

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

HOMELAND HOUSEWARES, LLC,
Petitioner,

v.

HUIYANG ALLAN PLASTIC & ELECTRIC INDUSTRIES CO., LTD.,
Patent Owner.

Case IPR2016-00841
Patent 8,382,627 B2

Before JAMES A. TARTAL, BEVERLY M. BUNTING, and
JAMES J. MAYBERRY, *Administrative Patent Judges*.

MAYBERRY, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

Petitioner, Homeland Housewares, LLC (“Homeland” or “Petitioner”), filed a Petition (Paper 1, “Pet.”) requesting *inter partes* review of claims 1–18 of U.S. Patent No. 8,382,627 B2 (Ex. 1001, “the ’627 patent”).¹ Patent Owner, Huiyang Allan Plastic & Electric Industries Co., Ltd. (“Huiyang Allan”), did not file a Preliminary Response to the Petition.² We have jurisdiction under 35 U.S.C. § 314. We instituted trial for claims 1–17 only. Paper 9, 45 (“Dec. on Inst.”).

Huiyang Allan did not file a Patent Owner Response. *See* Paper 15. As Huiyang Allan did not file a Patent Owner Response, Homeland was not permitted to file a Petitioner Reply. *See* 37 C.F.R. § 42.23(b) (“A reply may only respond to arguments raised in the corresponding opposition, patent owner preliminary response, or patent owner response.”).

We held an Oral Hearing, at which Homeland presented arguments, but not Huiyang Allan. *See* Paper 19, 2 (“As Patent Owner . . . did not file a Preliminary Patent Owner Response, Patent Owner Response, or Motion to Amend, Patent Owner will not have the opportunity to present oral argument.”). The record contains a transcript of the hearing. Paper 21 (“Tr.”).

¹ Homeland indicates that the following parent or co-subsidary entities “might have an interest in the result of this proceeding”—Call to Action, LLC; Capital Brands, LLC; Capbran Holdings, LLC; Capital Brands Distribution, LLC; Capital Bay Ltd.; Bullet Express, LLC; NutriBullet, LLC; and Baby Bullet, LLC. Pet. 1.

² Our rules make filing a Preliminary Response optional. *See* 37 C.F.R. § 42.107 (“The patent owner *may* file a preliminary response to the petition.”) (emphasis added).

The Board has jurisdiction under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. Homeland has shown, by a preponderance of the evidence, that claims 1–6 and 9–17 of the ’627 patent are unpatentable.

A. Related Matters

Both parties indicate that the ’627 patent is not involved in a related judicial or administrative proceeding. Pet. 1; Paper 8, 1.

B. The ’627 Patent

The ’627 patent, titled “Multiple Drive System for Food Processor and Mixer,” issued February 26, 2013. Ex. 1001, (54), (45). The ’627 patent is generally directed to a multiple drive system for a food processor or mixer that improves the processing of different types of food. *Id.* at 1:7–10. The Background discussion in the ’627 patent provides that prior art food processors change the speed of their motors to process different types of foods and that this technique has drawbacks. *Id.* at 1:13–20. In view of these drawbacks, the inventors state that “there is a need for a multiple drive system for a food processor/mixer [that] can maintain an adequate speed and torque to improve the processing of various types of foods.” *Id.* at 1:21–24.

Figures 1–3, reproduced below, depict an embodiment of the food processor of the ’627 patent.

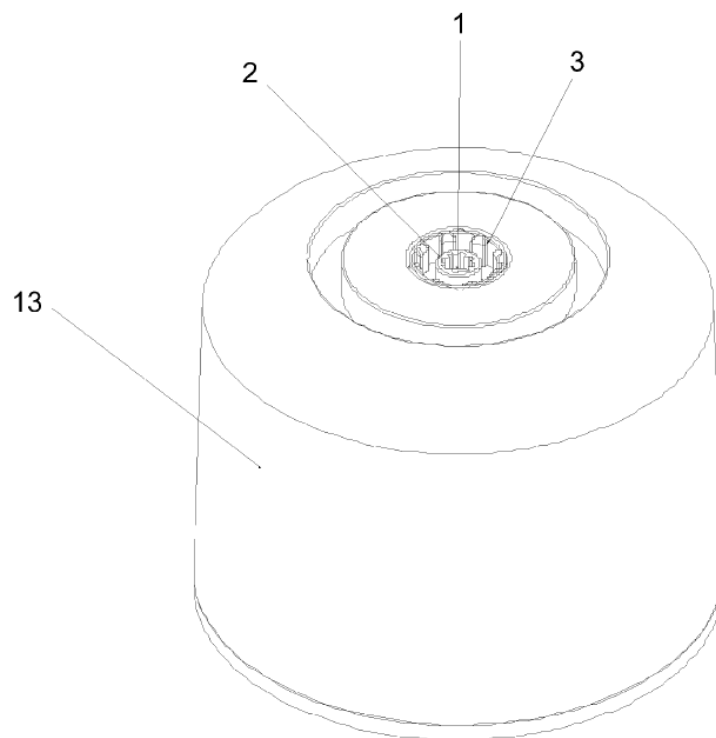


FIG. 1

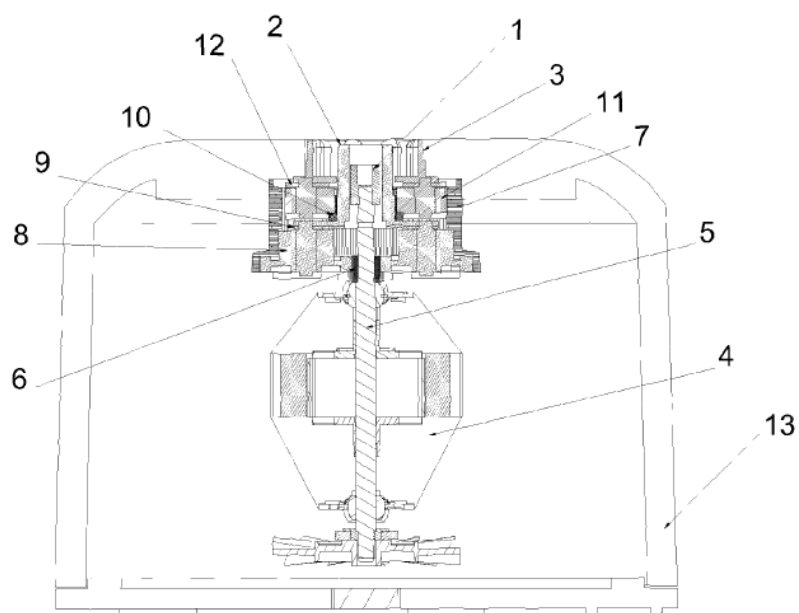


FIG. 2

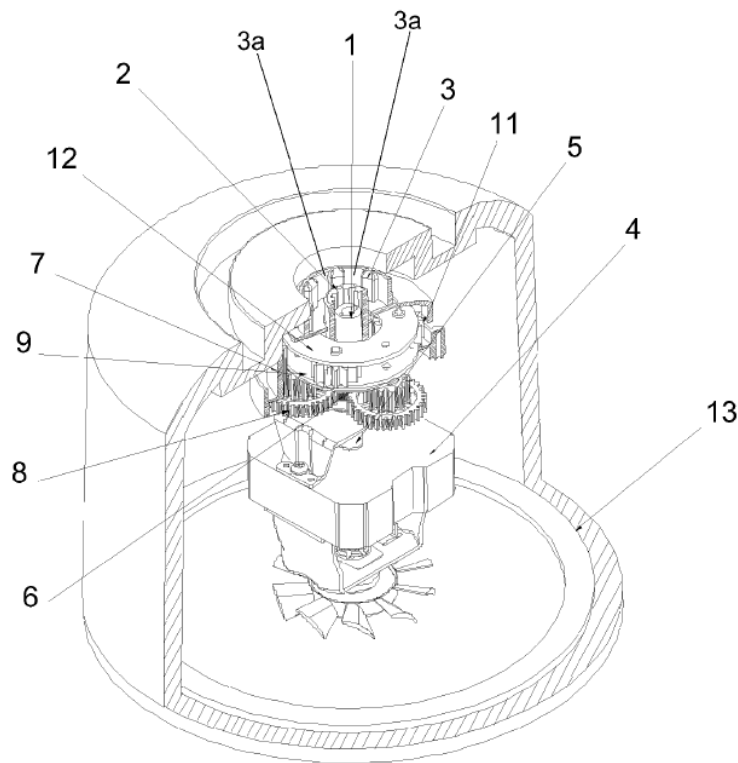


FIG. 3

Figure 1 depicts a perspective view of base 13 and identifies first, second, and third drive outlets 1, 2, and 3, where each drive outlet operates at a different speed. Ex. 1001, 2:17–19, 2:38–41. Figure 2 provides a cross-sectional view of the food processor, including the multiple drive system, and Figure 3 provides a perspective view of the internal components of the multiple drive system. *Id.* at 2:20–24.

Motor 4 is mounted directly to first drive outlet 1 through shaft 5 and drives first drive outlet 1 at a selected speed. Ex. 1001, 2:43–45. Shaft 5 also drives first sun gear 6 and, in turn, planet gears 8, which revolve around first sun gear 6 and run within ring gear 7. *Id.* at 2:45–47. Second drive outlet 2 is mounted on arm 9 of planet gears 8 and is driven at a speed that differs from the speed of the first drive outlet. *Id.* at 2:49–51. Second drive

outlet 2 is also coupled with second sun gear 10 and drives planet gears 11, which revolve around second sun gear 10 and run inside ring gear 7. *Id.* at 2:52–55. Third drive outlet 3 is mounted on arm 12 of planet gears 11, and planet gears 11 drive third drive outlet 3 at a different speed from the first and second drive outlets. *Id.* at 2:56–58. Planet gears 8 and planet gears 11 include two to four gears. *Id.* at 2:48–49, 2:55–56. The varied speed of the second and third drive outlets is dictated by the gear ratio of the planetary gears and not by changing the voltage of motor 4. *Id.* at 2:66–3:3.

The first, second, and third drive outlets are cylindrical-shaped or round-shaped and the inner wall of each drive outlet includes key grooves 3a, which couple to blades or tools of the food processor. Ex. 1001, 2:60–63.

C. Challenged Claims

Claims 1 and 10 of the '627 patent are independent and are reproduced below.

1. A multiple drive system for a food processor or mixer, the system comprising:
 - a first drive outlet coupled to a central shaft and a motor, the motor drives the first drive outlet at a selected speed;
 - a second drive outlet coupled to a set of components of a planetary gear system and driven by the gear system at a speed different from the first drive outlet;
 - a third drive outlet coupled to a second set of components of the planetary gear system and driven by the gear system at a speed different from the speed of the first drive outlet and different from the speed of the second drive outlet; and
 - a base of the food processor or mixer, upon which the multiple drive system is mounted.

