange dish racks to efficiently clean all dishes as well as ways of improving drainage. For instance, Bosch indicates one of its “object[ives] is achieved by a design and arrangement of the dish rack and of the spraying device such that the spray jets hit the inside of the hollow vessels

placed in the dish rack at least approximately horizontally.” Ex-1007, 004. Additionally, Bosch discusses an arrangement of dishes that ensures “the washing liquid [] drain[s] from the inside and the indentation at the bottom if the items.” Ex-1007, 005.

148. Ochoa similarly teaches solving a dish coverage gap as well as targeting lateral areas of the dishwasher. Ochoa points out that “conventional dishwashers rely on centrally located spinners ... but the diameter of the spinner is limited by the front-to-back depth of the dishwasher cabinet. As a result, the lateral sides and corners of a modern premiere dishwasher of increased width do not receive the same amount of water spray from the spinners as the center portion.” Ex-1011, 1:22–29. Ochoa also indicates that its invention aims to provide a system “wherein the lateral extremities and vertical corners of the interior of the dishwasher are adequately sprayed with wash and rinse water.” Ex-1010, 1:37–41.

149. Schessl similarly focuses on space optimization, thereby ensuring all dishes are cleaned, as well as improved drying processes. Schessl teaches that an “object of the present invention is thus to specify a cutlery basket ... which, for optimum utilization of space in the washing compartment, can accept items of cutlery with larger dimensions for washing and simultaneously produces a good cleaning and drying result” Ex-1012, 1:28–34. According to Schessl, “[b]ecause of the ‘angled’ storage of the cutlery items the draining-off of water during the drying

process of the cutlery items is improved, meaning that less energy is required for drying” Ex-1012, 1:48–51.

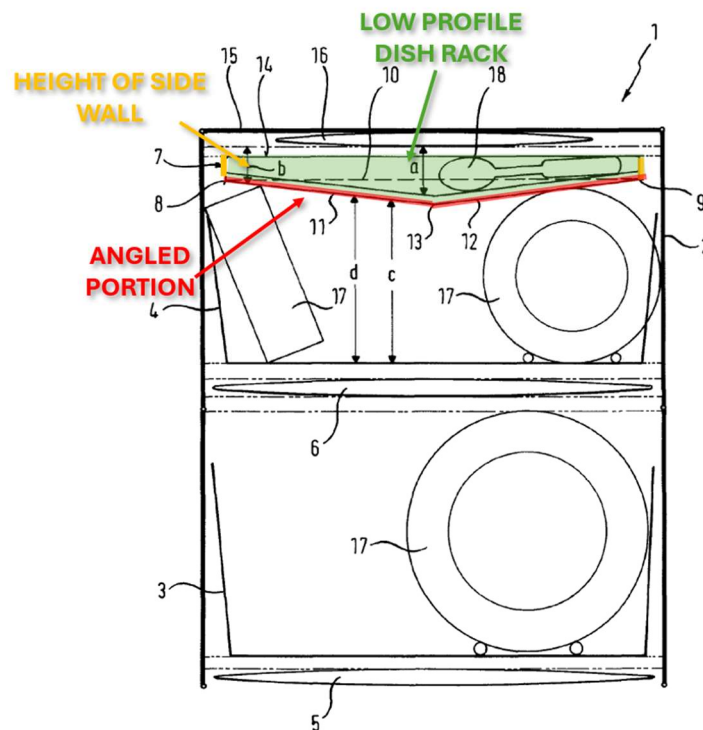
150. Dr. Tanbour disagrees that a POSITA would have been motivated to combine the teachings of Bosch, Ochoa and Schessl. His disagreements with combining Bosch and Ochoa are incorrect as discussed above (*supra* Section XIII.A.1.). Dr. Tanbour additionally believes a POSITA would not combine the teachings of Bosch, Ochoa, and Schessl because neither Bosch nor Ochoa have anything to do with low-profile dishracks. But even if this were true (it is not, as the dishrack of Bosch’s Figure 3 plainly has a lower profile than the rack of its Figure 2) this does not preclude their teachings from being combined with those of Schessl. Bosch teaches a dish rack designed to accommodate hollow vessels on inclined surfaces, while Ochoa teaches a wire basket with a plurality of spaced apart portions forming the bottom wall. Schessl fills in any gaps related to configuring the shapes and angles of the bottom walls of racks within the Bosch-Ochoa dishwasher. Therefore, the Bosch-Ochoa-Schessl combination renders obvious all features of Claims 18–20.