Ex. 1001, 3:19–32.

10. A multiple drive system for a food processor and mixer, the system comprising:

a central shaft and a motor, coupled to a first drive outlet, the motor drives the first drive outlet at a selected speed,

a planetary gear system comprising a first component having a first sun gear with a first set of planet gears, and a second component having a second sun gear with a second set of planet gears, the second component mounted parallel to and above the first component;

a second drive outlet surrounding the first drive outlet and coupled with the planetary gear system;

a third drive outlet surrounding the second drive outlet and coupled with the planetary gear system;

wherein the gear system drives the second drive outlet and third drive outlet at a different speed from the speed of the first drive outlet according to a gear ratio of the planetary gear system.

Ex. 1001, 4:14–30.

D. The Prior Art

We instituted *inter partes* review of the '627 patent on six asserted grounds of unpatentability, which rely on the following three references:

Brezovnik	US 6,164,812	Dec. 26, 2000	Ex. 1003
Liang	CN 101731960 A	June 16, 2010	Ex. 1004 ³
Beaudet	US 6,189,441 B1	Feb. 20, 2001	Ex. 1006

³ An English-language translation of Exhibit 1004 appears as Exhibit 1005. Our citations to Liang are to Exhibit 1005.

E. Asserted Grounds of Unpatentability

We instituted *inter partes* review of claims 1–17 of the '627 patent on the following grounds of unpatentability.

References	Basis	Claims Challenged ⁴
Brezovnik	§ 102(b)	1–6, 9, and 10–17
Liang	§ 102(a)	1–3 and 9
Brezovnik	§ 103(a)	1–17
Liang	§ 103(a)	7
Brezovnik and Liang	§ 103(a)	2 and 7–11, and 14–17
Brezovnik, Liang, and Beaudet	§ 103(a)	2

Although we instituted trial on claims 1–17 and Huiyang Allan did not file a Patent Owner Response disputing any position in our Decision on Institution, we still must analyze Homeland's positions in the Petition to determine if Homeland has demonstrated if the claims are unpatentable by a preponderance of the evidence. *See* 35 U.S.C. §§ 316(e), 318; *see also* 35 U.S.C. § 314(a) (providing that the threshold standard for instituting an *inter partes* review is a reasonable likelihood of prevailing, not a preponderance of the evidence).

⁴ The Petition summarizes the grounds of unpatentability such that each ground encompasses most or all of the claims. *See* Pet. 3. Our claim listings correspond to actual positions taken in Section VI of the Petition. *See id.* at 14–60.

II. ANALYSIS

A. Claim Construction

In an *inter partes* review, claim terms in an unexpired patent are given their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); *see also* *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2142–46 (2016) (concluding that 37 C.F.R. § 42.100(b) “represents a reasonable exercise of the rulemaking authority that Congress delegated to the Patent Office”). Under the broadest reasonable construction standard, claim terms are generally given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). Also, we are careful not to read a particular embodiment appearing in the written description into the claim if the claim language is broader than the embodiment. *See In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993) (“[L]imitations are not to be read into the claims from the specification.”).

Homeland explicitly construes the claim terms “coupled to” or “coupled with” (claims 1–18) and “driven directly” (claim 9). Pet. 5–8. As will be evident from our analysis below, we need not explicitly construe the term “coupled with” for this Decision. *See Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (construing *explicitly* only those claim terms in controversy and only to the extent necessary to resolve the controversy). We do construe “driven directly” and an additional term: “wherein the motor with the central shaft is mounted directly to the first drive outlet” (claim 2).

1. “wherein the motor with the central shaft is mounted directly to the first drive outlet”

Claim 2 depends from claim 1 and further recites, in relevant part, “wherein the motor with the central shaft is mounted directly to the first drive outlet.” Ex. 1001, 3:33–36. Homeland does not offer an explicit construction of this term. Homeland implicitly construes this term to encompass a configuration where a central shaft is mounted directly to the first drive outlet, yet the motor is indirectly attached to the central shaft. See, e.g., Pet. 18 (“Under the broadest reasonable construction, the motor with the central shaft being mounted directly to the first drive outlet does not require that the central shaft come directly from the motor.”); see also Ex. 1003, Figs. 5, 7 (showing shaft 31 of electric motor 29 (not indicated) indirectly driving toothed pulley 157, which drives main shaft 155).

Homeland contends that this construction is appropriate “because [of] the patentee’s choice of the word ‘with’ instead of a more specific term to describe the connection or interaction between the motor and the central shaft.” Pet. 18. Homeland explains that claim 2 requires at least the central shaft be mounted directly to the first drive outlet, not both the motor and central shaft. Tr. 18:22–19:15.

We are not persuaded that proper construction of the term “wherein the motor with the central shaft is mounted directly to the first drive outlet” encompasses an indirect connection or interaction between the motor and central shaft. Claim 2 covers a specific structure—the motor with the central shaft—and that specific structure is *mounted* directly to the first drive outlet. The word “mounted” conveys a physical arrangement between the motor, shaft, and first drive outlet, such that there is a direct connection or interaction between those three components. We are not persuaded that the

use of the word “with” instead of more specific language describing the physical relationship between the motor and the central shaft allows claim 2 to encompass a structure with only the central shaft mounted directly to the first drive outlet. Such an interpretation of claim 2 reads the term “motor” out of the claim. *See Merck & Co. v. Teva Pharms. USA, Inc.*, 395 F.3d 1364, 1372 (Fed. Cir. 2005) (“A claim construction that gives meaning to all the terms of the claim is preferred over one that does not do so.”).

In light of the arguments and evidence in this record, including the Specification and prosecution history, as well as prior art references that show the general knowledge of an artisan of ordinary skill, we construe the claim phrase “wherein the motor with the central shaft is mounted directly to the first drive outlet,” broadly, but reasonably as requiring both the motor and central shaft to be mounted directly to the first drive outlet. *See, e.g.*, Ex. 1001, Fig. 2 (depicting motor 4 and shaft 5 mounted directly to first drive outlet 1); *id.* at 2:43–45 (“[M]otor 4 of the system with a shaft 5 is mounted directly to the first drive outlet 1 to drive the first drive outlet 1 at a selected speed.”).

2. “directly driven”

Claim 9 depends from claim 1 and further recites “the first drive outlet is driven directly by the motor; and the second drive outlet and the third drive outlet are each driven at a different speed according to a gear ratio of the planetary gear system, without changing an input voltage.” Ex. 1001, 4:8–13. Homeland contends that “‘driven directly’ means that the outlet is driven by the motor without going through any change of driving speed.” Pet. 7. Homeland explains that the embodiment disclosed in the ’627 patent does not have the motor directly drive (in a physical sense) the first drive

outlet—instead, the motor drives the first drive outlet through shaft 5. *Id.* Homeland contends that this indirect relationship between motor 4 and first drive outlet 1 supports a construction for the term “driven directly” that requires the outlet to be driven by the motor without going through any change of driving speed. *Id.* at 8. Homeland also points to language in the Specification that contrasts “driven directly” with “driven at a different speed.” *See id.*

We agree with Homeland that the proper construction for the term “driven directly” is “driven by the motor without going through any change of driving speed.” As we discussed above in connection with our construction of claim 2, Figure 2 of the ’627 patent embodies a structure where motor 4 and shaft 5 are *mounted* directly to first drive outlet 1. The word “mounted” dictates a physical relationship between the motor, shaft, and the first drive outlet. In contrast, claim 9 requires the first drive outlet to be *driven* directly by the motor—which does not prescribe a physical relationship between the components but instead describes the transfer of power from the motor to the first drive outlet to drive the outlet. Accordingly, the use of the word “directly” in claim 9 to modify “driven” suggests a different meaning for the word than its use in claim 2 to modify “mounted.”

We base our construction of “driven directly” on the words of claim 9 themselves, which require the first drive outlet to be “directly driven” but the second and third drive outlets to be “at different speeds” from the first drive outlet, that is, indirectly driven. “[T]he claim construction inquiry . . . begins and ends in all cases with the actual words of the claim.” *Renishaw PLC v. Marposs Societa’ per Azioni*, 158 F.3d 1243, 1248 (Fed. Cir. 1998)

(citations omitted). Homeland’s proposed construction comports with the use of the term “directly driven,” both in the claims themselves and in the Specification. *See* Ex. 1001, 2:66–33 (“The first drive outlet 1 is driven directly by the motor 4. The second drive outlet 2 and the third drive outlet 3 are each driven at a different speed according to the gear ratio of the planetary gear system and without changing the input voltage.”); *see e.g.*, *Trivascular, Inc. v. Samuels*, 812 F.3d 1056, 1062 (Fed. Cir. 2016) (“[T]he ‘use of the words in the context of the written description and customarily by those of skill in the relevant art [] accurately reflects both the “ordinary” and “customary” meaning of the terms in the claims.’”).

In light of the arguments and evidence in this record, including the Specification and prosecution history, as well as prior art references that show the general knowledge of an ordinarily skilled artisan, we construe the claim phrase “directly driven,” broadly, but reasonably to mean “driven by the motor without going through any change of drive speed.”

B. Overview of the Prior Art References

We instituted trial on grounds of unpatentability that rely on grounds based on Brezovnik, Liang, and Beaudet. *See* Dec. on Inst. 54. We summarize these three references below:

1. Brezovnik

Brezovnik, titled “Electric Food Processor having at least Three Mutually Concentric Output Drives,” issued December 26, 2000, and is directed “to an electric food processor having . . . an electric motor with a motor shaft which, via a gear mechanism, drives at least three concentric output drives at different rotational speeds.” Ex. 1003, [54], [45], 1:8–12.

Brezovnik’s Figure 7 is reproduced below.

Fig. 7

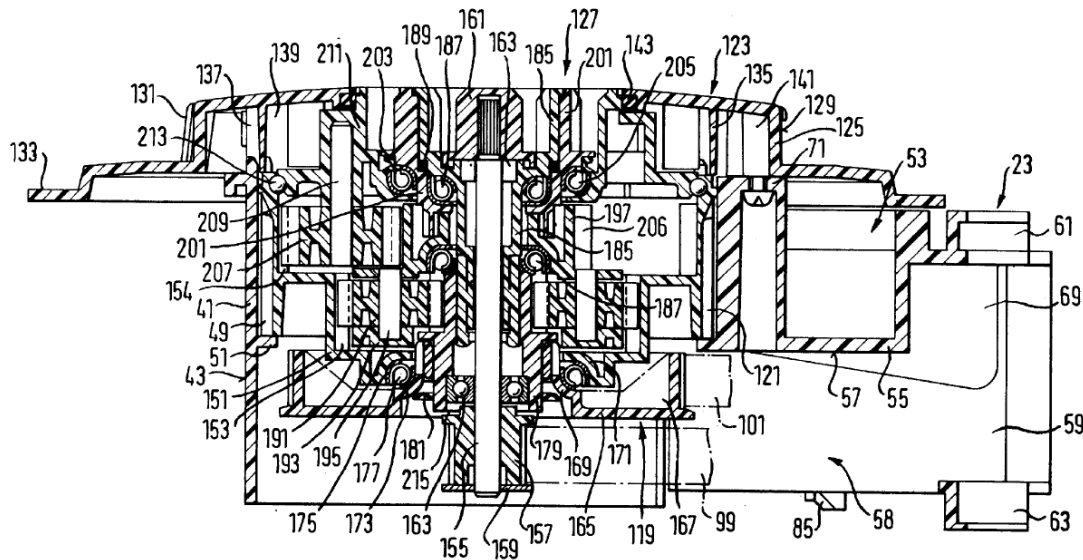


Figure 7 depicts a sectional view of the gear system of Brezovnik's food processor. Ex. 1003, 3:43–44. The drive outlets of Brezovnik's food processor are driven by gear unit 119. *See id.* at 7:30–8:48. Output drive shaft 155 is rotatably mounted in the center of gear unit 119, with its lower end section fastened to toothed belt pulley 157, which is driven by belt 99. *Id.* at 5:37–40, 7:39–44. Belt 99 is attached to intermediate shaft 97, which is driven by belt 95 attached to motor shaft 31 of electric motor 29. *Id.* at 4:7–9, 5:31–40. At the upper end section of shaft 155 is first coupling bush 161, which accommodates a working tool driven by shaft 155. *Id.* at 7:44–51.

Gear unit 119 includes outer internal gear wheel 151, which has first and second sets of inner teeth 153, 154, on which gear wheels of a planetary gear mechanism roll. Ex. 1003, 7:30–39. Toothed belt pulley 165 is concentric with toothed belt pulley 157 and rotationally fixed to sun wheel 179. *Id.* at 7:55–57, 7:67–8:4. Sun wheel 179 is connected to second coupling bush 185 and drives four first planet gear wheels 191, which run on

inner toothing 153 on internal gear wheel 151. *Id.* at 8:4–15. Planet gear wheels 191 are rotationally fixed to first planet carrier 197, which is connected to third coupling bush 201. *Id.* at 8:15–21.

First planet carrier 197, serving as a sun gear, drives three second planet gear wheels 207 around needle rollers 209, which contact second planet carrier 211. Ex. 1003, 8:27–32. The upper end section of second planet carrier 211 forms fourth coupling bush 211. *Id.* at 8:32–33.

Output drive shaft 155 rotates at the speed of motor shaft 31—about 8,000 to 12,000 revolutions per minute (rpm). Ex. 1003, 8:46–48. The transmission ratios of the second, third, and fourth coupling bushes 185, 201, and 211 are about 5:1, 3.8:1, and 3.1:1, respectively, resulting in speeds for these four output drives of 12,000; 2,400; 630; and 200 rpm. *Id.* at 8:50–55.

2. *Liang*

Liang, titled “Electric Food Processor with At Least Three Coaxial Drive Outlets,” published June 16, 2010. Ex. 1005, 2.⁵ The application that matured into the ’627 patent was filed November 24, 2010, making Liang prior art under 35 U.S.C. § 102(a). See Pet. 12. Liang is directed to a food processor with a motor that “drives at least three coaxial drive outlets at different rotation[al] speeds through a drive mechanism.” Ex. 1005 ¶ 1.

Liang’s Figures 2 and 4 are reproduced below.

⁵ Page 1 of Exhibit 1005 provides an affidavit of the translator. Liang begins on page 2 of Exhibit 1005.

Planet drive mechanism 45 (not enumerated in the figures above) includes first and second planetary gear sets 10 and 11. Ex. 1005 ¶ 31. First planetary gear set 10 includes planet gear 12 that engages with sun gear 13 and ring gear 14, with planet gear 12 supported on planet gear arm 15. *Id.* Second planetary gear set 11 includes planet gear 16 that engages sun gear 17 and ring gear 18, with planet gear 16 supported by planet gear arm 19. *Id.* Ring gear 18 and planet gear arm 15 are rotationally fixed. *Id.*

Motor shaft 22 is rotationally fixed to sun gear 13 and drives the first drive outlet—spline hub 24—such that sun gear 13 and the first drive outlet are directly driven at the speed of the motor. Ex. 1005 ¶ 32. Ring gear 14 provides the second drive outlet and planet gear arm 19 provides the third drive outlet. *Id.*

Spline hub 24, ring gear 14, planet gear arm 19, and outlet gear 30 are coaxial, and rotate around shaft 43 at different speeds. Ex. 1005 ¶ 35. In an embodiment of Liang's food processor, the motor rotates at 24,000 rpm, and the speed ratio provided to spline hub 24 (the first drive outlet) is 1:1. *Id.* ¶ 37. The reduction ratio for the second drive outlet, ring gear 14, preferably ranges between 1:2 and 1:10. *Id.* The reduction ratio for the third drive outlet, planet gear arm 19, preferably ranges between 1:10 and 1:30. *Id.* The reduction ratio for the fourth drive outlet, outlet gear 30, preferably ranges between 1:100 and 1:200. *Id.*

3. *Beaudet*

Beaudet, titled "Kitchen Robot with Two Output Connections for Removable Working Accessories," issued February 20, 2001. Ex. 1006, (54), (45). Beaudet is directed to a food processor with a vertical drive shaft

and a horizontal drive shaft. See Ex. 1006, 2:47–:55. Beaudet’s Figure 1 is reproduced below.

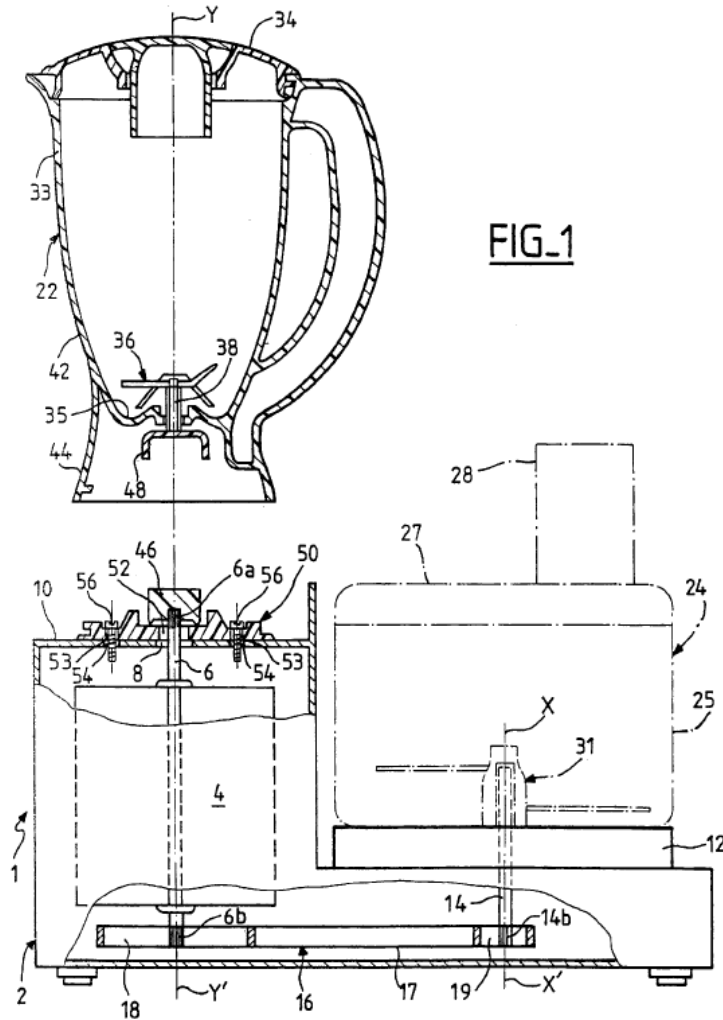


Figure 1 depicts “a schematic view partially in vertical cross section of [Beaudet’s] kitchen robot.” Ex. 1006, 2:34–35. Relevant to our analysis, Beaudet discloses that motor group 4 has vertical output shaft 6 (first drive shaft) and second drive shaft 14. *Id.* at 2:47–55. First drive shaft 6 is driven directly by motor group 4. See *id.* at Fig. 1. First drive shaft 6 is connected, at point 6b, to toothed belt 17 by way of wheel 18 and, similarly, second drive shaft 14 is connected, at point 14b, to toothed belt 17 by way of wheel

19. *Id.* at 2:56–64. Thus, motor group 4 drives both first drive shaft 6 and second drive shaft 14.

C. Analyzed Grounds of Unpatentability

We instituted trial on six grounds of unpatentability for claim 1–17 of the '627 patent: 1) claims 1–6, 9, and 10–17 as anticipated under 35 U.S.C. § 102(b) by Brezovnik; 2) claims 1–3 and 9 as anticipated under 35 U.S.C. § 102(a) by Liang; 3) claims 1–17 as unpatentable under 35 U.S.C. § 103(a) over Brezovnik; 4) claims 2 and 7–11, and 14–17 as unpatentable under 35 U.S.C. § 103(a) over Brezovnik and Liang; 5) claim 2 as unpatentable under 35 U.S.C. § 103(a) over Brezovnik, Liang, and Beaudet; and 6) claim 7 as unpatentable under 35 U.S.C. § 103(a) over Liang.

Petitioner bears the burden of persuasion to prove unpatentability of the challenged claims, and that burden never shifts to Patent Owner.

Dynamic Drinkware, LLC v. Nat'l Graphics, Inc., 800 F.3d 1375, 1378 (Fed. Cir. 2015); *see also* 35 U.S.C. § 316(e) (“[T]he petitioner shall have the burden of proving a proposition of unpatentability by a preponderance of the evidence.”). To prevail, Petitioner must establish the facts supporting its challenge by a preponderance of the evidence. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d). Below, we explain where Petitioner has met its burden with respect to the challenged claims and address each of these grounds in turn.

1. Alleged anticipation of claims 1–6, 9, and 10–17 by Brezovnik

We instituted trial on the ground that Brezovnik anticipates claims 1–6, 9, and 10–17. Dec. on Inst., 54. A “prior art reference—in order to anticipate under 35 U.S.C. § 102—must not only disclose all elements of the claim within the four corners of the document, but must also disclose those

elements ‘arranged as in the claim.’” *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008) (quoting *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983)).

a. Independent claim 1

Independent claim 1 recites “[a] multiple drive system for a food processor or mixer, the system comprising: a first drive outlet coupled to a central shaft and a motor, the motor drives the first drive outlet at a selected speed.” Ex. 1001, 3:19–22 (the “first drive outlet” limitation of claim 1). Homeland contends that Brezovnik’s coupling bush 161 corresponds to the recited first drive outlet. Pet. 14. Homeland further contends that Brezovnik’s coupling bush 161 is coupled to and driven by output drive shaft 155. *Id.* Brezovnik discloses that output shaft 155 is driven through toothed belt pulley 157, which is driven by belt 99. Ex. 1003, 5:37–40, 7:39–44. Belt 99 is attached to intermediate shaft 97, which is driven by belt 95 attached to motor shaft 31 of electric motor 29. *Id.* at 4:7–9, 5:31–40. Homeland explains that Brezovnik discloses that output shaft 155 is driven at essentially the same speed as motor shaft 31. Pet. 15. We agree with Homeland’s characterizations of Brezovnik, which are supported by the evidence of record, and we adopt them as our findings of fact. Based on this record evidence, we find that Brezovnik discloses the “first drive outlet” claim limitation of claim 1.