2. Dependent Claims 18–20

- a. Claim 18: The dishwasher of claim 17 wherein the dish rack is a low profile dish rack where the length of the angled portion is greater than a shortest height of an upstanding portion of the side wall.**

151. In my opinion, Bosch-Ochoa-Schessl teaches Claim 18.

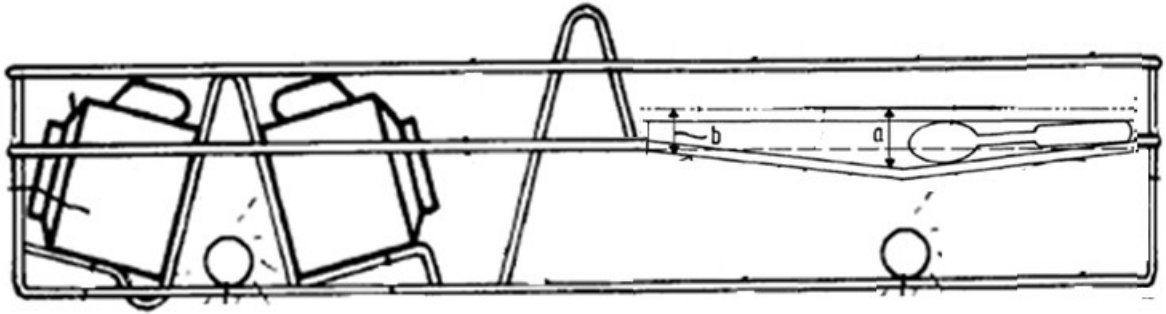
152. Bosch-Ochoa-Schessl teaches the dishwasher of Claim 17 wherein the dish rack is a low profile dish rack. Initially, the rack in Bosch's Figure 3 plainly has a lower profile than the rack in its Figure 2. Moreover, Schessl provides further teachings on why and how a top rack should have a lower profile than other racks. For example, Schessl teaches a cutlery basket that functions as a low profile dish rack. *See* Ex-1012, Fig. 1 (green). Schessl teaches that the "[t]he cutlery basket ... is characterized by at least sections of the cutlery basket having different clearance heights, which guarantee an optimized utilization of space, *i.e.*, that the floor area is embodied differently from a horizontal plane (in the installed position) extending between a first and a second side edge of the floor area." Ex-1012, 1:38–44.



153. Schessl also teaches that the length of the angled portion of its dish rack (red) is greater than a shortest height of an upstanding portion of the side wall (yellow). According to Schessl, “[a]bove the upper crockery basket 4 is arranged an inventive cutlery basket 7, which in the exemplary embodiment has a floor area consisting of a first part area 11 and a second part area 12. The first and the second part area 11, 12 adjoin each other at an oblique angle. This forms a connecting edge 13 approximately in the center between a first and a second side edge 8, 9 which is located below a horizontal level 10, in which the first and the second side edge 8, 9 of the floor area running in parallel thereto are arranged. This produces an arrow-shaped design of the cutlery basket 7 with sections with continuously varying clearance heights. The narrowing of the cutlery basket can be both from the center outwards towards the first and second side edge (see exemplary embodiment) and also in the reverse direction in towards the center.” *Id.*, 3:1–14.

154. These teachings would have been implemented in the Bosch-Ochoa-Schessl to accommodate well known kitchen items, such as utensils, that are longer than they are deep, in Bosch’s dishrack depicted in Figure 3. Specifically, a POSITA would have, for example, retained Bosch’s angles cup seats on the left hand side of the rack, and added in Shessl’s cutlery seats on the right, as shown below in the modified figure. Doing so would have allowed for the rack to retain its low profile, while also

allowing for increased utility and the ability to wash a wider range of common household items.



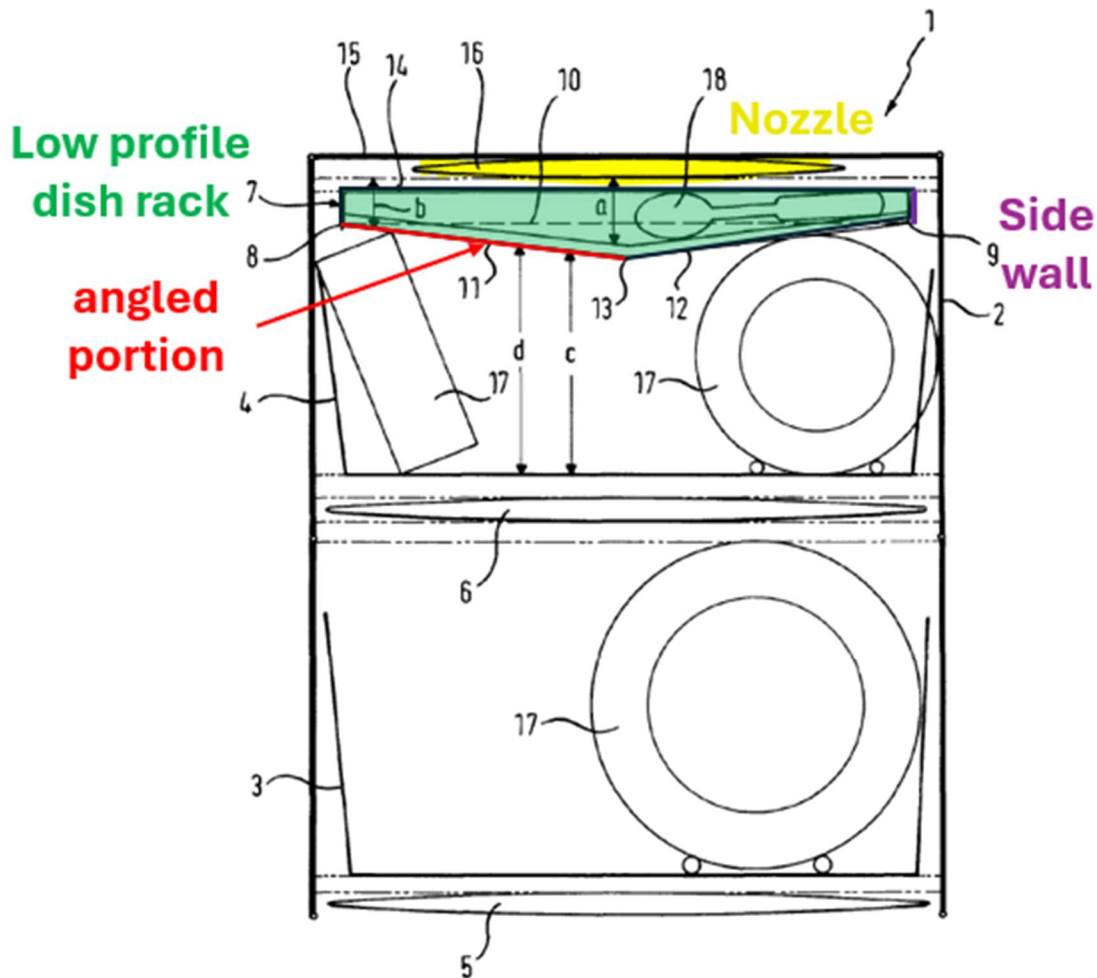
Bosch-Ochoa-Schessl Combination Modified Rack

- b. Claim 19: The dishwasher of claim 18 wherein at least one of the nozzles is located above a portion of the angled portion.**

155. In my opinion, Bosch-Ochoa-Schessl teaches Claim 19.

156. Bosch-Ochoa-Schessl teaches the dishwasher of Claim 18 wherein at least one of the nozzles is located above a portion of the angled portion. *See*, for example, the discussion of Bosch's teachings of Claim 21.