Claim 1 further recites “a second drive outlet coupled to a set of components of a planetary gear system and driven by the gear system at a speed different from the first drive outlet.” Ex. 1001, 3:23–25 (the “second drive outlet” limitation of claim 1). Homeland contends that Brezovnik’s third coupling bush 201 corresponds to the recited second drive outlet. Pet.

15. Homeland explains that third coupling bush 201 is connected to planet carrier 197, which includes four planet gear wheels 191 and is driven by sun wheel 179. *Id.* Homeland contends that Brezovnik further discloses that third coupling bush 201 is driven at a different speed from the first drive outlet—630 rpm for third coupling bush 201 as compared to 12,000 rpm for coupling bush 161. *Id.* at 16. We agree with Homeland’s characterizations of Brezovnik, which are supported by the evidence of record, and we adopt them as our findings of fact. Based on this record evidence, we find that Brezovnik discloses the “second drive outlet” claim limitation of claim 1.

Claim 1 further recites “a third drive outlet coupled to a second set of components of the planetary gear system and driven by the gear system at a speed different from the speed of the first drive outlet and different from the speed of the second drive outlet.” Ex. 1001, 3:26–30 (the “third drive outlet” limitation of claim 1). Homeland contends that fourth coupling bush 211 corresponds to the recited third drive outlet. Pet. 16. Homeland explains that fourth coupling bush 211 is the upper end section of second planet carrier 211, which interacts with three second planetary gears 207. *Id.* Homeland contends that Brezovnik further discloses that fourth coupling bush 211 is driven at a different speed from the first and second drive outlets—200 rpm for fourth coupling bush 211 as compared to 12,000 rpm for coupling bush 161 and 630 rpm for coupling bush 201. *See id.* at 17; Ex. 1003, 8:49–55. We agree with Homeland’s characterizations of Brezovnik, which are supported by the evidence of record, and we adopt them as our findings of fact. Based on this record evidence, we find that Brezovnik discloses the “third drive outlet” claim limitation of claim 1.

Finally, claim 1 recites “a base of the food processor or mixer, upon which the multiple drive system is mounted.” Ex. 1001, 3:31–32. Homeland contends that Brezovnik’s hood 3 (and unidentified base) corresponds to the recited base. Pet. 17; *see* Ex. 1003, 3:50–53 (“Referring . . . to FIG. 1 . . . , there is seen a flat food processor 1 with a non-illustrated base and a hood 3 placed thereon.”). Homeland explains that “Brezovnik discloses[] ‘a gear-mechanism bearing part 23 . . . [that is] disposed between the hood 3 and the base of the food processor 1.’” Pet. 17–18 (referencing Ex. 1003, 3:63–66). We agree with Homeland’s characterizations of Brezovnik, which are supported by the evidence of record, and we adopt them as our findings of fact. Based on our review of Brezovnik and, based on this record evidence, we find that Brezovnik discloses the recited base.

Upon review of the complete record before us, we conclude that Homeland has shown, by a preponderance of the evidence, that Brezovnik anticipates independent claim 1.

b. Dependent claims 2–6 and 9

Claim 2 depends from claim 1 and further recites “wherein the motor with the central shaft is mounted directly to the first drive outlet to drive the first drive outlet at a selected speed.” Ex. 1001, 3:33–36. Homeland contends that the broadest reasonable interpretation of this claim element encompasses a configuration where, as in Brezovnik, a central shaft is mounted directly to the first drive element, even if that central shaft is indirectly coupled to the motor. Pet. 18. That is, Homeland contends that Brezovnik discloses central shaft 155 connected directly to first coupling bush 161, which is driven at essentially the same speed as the motor. *Id.* As we discussed above, in connection with our claim construction analysis of

the subject matter of claim 2, we do not construe the claim language so broadly. We determined that claim 2 requires both the motor and central shaft be mounted, or connected, directly to the first drive element. As Homeland recognizes, Brezovnik does not disclose such a configuration. *See* Tr. 17:1–17 (“JUDGE MAYBERRY: . . . [I]n your anticipation position with Brezovnik . . . it’s okay to have the motor indirectly attached to the shaft, but the shaft then mounted directly to the first drive outlet. MR. TROJAN: That’s absolutely correct.”).

Accordingly, we find that Homeland has not shown, by a preponderance of the evidence, that Brezovnik anticipates claim 2.

Claim 3 depends from claim 1 and further recites “wherein the central shaft is coupled with a first sun gear of the planetary gear system and drives a first set of planet gears which mesh within a ring gear.” Ex. 1001, 3:37–40. Homeland contends that “Brezovnik discloses a sun wheel 179, which is driven by toothed belt pulleys 165 and 157, which in turn is driven by the central shaft 155.” Pet. 20 (referencing Ex. 1003, 7:40–43, 7:55–57, 7:67–8:4); *see also* Ex. 1007 ¶ 81 (providing a claim chart entry for claim 3 and Brezovnik). Homeland contends that Brezovnik further discloses that four planet gears 191 are driven by sun gear 179 and run on first inner toothing 153 of internal gear wheel 151 (the alleged ring gear). Pet. 20–21.

We agree with Homeland’s characterizations of Brezovnik, which are supported by the evidence of record, and we further credit Dr. Jones’s⁶ testimony that sun wheel 179 is driven by central shaft 155. We adopt this

⁶ Dr. James William Jones provides declaration testimony for Homeland. *See* Ex. 1007. We find, based on Dr. Jones’s level of education and experience, that he is capable of providing credible testimony on the subject matter of the ‘627 patent.

evidence as our factual findings. From these facts, we find that Brezovnik discloses the subject matter of claim 3. Accordingly, based on the complete record before us, we find that Homeland has shown, by a preponderance of the evidence, that Brezovnik anticipates claim 3.

Claim 4 depends from claim 3 and further recites “wherein the first set of planet gears comprises of two to four gears, and the second drive outlet is mounted on an arm of the first set of planet gears to be driven at a selected different speed.” Ex. 1001, 3:41–45. Homeland contends that Brezovnik’s third coupling bush 201, the alleged “second drive element,” is connected to first planet carrier 197 and that first planet carrier 197 is an arm of the first set of planet gears. Pet. 21–22. Homeland contends that Brezovnik further discloses that the first set of planet gears—planet gear wheels 191—include four gears. *Id.* at 22.

We agree with Homeland’s characterizations of Brezovnik, which are supported by the evidence of record, and we adopt them as our findings of fact. Based on this record evidence, we find that Brezovnik discloses the subject matter of claim 4. Accordingly, based on the complete record before us, we find that Homeland has shown, by a preponderance of the evidence, that Brezovnik anticipates claim 4.

Claim 5 depends from claim 3 and further recites “wherein the second drive outlet is mounted on an arm of the first set of planet gears to be driven at a selected different speed, the second drive outlet is coupled with a second sun gear meshed in the ring gear and drives a second set of planet gears.” Ex. 1001, 3:46–51. Homeland contends that Brezovnik’s third coupling bush 201, the alleged second outlet drive, is directly connected to first planet carrier 197, which also serves as a sun gear for the second set of planet

gears. Pet. 23. Homeland further explains that first planet carrier 197 drives three second planet gear wheels 207, which roll on the inner toothing 154 of internal gear wheel 151 (the alleged ring gear), such that first planet carrier 197 is meshed in gear 151. *Id.* at 24.

We agree with Homeland’s characterizations of Brezovnik, which are supported by the evidence of record, and we adopt them as our findings of fact. Based on this record evidence, we find that Brezovnik discloses the subject matter of claim 5. Accordingly, based on the complete record before us, we find that Homeland has shown, by a preponderance of the evidence, that Brezovnik anticipates claim 5.

Claim 6 depends from claim 5 and further recites “wherein the second set of planet gears comprises of two to four gears, and the third drive outlet is mounted on an arm of the second set of planet gears to be driven at a selected different speed.” Ex. 1001, 3:52–56. Homeland contends that Brezovnik discloses that the alleged third drive element—fourth coupling bush 211—forms the upper end section of second planet carrier 211, with second planet carrier 211 being the recited “arm of the second set of planet gears.” Pet. 24–25. Homeland contends that second planet carrier 211 and fourth coupling bush 211 form a single piece, apparently arguing that the broadest reasonable interpretation of the term “mounted on” encompasses a single-piece construction. *See id.* at 25. As Homeland contended with respect to its analysis of claim 5 and Brezovnik, the second set of planet gears includes three gear wheels 207. *See id.* at 24.

Based on the record before us, we find that Brezovnik fails to disclose the subject matter of claim 6. Specifically, we find that second planet carrier 211 and fourth coupling bush 211 form a single piece. We conclude that the

broadest reasonable interpretation of the term “mounted on” would not encompass a single-piece construction, as we construe the term “mounted on,” consistent with the Specification, to mean one piece attached to another. *See, e.g.*, Ex. 1001, Figs. 2 and 3 (depicting second drive outlet 3 attached to arm 9), 2:48–51. Because planet carrier 211 and fourth coupling bush 211 form a single piece, bush 211 is not attached to planet carrier 211. Homeland concedes this point during oral argument. *See* Tr. 15:23–16:7 (conceding that, with respect to Brezovnik and claim 6, Homeland’s argument “appear[s] to be more of an obviousness argument than anticipation, I would agree with that.”).

Accordingly, we find that Homeland has not shown, by a preponderance of the evidence, that Brezovnik anticipates claim 6.

Claim 9 depends from claim 1 and further recites “the first drive outlet is driven directly by the motor; and the second drive outlet and the third drive outlet are each driven at a different speed according to a gear ratio of the planetary gear system, without changing an input voltage.” Ex. 1001, 4:8–13. Homeland contends that Brezovnik’s first coupling bush 161 is driven directly by motor shaft 31 because coupling bush 161 is driven at essentially the same speed as motor shaft 31. Pet. 29; *see also* Pet. 7–8 (contending that the broadest reasonable interpretation of the term “driven directly” is “driven by the motor without going through any change of driving speed”). Homeland further contends that Brezovnik discloses that its food processor has gear ratios of 3.8:1 and 3.1:1 for the third and fourth coupling bushes such that these coupling bushes “are driven at different speeds according to a gear ratio without changing an input voltage.” *Id.*; *see also* Ex. 1003, 8:49–53 (providing gear ratios for the coupling bushes).

We agree with Homeland’s characterizations of Brezovnik, which are supported by the evidence of record, and we adopt them as our findings of fact. Based on this record evidence, we find that Brezovnik discloses the subject matter of claim 9. Accordingly, based on the complete record before us, we find that Homeland has shown, by a preponderance of the evidence, that Brezovnik anticipates claim 9.

In summary, we conclude, based on the complete record, that Homeland has shown, by a preponderance of the evidence, that Brezovnik anticipates claims 3–5 and 9, but not claims 2 and 6.

c. Independent claim 10

Independent claim 10 recites “[a] multiple drive system for a food processor and mixer, the system comprising: a central shaft and a motor, coupled to a first drive outlet, the motor drives the first drive outlet at a selected speed.” Ex. 1001, 4:14–17 (the “central shaft” limitation). Homeland contends that central shaft 155 and electric motor 29 correspond to the recited central shaft and motor, respectively. Pet. 30. Homeland further contends that first coupling bush 161 corresponds to the recited first drive outlet. *Id.* Brezovnik discloses that output shaft 155 is driven through toothed belt pulley 157, which is driven by belt 99. Ex. 1003, 5:37–40, 7:39–44. Belt 99 is attached to intermediate shaft 97, which is driven by belt 95 attached to motor shaft 31 of electric motor 29. *Id.* at 4:7–9, 5:31–40. That is, motor 29 is coupled to shaft 155 through belts and intermediate shafts. Homeland explains that Brezovnik discloses that output shaft 155 is driven at a selected speed—essentially the same speed as motor shaft 31. Pet. 30. We agree with Homeland’s characterizations of Brezovnik, which are supported by the evidence of record, and we adopt them as our findings

of fact. Based on this record evidence, we find that Brezovnik discloses the “central shaft” claim limitation.

Claim 10 also recites “a planetary gear system comprising a first component having a first sun gear with a first set of planet gears.” Ex. 1001, 4:18–19 (the “first planet gears” limitation). Homeland contends that the four first planet gear wheels 191 and sun wheel 179 correspond to the recited first component. Pet. 30. Claim 10 further recites “a second component having a second sun gear with a second set of planet gears, the second component mounted parallel to and above the first component.” Ex. 1001, 4:19–24 (the “second planet gears” limitation). Homeland contends that the three second planet gear wheels 207 and first planet carrier 197 correspond to the recited second component, with first planet carrier 197 serving as a sun wheel for this planetary gear component. Pet. 31. Homeland explains that the three second planet gear wheels 207 and first planet carrier 197 are “mounted parallel to and above the first component” as required by the “second planet gear” limitation because the first component “runs ‘on the lower, first inner toothing 153 on the internal gear wheel 151’” and the second “component runs ‘on the upper end section of the internal gear wheel 151.’” *Id.* at 31–32 (referencing Ex. 1003, 8:12–15, 8:33–35). We agree with Homeland’s characterizations of Brezovnik, which are supported by the evidence of record, and we adopt them as our findings of fact. Based on this record evidence, we find that Brezovnik discloses the “first planet gears” and “second planet gears” claim limitations.

Claim 10 also recites “a second drive outlet surrounding the first drive outlet and coupled with the planetary gear system.” Ex. 1001, 4:23–24 (the “second drive outlet” limitation of claim 10). Homeland contends that third

coupling bush 201 surrounds first coupling bush 161 and is coupled to the planetary gear system, as it is driven by planet carrier 197. Pet. 32–33; *see also* Ex. 1003, Fig. 7 (depicting third coupling bush 201 surrounding first coupling bush 161). As Homeland explains, planet carrier 197 interacts with the four first planet gear wheels 191, which are driven by sun wheel 179. *Id.* at 33. We agree with Homeland’s characterizations of Brezovnik, which are supported by the evidence of record, and we adopt them as our findings of fact. Based on this record evidence, we find that Brezovnik discloses the “second drive outlet” claim limitation of claim 10.

Claim 10 further recites “a third drive outlet surrounding the second drive outlet and coupled with the planetary gear system.” Ex. 1001, 4:25–26 (the “third drive outlet” limitation of claim 10). Homeland contends that fourth coupling bush 211, which surrounds the third coupling bush 201, corresponds to the recited third drive outlet. Pet. 33 (referencing Ex. 1003, Fig. 7). Homeland explains that “second planet carrier 211 interacts with three second planet gear wheels 207, which in turn orbit[] around ‘the first planet carrier 197 that serves as the sun wheel.’” *Id.* at 33–34 (referencing Ex. 1003, 8:27–30). We agree with Homeland’s characterizations of Brezovnik, which are supported by the evidence of record, and we adopt them as our findings of fact. Based on this record evidence, we find that Brezovnik discloses the “third drive outlet” claim limitation of claim 10.

Finally, claim 10 recites “wherein the gear system drives the second drive outlet and third drive outlet at a different speed from the speed of the first drive outlet according to a gear ratio of the planetary gear system.” Ex. 1001, 4:27–30. Homeland contends that Brezovnik’s gear system drives the second and third drive outlets at different speeds in accordance with the gear

ratios of the planetary gear system. Pet. 34. Homeland explains that Brezovnik discloses that fourth coupling bush 211 is driven at 200 rpm as compared to 12,000 rpm for coupling bush 161 (the alleged first outlet drive) and 630 rpm for coupling bush 201 (the alleged second outlet drive). *See id.*; Ex. 1003, 8:49–55. Homeland further contends that this speed difference is attributable to the planetary gear system gear ratios—about 3.8:1 and 3.1:1 for the third coupling bush 201 and fourth coupling bush 211, respectively. *Id.* We agree with Homeland’s characterizations of Brezovnik, which are supported by the evidence of record, and we adopt them as our findings of fact. Based on this record evidence, we find that Brezovnik discloses the subject matter of the “wherein” clause of claim 10.

Upon review of the complete record before us, we conclude that Homeland has shown, by a preponderance of the evidence, that Brezovnik anticipates independent claim 10.

e. Dependent claims 11–17

Claim 11 depends from claim 10 and further recites “wherein the shaft is coupled with the first sun gear and drives the first set of planet gears.” Ex. 1001, 4:31–33. Homeland contends that “Brezovnik discloses [] sun wheel 179, which is driven by toothed belt pulleys 165 and 157, which in turn is driven by . . . output drive shaft 155” and that sun wheel 179 drives first planet wheels 191. Pet. 35; *see also* Ex. 1007 ¶ 94 (providing a claim chart entry for claim 11 and Brezovnik).

We agree with Homeland’s characterizations of Brezovnik, which are supported by the evidence of record, and we adopt them as our findings of fact. Based on this record evidence, we find that Brezovnik discloses the subject matter of claim 11. Accordingly, based on the complete record

before us, we find that Homeland has shown, by a preponderance of the evidence, that Brezovnik anticipates claim 11.

Claim 12 depends from claim 10 and further recites “wherein the second drive outlet is mounted on an arm of the first set of planet gears and is coupled with the second sun gear.” Ex. 1001, 4:34–37. Homeland contends that the term “arm” encompasses a planet carrier. Pet. 36. Homeland further contends that Brezovnik’s first planet carrier 197 corresponds to the recited arm of the first set of planet gears and Brezovnik’s third coupling bush 201 corresponds to the second drive outlet, which is mounted on first planet carrier 197. *Id.* Homeland also contends that first planet carrier 197 is the sun wheel of the second set of planet gears, such that third coupling bush 201 is also coupled with the second sun gear as required by claim 12. *Id.*

We agree with Homeland’s characterizations of Brezovnik, which are supported by the evidence of record, and we adopt them as our findings of fact. Based on this record evidence, we find that Brezovnik discloses the subject matter of claim 12. Accordingly, based on the complete record before us, we find that Homeland has shown, by a preponderance of the evidence, that Brezovnik anticipates claim 12.

Claim 13 depends from claim 10 and further recites “wherein the third drive outlet is mounted on an arm of the second set of planet gears.” Ex. 1001, 4:38–40. Homeland contends that Brezovnik’s fourth coupling bush 211 corresponds to the recited third drive outlet and that fourth coupling bush 211 forms the upper end of second planet carrier 211. Pet. 37. That is, the broadest reasonable interpretation of the term “mounted on” encompasses a single-piece construction.

As we discussed above, in connection with our analysis of whether Brezovnik anticipates claim 6, we find that second planet carrier 211 and fourth coupling bush 211 form a single piece. We conclude that the broadest reasonable interpretation of the term “mounted on” would not encompass a single-piece construction, as we construe the term “mounted on,” consistent with the Specification, to mean one piece attached to another. *See, e.g.*, Ex. 1001, Figs. 2 and 3 (depicting second drive outlet 3 attached to arm 9), 2:48–51. Because planet carrier 211 and fourth coupling bush 211 form a single piece, bush 211 is not attached to planet carrier 211. Homeland concedes this point as discussed with respect to claim 6. *See* Tr. 15:23–16:7.

Accordingly, we find that Homeland has not shown, by a preponderance of the evidence, that Brezovnik anticipates claim 13.

Claim 14 depends from claim 10 and further requires “a base upon which the shaft and the motor is mounted.” Ex. 1001, 4:41–43. Homeland contends that hood 3 corresponds to the recited base. Pet. 38; *see also* Ex. 1003, 3:50–53 (“Referring . . . to FIG. 1 . . . , there is seen a flat food processor 1 with a non-illustrated base and a hood 3 placed thereon.”).

We agree with Homeland’s characterizations of Brezovnik, which are supported by the evidence of record, and we adopt them as our findings of fact. Based on this record evidence, we find that Brezovnik discloses the subject matter of claim 14—a non-illustrated base on which hood 3 is placed. Accordingly, based on the complete record before us, we find that Homeland has shown, by a preponderance of the evidence, that Brezovnik anticipates claim 14.

Claim 15 depends from claim 10 and further recites “wherein the first set of planet gears comprises two to four gears meshed with a ring gear.”

Ex. 1001, 4:44–46. Homeland contends that Brezovnik discloses that its first set of planet gears include four planet gear wheels 191. Pet. 38.

We agree with Homeland’s characterizations of Brezovnik, which are supported by the evidence of record, and we adopt them as our findings of fact. Based on this record evidence, we find that Brezovnik discloses the subject matter of claim 15. Accordingly, based on the complete record before us, we find that Homeland has shown, by a preponderance of the evidence, that Brezovnik anticipates claim 15.

Claim 16 depends from claim 10 and further recites “wherein the second set of planet gears comprises two to four gears meshed with a ring gear.” Ex. 1001, 4:47–49. Homeland contends that Brezovnik’s second set of planet gears includes three gear wheels (gear wheels 207). Pet. 39.