157. Moreover, this feature is also expressly taught by Shessl. For example, Schessl teaches a "spray arm 16 [that] is assigned to the cutlery basket 7 above an upper edge of the cutlery basket 14 of the inventive cutlery basket 7, which applies washing liquor from above to the items of cutlery lying in a horizontal position in the cutlery basket 7." Ex-1012, 3:34–38.

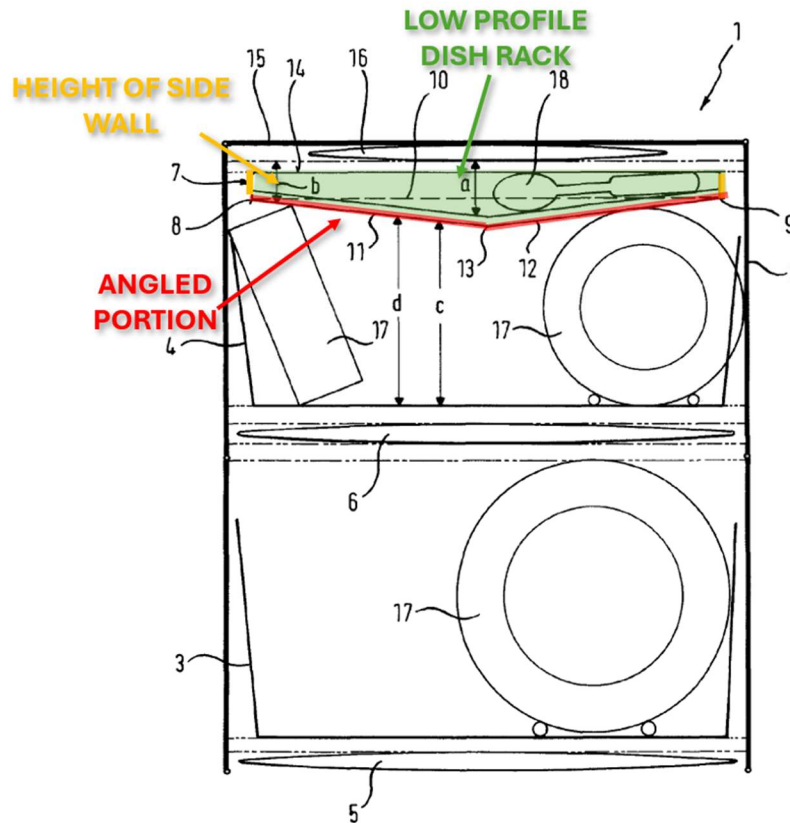


- c. **Claim 20: The dishwasher of claim 18 wherein the shortest height is located along a portion of the side wall transverse to the angled portion.**

158. In my opinion, Bosch-Ochoa-Schessl teaches Claim 20.

159. Bosch-Ochoa-Schessl teaches the dishwasher of Claim 18 wherein the shortest height is located along a portion of the side wall transverse to the angled portion. For example, Schessl teaches that the that the cutlery basket has different “clearance heights, which guarantee an optimized utilization of space.” Ex-1012, 1:40–41. As shown below in Figure 1 of Schessl, the side wall (yellow) is transverse

to the angled portion (red) and is the shortest height of the dish rack because clearance height “b” is less than the clearance height “a.”



XIV. CONCLUSION

160. For the reasons above, it is my opinion that Claims 13–21 of the '385 Patent are obvious based on each of the grounds specified in this Declaration.

161. I declare that all statements made in this Declaration of my knowledge are true, and that all statements made on information and belief are believed to be true, and that these statements were made with the knowledge that willful false statements

and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Date: April 15, 2026



Dr. Kimberly K. Cameron