We agree with Homeland’s characterizations of Brezovnik, which are supported by the evidence of record, and we adopt them as our findings of fact. Based on this record evidence, we find that Brezovnik discloses the subject matter of claim 16. Accordingly, based on the complete record before us, we find that Homeland has shown, by a preponderance of the evidence, that Brezovnik anticipates claim 16.

Claim 17 depends from claim 10 and further recites “wherein each of the drive outlets comprise a cylindrical or a round shape.” Ex. 1001, 4:50–52. Homeland contends that a bush is typically cylindrical in shape and that third coupling bush 201 is described as “sleeve-like.” Pet. 39. Homeland further cites to Brezovnik’s Figure 7 for depicting cylindrical shaped drive outlets. *Id.*

We agree with Homeland’s characterizations of Brezovnik, which are supported by the evidence of record, and we adopt them as our findings of

fact. Based on this record evidence, we find that Brezovnik discloses the subject matter of claim 17. Accordingly, based on the complete record before us, we find that Homeland has shown, by a preponderance of the evidence, that Brezovnik anticipates claim 17.

In summary, we conclude, based on the complete record, that Homeland has shown, by a preponderance of the evidence, that Brezovnik anticipates claims 11, 12, and 14–17, but not claim 13.

2. Alleged anticipation of claims 1–3 and 9 by Liang

We instituted trial on the ground that Liang anticipates claims 1–3 and 9. Dec. on Inst. 54.

a. Independent claim 1

Independent claim 1 recites “[a] multiple drive system for a food processor or mixer, the system comprising: a first drive outlet coupled to a central shaft and a motor, the motor drives the first drive outlet at a selected speed.” Ex. 1001, 3:19–22 (the “first drive outlet” limitation of claim 1). Homeland contends that Liang’s spline hub 24 corresponds to the recited first drive outlet, which is driven by motor 21 and shaft 22. Pet. 41. Homeland further contends that Liang discloses that spline hub 24 is directly driven at the speed of the motor. *Id.* We agree with Homeland’s characterizations of Liang, which are supported by the evidence of record, and we adopt them as our findings of fact. Based on this record evidence, we find that Liang discloses the “first drive outlet” claim limitation of claim 1.

Claim 1 further recites “a second drive outlet coupled to a set of components of a planetary gear system and driven by the gear system at a speed different from the first drive outlet.” Ex. 1001, 3:23–25 (the “second

drive outlet” limitation of claim 1). Homeland contends that Liang’s ring gear 14 corresponds to the recited second drive outlet. Pet. 42. Homeland explains that ring gear 14 engages planet gear 12 and sun gear 13. *Id.* Homeland contends that Liang further discloses that ring gear 14 is driven at a different speed from the first drive outlet—a speed reduced by a ratio in the range of 1:2 to 1:10. *Id.* We agree with Homeland’s characterizations of Liang, which are supported by the evidence of record, and we adopt them as our findings of fact. Based on this record evidence, we find that Liang discloses the “second drive outlet” claim limitation of claim 1.

Claim 1 further recites “a third drive outlet coupled to a second set of components of the planetary gear system and driven by the gear system at a speed different from the speed of the first drive outlet and different from the speed of the second drive outlet.” Ex. 1001, 3:26–30 (the “third drive outlet” limitation of claim 1). Homeland contends that planet gear arm 19 corresponds to the recited third drive outlet. Pet. 43. Homeland explains that planet gear arm 19 is coupled to Liang’s planetary gear system 11. *Id.* Homeland contends that Liang further discloses that planet gear arm 19 is driven at a different speed from the first and second drive outlets—at a lesser speed dictated by a gear reduction ratio in the range of 1:10 to 1:30. *See id.* We agree with Homeland’s characterizations of Liang, which are supported by the evidence of record, and we adopt them as our findings of fact. Based on this record evidence, we find that Liang discloses the “third drive outlet” claim limitation of claim 1.

Finally, claim 1 recites “a base of the food processor or mixer, upon which the multiple drive system is mounted.” Ex. 1001, 3:31–32. Homeland contends that Liang’s outer casing 40 corresponds to the recited

base. Pet. 44. As seen in Liang's Figure 4, outer casing 40 encases Liang's multiple drive system. *See* Ex. 1005, Fig. 4. We agree with Homeland's characterizations of Liang, which are supported by the evidence of record, and we adopt them as our findings of fact. Based on this record evidence, we find that Liang discloses the recited base.

Upon review of the record before us, we conclude that Homeland has shown, by a preponderance of the evidence, that Liang anticipates independent claim 1.

b. Dependent claims 2, 3, and 9

Claim 2 depends from claim 1 and further recites "wherein the motor with the central shaft is mounted directly to the first drive outlet to drive the first drive outlet at a selected speed." Ex. 1001, 3:33–36. Homeland contends that Liang's figures depict that motor 21 with motor shaft 22 are directly mounted to spline hub 24, the recited first outlet. Pet. 44; *see* Ex. 1005, Fig. 4.

We agree with Homeland's characterizations of Liang, which are supported by the evidence of record, and we adopt them as our findings of fact. Based on this record evidence, we find that Liang discloses the subject matter of claim 2. Accordingly, based on the complete record before us, we find that Homeland has shown, by a preponderance of the evidence, that Liang anticipates claim 2.

Claim 3 depends from claim 1 and further recites "wherein the central shaft is coupled with a first sun gear of the planetary gear system and drives a first set of planet gears which mesh within a ring gear." Ex. 1001, 3:37–40. Homeland contends that Liang discloses that motor shaft 22 is coupled with sun gear 12 of first set of planet gears 10. Pet. 45. Homeland further

contends that Liang discloses that the first set of planet gears 10 mesh with ring gear 14. *Id.*

We agree with Homeland's characterizations of Liang, which are supported by the evidence of record, and we adopt them as our findings of fact. Based on this record evidence, we find that Liang discloses the subject matter of claim 3. Accordingly, based on the complete record before us, we find that Homeland has shown, by a preponderance of the evidence, that Liang anticipates claim 3.

Claim 9 depends from claim 1 and further recites "the first drive outlet is driven directly by the motor; and the second drive outlet and the third drive outlet are each driven at a different speed according to a gear ratio of the planetary gear system, without changing an input voltage." Ex. 1001, 4:8–13. Homeland contends that Liang's first drive outlet (spline hub 24) is driven at the same speed as the motor and that the second (ring gear 14) and third (planet gear arm 19) drive outlets are driven at speeds reduced by a ratio in the range of 1:2 to 1:10 and 1:10 to 1:30, respectively. Pet. 52.

We agree with Homeland's characterizations of Liang, which are supported by the evidence of record, and we adopt them as our findings of fact. Based on this record evidence, we find that Liang discloses the subject matter of claim 9. Accordingly, based on the complete record before us, we find that Homeland has shown, by a preponderance of the evidence, that Liang anticipates claim 9.

In summary, we conclude, based on the complete record, that Homeland has shown, by a preponderance of the evidence, that Liang anticipates claims 2, 3, and 9.

3. *Alleged obviousness of claims 1–17 over Brezovnik*

We instituted trial on the ground that claims 1–17 would have been obvious to one of ordinary skill in the art based on Brezovnik. Dec. on Inst. 54.

Section 103(a) forbids issuance of a patent when “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.”

KSR Int’l Co. v. Teleflex Inc., 550 U.S. 398, 406 (2007).

The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) when available, secondary considerations, such as commercial success, long felt but unsolved needs, and failure of others.⁷ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). We analyze these factual determinations, below.⁸

a. Independent claims 1 and 10 and dependent claims 3–5, 9, 11, 12, and 14–17

With respect to independent claim 1, Homeland contends that “[a]t the very least, Brezovnik renders claim 1 obvious.” Pet. 18. Homeland made a

⁷ The current record does not include any evidence of secondary considerations.

⁸ Homeland does not explicitly define the level of ordinary skill in the art of the ’627 patent. Generally, a Petitioner should specify the level of ordinary skill, but such an omission is not fatal to the petitioner’s position “where the prior art itself reflects an appropriate level and a need for testimony is not shown.” See *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). Based on our review of the record, the prior art of record in this proceeding is indicative of the level of ordinary skill in the art.

similar contention with respect to claim 10. *See* Pet. 34. We recognize that, “[d]espite the often quoted maxim that anticipation is the ‘epitome of obviousness,’ novelty under 35 U.S.C. § 102 and nonobviousness under 35 U.S.C. § 103 are separate conditions of patentability.” *Cohesive Techs., Inc. v. Waters Corp.*, 543 F.3d 1351, 1363 (Fed. Cir. 2008) (internal citation omitted). We interpret Homeland’s contention to mean that, to the extent that we find differences between the subject matter of claims 1 and 10 and Brezovnik, such differences would have been obvious in light of the general knowledge of an artisan of ordinary skill. *See* Pet. 14 (“As illustrated below, Brezovnik (Exhibit 1003) anticipates every claim of the ’627 patent. Brezovnik also renders the claims obvious. For some of the dependent claims, alternative obviousness arguments are also addressed.”). Accordingly, upon review of the record before us, we conclude that Homeland has shown, by a preponderance of the evidence, that Brezovnik renders independent claims 1 and 10 obvious. We base this conclusion on our findings of the scope and content of the prior art, any differences between the claimed subject matter and the prior art (of which we find none), and the level of ordinary skill in the art. *See* Section II.C.1.a and Section II.C.1.c, *supra* (analyzing the scope of Brezovnik in terms of whether the prior art reference anticipates claims 1 and 10). Further, claims 3–5 and 9, which depend, directly or indirectly, from claim 1 and claims 11, 12, and 14–17, which depend directly from claim 10, would have been obvious over Brezovnik for the same reason—that is, because we find that Brezovnik anticipates these claims. *See* Section II.C.1.b and Section II.C.1.d, *supra*.

We have no further evidence to weigh, as the record does not include any evidence of secondary considerations.

Accordingly, we conclude that Homeland has demonstrated, by a preponderance of the evidence, that claims 1, 3–5, 9–12, and 14–17 are unpatentable as obvious over Brezovnik.

b. Claim 2

Claim 2 depends from claim 1 and requires “the motor with the central shaft [be] mounted directly to the first drive outlet to drive the first drive outlet at a selected speed.” Ex. 1001, 3:33–36. Homeland contends that, to the extent we construe the term “mounted directly” to not encompass Brezovnik’s indirect drive system, such a difference is not a patentable distinction. Pet. 19. Homeland reasons that Brezovnik’s gear system would work the same way as disclosed even if the motor was moved to directly underneath central shaft 155. *Id.* That is, moving Brezovnik’s motor to directly beneath (and connected to) central shaft 155 represents a combination of familiar elements which would have yielded the predictable result of driving first drive outlet at the speed of the motor.

As we found, the prior art of record reflects the level or ordinary skill in the art, including that a person having ordinary skill in the art would understand that the motor of a food processor can be directly under the central shaft. *See supra*, n.8; *see, e.g.*, Ex. 1005, Fig. 4 (depicting motor 21 directly connected to shaft 22); Ex. 1006, Fig. 1 (depicting motor 4 directly connected to shaft 6). As Dr. Jones declares, whether the motor is side mounted or mounted directly under the central shaft would not affect how Brezovnik’s gearing rotates the outlet drives. *See* Ex. 1007 ¶¶ 54–59. We find that Homeland’s proposed modification “‘simply arranges old elements

with each performing the same function it had been known to perform’ and yields no more than one would expect from such an arrangement,” providing motivation for the modification. *See KSR Int’l*, 550 U.S. at 417.

Accordingly, based on the complete record before us, we conclude that Homeland has shown, by a preponderance of the evidence, that Brezovnik renders claim 2 obvious.

c. Claims 6 and 13

Claim 6 depends from claim 5 and requires, in relevant part, “the third drive outlet [be] mounted on an arm of the second set of planet gears.” Ex. 1001, 3:52–55. Homeland contends that the recited third drive outlet is fourth coupling bush 211 and recognizes that this bush forms the upper part of second planet carrier 211—the alleged arm of the second set of planet gears. Pet. 24–25. That is, the third drive outlet is integral with the arm of the second set of planet gears. Homeland further contends that, to the extent that such a configuration is not encompassed by the term “mounted on,” that a configuration where fourth coupling bush 211 is not integral with second planet carrier 211 would have been obvious—that is, Homeland’s proposed modification of Brezovnik is to form fourth coupling bush 211 as a separate piece from planet carrier 211. *Id.* at 25. Homeland reasons that Brezovnik discloses that the second drive outlet and associated arm are separate pieces, thus Brezovnik itself recognizes that these components may be separate. *Id.* at 26 (referencing Ex. 1007 ¶¶ 60–64).

Claim 13 recites subject matter similar to claim 6. *See* Ex. 1001, 4:38–40. Homeland contends that claim 13 would have been obvious for the same reasons as claim 6. Pet. 37.

We agree with Homeland’s characterizations of Brezovnik and, further, we agree that Brezovnik itself supplies adequate motivation for a person having ordinary skill in the art to form fourth coupling bush 211 as a separate piece mounted on the upper part of second planet carrier 211. *See KSR Int’l Co.*, 550 U.S. at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)) (“[O]bviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.”). Specifically, we find that Brezovnik’s configuration of third coupling bush 201 (the alleged second drive outlet) as a separate piece mounted on first planet carrier 197 at least suggests to a person having ordinary skill the proposed modification with respect to fourth coupling bush 211 and second planet carrier 211. *See* Ex. 1003, 8:19–21 (“The first planet carrier 197 is firmly connected to a sleeve-like, third coupling bush 201, whose set of teeth projects radially outward.”); Ex. 1007 ¶ 64 (“An ordinarily skilled artisan would know that the third outlet could also be of the same structure as the second outlet.”).

Accordingly, based on the complete record before us, we conclude that Homeland has shown, by a preponderance of the evidence, that Brezovnik renders claims 6 and 13 obvious.

d. Claims 7 and 8

Claim 7 requires, in relevant part, that “each drive outlet ha[ve] an inner wall having a plurality of key grooves.” Ex. 1001, 3:57–4:3. Homeland contends that Brezovnik renders the subject matter of claim 7 obvious. Homeland reasons that Brezovnik expressly discloses that second coupling bush 185 has “internal toothing” (that is, grooves on its internal

wall), such that it would have been obvious to one of ordinary skill to modify all of Brezovnik's outlets to have grooves on the internal wall. Pet. 27–28. Homeland explains that such a modification is just a repeating of a known technique and represents a design choice between “several limited and predictable options.” *Id.* at 28.

On the complete record, we find that Homeland has failed to identify persuasive facts or credible argument as to why a person having ordinary skill in the art would have reason to modify *each* of Brezovnik's drive outlets to have an inner wall having a plurality of key grooves. As the '627 patent describes, “[e]ach of the drive outlets are of a cylindrical shape or round shape where the inner wall of each drive outlet includes a key groove 3a which is coupled to the blade or tools of the of the processor.” Ex. 1001, 2:60–63. We see from Figure 2 of the '627 patent, each of the three drive outlets (drive outlets 1, 2, and 3) have inner walls that receive a tool for the food processor. *See id.*, Fig. 2. That is, a tool fits into grooves 3a in the inner wall of a drive outlet to form a connection, such that rotating the drive outlet causes the tool to rotate, as the tool is engaged with the grooves. *See id.* at 2:60–65.

In contrast, first coupling bush 161 (the alleged first drive outlet) and third coupling bush 201 (the alleged second drive outlet) do not have *inner* walls that receive tools. *See* Ex. 1003, Fig. 7. Instead, these two bushes have outer walls that receive tools. More significantly, third coupling bush 201's inner wall is in contact with second coupling bush 185's outer wall. *See id.* Accordingly, Brezovnik's coupling bushes would all need to be reconfigured to have inner walls that could have grooves to receive tools. Homeland fails to persuasively explain why a person having ordinary skill in

the art would modify Brezovnik such that each drive outlet has inner walls that would then be modified to have grooves. Although we recognize that Brezovnik's second bush 185 has grooves on the inner wall to receive a tool, this fact alone fails to provide adequate support for why an artisan of ordinary skill would modify first coupling bush 161 and third coupling bush 201 to include internal walls with grooves to receive tools. "Although the KSR test is flexible, [we] 'must still be careful not to allow hindsight reconstruction of references . . . without any explanation as to *how* or *why* the [prior art teachings] would be combined to produce the claimed invention.'" *Trivascular, Inc. v. Samuels*, 812 F.3d 1056, 1066 (Fed. Cir. 2016) (citation omitted).

Dr. Jones testifies that a person having ordinary skill in the art "would understand how to repeat the internal grooves taught in one of Brezovnik's outlet and apply the structure to each of the outlet. Having internal grooves in each outlet is merely a choice based on several limited and predictable options." Ex. 1007 ¶ 66. We find this evidence unpersuasive. It indicates that an artisan of ordinary skill could repeat the internal grooves of one drive outlet to the other drive outlets, but fails to adequately explain why or how a person having ordinary skill in the art would have reconfigured Brezovnik's drive outlets to each have an inner wall, including third coupling bush 201, with an inner wall that contacts bush 185's outer wall.

Accordingly, we conclude that Homeland has not shown, by a preponderance of the evidence, that Brezovnik renders claim 7 obvious.

Claim 8 depends from claim 7 and further requires "the second drive outlet surround[] the first drive outlet and the third drive outlet surround[] the second drive outlet." As we conclude that Homeland fails to show, by a

preponderance of the evidence, that Brezovnik renders claim 7 obvious and claim 8 depends from claim 7, we conclude that Homeland has not shown, by a preponderance of the evidence, that Brezovnik renders claim 8 obvious.

e. Conclusion

In summary, on the complete record before us, we conclude that Homeland has shown, by a preponderance of the evidence, that Brezovnik renders claims 1, 2–6, and 9–17 obvious, but not claims 7 and 8.

4. Alleged obviousness of claims 2 and 7–11, and 14–17 over Brezovnik and Liang

We instituted trial on the ground that claims 2, 7–11, and 14–17 would have been obvious to one of ordinary skill in the art based on Brezovnik and Liang. Dec. on Inst. 54.

a. Claim 2

Claim 2 requires “the motor with the central shaft [be] mounted directly to the first drive outlet to drive the first drive outlet at a selected speed.” Ex. 1001, 3:33–36. Homeland contends that, to the extent we construe the term “mounted directly” to not encompass Brezovnik’s indirect drive system, this subject matter is disclosed in Liang. Pet. 20. Homeland contends that “Liang explicitly provides motivation to combine Liang and Brezovnik for those with ordinary skill in the art.” *Id.* (referencing Ex. 1007 ¶¶ 56–59). We interpret Homeland’s contention to be that Liang demonstrates the known technique of positioning the motor of a food processor directly underneath the central shaft with the predictable result of directly driving that shaft. That is, Liang’s positioning of its motor under its central shaft informs a person having ordinary skill in the art that such a configuration can predictably drive the drive outlets of a food processor,

rendering the subject matter of claim 2 obvious. As Dr. Jones declares, whether the motor is side mounted or mounted directly under the central shaft would not affect how Brezovnik's gearing rotates the outlet drives. *See* Ex. 1007 ¶¶ 54–59.

We agree with Homeland's characterizations of Liang and Brezovnik and, based on this record evidence, we find that Brezovnik, as modified by Liang's teachings of its motor's position, teaches or suggests the subject matter of claim 2. Based on the record evidence, we find that a person having ordinary skill in the art would understand that the motor's positioning taught by Liang would yield predictable results, as Liang's gearing system is similar to Brezovnik's gearing system. *See* Ex. 1007 ¶ 59; *see also KSR Int'l Co.*, 550 U.S. at 417 (“[W]hen a patent ‘simply arranges old elements with each performing the same function it had been known to perform’ and yields no more than one would expect from such an arrangement, the combination is obvious.”). This simple rearrangement of Brezovnik's configuration, a rearrangement that yields predictable results, provides the requisite rational underpinnings in support of Homeland's reason to modify Brezovnik by placing its motor directly under the central shaft.

Accordingly, based on the complete record before us, we conclude that Homeland has shown, by a preponderance of the evidence, that claim 2 is obvious over Brezovnik and Liang.

b. Claims 7 and 8

Claim 7 requires, in relevant part, that “each drive outlet ha[ve] an inner wall having a plurality of key grooves” and claim 8 depends from claim 7. *See* Ex. 1001, 3:57–4:7. Homeland contends that this subject matter is rendered obvious in view of the teachings of Liang. *See* Pet. 28

(providing Liang’s Fig. 2, which depicts drive outlet 19 with an inner wall with a plurality of grooves for receiving a tool). We interpret Homeland’s contention to apply the same reasoning it provided for why Brezovnik alone rendered this subject matter obvious—that such a modification is just a repeating of a known technique and represents a design choice between “several limited and predictable options” with Liang illustrating the known technique. *See id.*

As we discussed above, in connection with our analysis of claims 7 and 8 as obvious over Brezovnik alone, Homeland fails to provide persuasive evidence or argument why a person having ordinary skill in the art would have redesigned Brezovnik’s first coupling bush 161 and third coupling bush 201 to include internal walls with grooves to receive tools. Further, neither Homeland nor Dr. Jones adequately explain how Liang’s teachings persuasively support a reason for modifying Brezovnik’s coupling bushes to have interior walls with grooves. For example, Dr. Jones testifies that a person having ordinary skill in the art would have been able to repeat the internal grooves of Liang’s drive outlet 19, but fails to explain why such a modification would have been made. Ex. 1007 ¶ 73.

Accordingly, on the complete record before us, we conclude that Homeland has not shown, by a preponderance of the evidence, that claims 7 and 8 are obvious over Brezovnik and Liang.

c. Claim 9

Claim 9 requires, in relevant part, that “the first drive outlet [be] driven directly by the motor.” Ex. 1001, 4:8–10. Homeland contends that “in combination with Liang, Brezovnik will render claim 9 obvious.” Pet. 29 (referencing Ex. 1007 ¶ 87). We understand Homeland’s argument to be,

should we construe the term “driven directly” to not encompass a configuration with multiple shafts, that such a configuration would have been obvious. That is, similar to its contentions with respect to claim 2, an artisan of ordinary skill would have known that the motor could have been mounted directly under shaft 155, such that shaft 155 was driven directly by the motor, given that Liang discloses such a configuration.

As we discussed above, in connection with our analysis of claim 9 as anticipated by Brezovnik, we find that Brezovnik discloses the subject matter of claim 9. Accordingly, we conclude that Homeland has demonstrated, by a preponderance of the evidence, that claim 9 is obvious over Brezovnik and Liang.

d. Independent Claim 10

Independent claim 10 recites “[a] multiple drive system for a food processor and mixer, the system comprising: a central shaft and a motor, coupled to a first drive outlet, the motor drives the first drive outlet at a selected speed.” Ex. 1001, 4:14–17 (the “central shaft” limitation). Homeland contends that Liang’s motor 21 and motor shaft 22 correspond to the recited central shaft and motor and that spline hub 24 corresponds to the recited first drive outlet. Pet. 52–53. Homeland explains that motor 21 directly drives spline hub 24 with shaft 22 at the speed of the motor. *Id.* We agree with Homeland’s characterizations of Liang, which are supported by the evidence of record, and we adopt them as our findings of fact. Based on this record evidence, we find that Liang discloses the “central shaft” claim limitation.

Claim 10 also recites “a planetary gear system comprising a first component having a first sun gear with a first set of planet gears.” Ex. 1001,

4:18–19 (the “first planet gears” limitation). Homeland contends that Liang’s first planetary gear set 10, with sun gear 13 and planet gears 12, correspond to the recited first component. Pet. 53. Claim 10 further recites “a second component having a second sun gear with a second set of planet gears, the second component mounted parallel to and above the first component.” Ex. 1001, 4:19–24 (the “second planet gears” limitation). Homeland contends that Liang’s second planetary gear set 11, with sun gear 17 and planet gears 16 correspond to the recited second component. Pet. 53. Homeland explains that Liang’s Figures 3 and 4 illustrate that second set of planetary gears 11 are mounted parallel to and above the first set of planetary gears 10. *Id.* at 53–54. We agree with Homeland’s characterizations of Liang, which are supported by the evidence of record, and we adopt them as our findings of fact. Based on this record evidence, we find that Liang discloses the “first planet gears” and “second planet gears” claim limitations.

Claim 10 also recites “a second drive outlet surrounding the first drive outlet and coupled with the planetary gear system.” Ex. 1001, 4:23–24 (the “second drive outlet” limitation of claim 10). Homeland contends that Liang’s ring gear 14, the alleged second drive outlet, surrounds spline hub 24, the alleged first drive outlet. Pet. 54; *see also* Ex. 1005, Fig. 4 (depicting ring gear 14 surrounding Liang’s gear system, including spline hub 24). We agree with Homeland’s characterizations of Liang, which are supported by the evidence of record, and we adopt them as our findings of fact. Based on this record evidence, we find that Liang discloses the “second drive outlet” claim limitation of claim 10.

Claim 10 also recites “wherein the gear system drives the second drive outlet and third drive outlet at a different speed from the speed of the first drive outlet according to a gear ratio of the planetary gear system.” Ex. 1001, 4:27–30. Homeland contends that Liang discloses that planet gear arm 19 (the alleged third drive outlet) is driven at a different speed from the first and second drive outlets—at a lesser speed dictated by a gear reduction ratio in the range of 1:10 to 1:30. Pet. 55. In contrast, the alleged second drive outlet, ring gear 14, is driven at a gear ratio ranging from 1:2 to 1:10 and the first drive outlet, spline hub 24, is driven at the speed of the motor (a ratio of 1:1). *Id.* We agree with Homeland’s characterizations of Liang, which are supported by the evidence of record, and we adopt them as our findings of fact. Based on this record evidence, we find that Liang discloses the subject matter of the “wherein” clause of claim 10.

Claim 10 further recites “a third drive outlet surrounding the second drive outlet and coupled with the planetary gear system.” Ex. 1001, 4:25–26 (the “third drive outlet” limitation of claim 10). Homeland recognizes that Liang fails to disclose the subject matter requiring the third drive outlet to surround the second drive outlet. Pet. 55. Homeland argues that Brezovnik discloses this arrangement and “[t]hose skilled in the art would easily rearrange the second drive outlet 14 so that it is inside the third drive outlet 19.” *Id.* (referencing the Petition’s analysis of claim 8 as obvious over Liang and Brezovnik). Homeland reasons Liang and Brezovnik have very similar gearing systems that serve an identical purpose and that rearranging the drive outlets does not change the fundamental nature of the gear system. *Id.* at 51 (referencing Ex. 1007 ¶¶ 69–72).

We agree with Homeland’s characterization of Liang and Brezovnik and we further credit Dr. Jones’s testimony with respect to modifying Liang as taught by Brezovnik. Based on the complete record, we conclude that Liang, as modified by Brezovnik, satisfies the “third drive outlet” claim limitation of claim 10. We also find that Homeland has provided an adequate reasoning, with a rational underpinning for modifying Liang—that Brezovnik teaches or suggests a very similar gearing system and suggests the modification.

Accordingly, upon review of the complete record, we conclude that Homeland has shown, by a preponderance of the evidence, that the combination of Liang and Brezovnik renders obvious independent claim 10.

e. Claims 11 and 14–17

Claim 11 depends from claim 10 and further recites “wherein the shaft is coupled with the first sun gear and drives the first set of planet gears.” Ex. 1001, 4:31–33. Homeland contends that Liang’s sun gear 13 is rotationally fixed to central shaft 22 and drives gears 12 of the first planetary gear set 10. Pet. 56.

We agree with Homeland’s characterizations of Liang, which are supported by the evidence of record, and we adopt them as our findings of fact. Based on this record evidence, we find that Liang, as modified by Brezovnik’s teachings as analyzed for claim 10, teaches or suggests the subject matter of claim 11. Accordingly, based on the complete record before us, we conclude that Homeland has shown, by a preponderance of the evidence, that claim 11 is obvious over Brezovnik and Liang.

Claim 14 depends from claim 10 and further requires “a base upon which the shaft and the motor is mounted.” Ex. 1001, 4:41–43. Homeland

contends that Liang's outer casing 40 corresponds to the recited base. Pet. 58.

We agree with Homeland's characterizations of Liang, which are supported by the evidence of record, and we adopt them as our findings of fact. Based on this record evidence, we find that Liang, as modified by Brezovnik's teachings as analyzed for claim 10, teaches or suggests the subject matter of claim 14. Accordingly, based on the complete record before us, we conclude that Homeland has shown, by a preponderance of the evidence, that claim 14 is obvious over Brezovnik and Liang.

Claim 15 depends from claim 10 and further recites "wherein the first set of planet gears comprises two to four gears meshed with a ring gear." Ex. 1001, 4:44–46. Homeland contends that Liang discloses that its first set of planet gears include three planet gears 12. Pet. 58.

We agree with Homeland's characterizations of Liang, which are supported by the evidence of record, and we adopt them as our findings of fact. Based on this record evidence, we find that Liang, as modified by Brezovnik's teachings as analyzed for claim 10, teaches or suggests the subject matter of claim 15. Accordingly, based on the complete record before us, we conclude that Homeland has shown, by a preponderance of the evidence, that claim 15 is obvious over Brezovnik and Liang.

Claim 16 depends from claim 10 and further recites "wherein the second set of planet gears comprises two to four gears meshed with a ring gear." Ex. 1001, 4:47–49. Homeland contends that Liang's second set of planet gears includes three gear wheels (planet gears 16). Pet. 59.

We agree with Homeland's characterization of Liang and, based on this record evidence, we find that Liang, as modified by Brezovnik's

teachings as analyzed for claim 10, teaches or suggests the subject matter of claim 16. Accordingly, based on the complete record before us, we conclude that Homeland has shown, by a preponderance of the evidence, that claim 16 is obvious over Brezovnik and Liang.

Claim 17 depends from claim 10 and further recites “wherein each of the drive outlets comprise a cylindrical or a round shape.” Ex. 1001, 4:50–52. Homeland contends that Liang’s Figure 2 depicts each drive outlet as cylindrical in shape. Pet. 59.

We agree with Homeland’s characterizations of Liang, which are supported by the evidence of record, and we adopt them as our findings of fact. Based on this record evidence, we find that Liang, as modified by Brezovnik’s teachings as analyzed for claim 10, teaches or suggests the subject matter of claim 17. Accordingly, based on the complete record before us, we conclude that Homeland has shown, by a preponderance of the evidence, that claim 17 is obvious over Brezovnik and Liang.

f. Conclusion

In summary, on the record before us, we conclude that Homeland has shown a reasonable likelihood of prevailing in its assertion that the combination of Brezovnik and Liang renders claims 2, 9–11, and 14–17 obvious, but not claims 7 and 8.

5. Alleged obviousness of claim 2 over Brezovnik, Liang, and Beaudet

We instituted trial on the ground that claim 2 would have been obvious to one of ordinary skill in the art based on Brezovnik, Liang, and Beaudet. Dec. on Inst. 54.

Claim 2 requires “the motor with the central shaft [be] mounted directly to the first drive outlet to drive the first drive outlet at a selected

speed.” Ex. 1001, 3:33–36. Homeland contends that, to the extent we construe the term “mounted directly” to not encompass Brezovnik’s indirect drive system, this subject matter is disclosed in the combined teaching of Liang and Beaudet. Pet. 20. Homeland contends that “Liang explicitly provides motivation to combine Liang and Brezovnik for those with ordinary skill in the art.” *Id.* (referencing Ex. 1007 ¶¶ 56–59). Homeland further contends that “Beaudet additionally discloses that a motor can be placed right underneath an outlet or on a side of an outlet.” *Id.* We interpret Homeland’s contention to be that Liang demonstrates the known technique of positioning the motor of a food processor directly underneath the central shaft with the predictable result of directly driving that shaft and that Beaudet’s teaching further reinforces the concept that the location of the motor is a matter of design choice.

That is, Liang’s and Beaudet’s positioning of its motor under central shafts informs a person having ordinary skill in the art that such a configuration can predictably drive the drive outlets of a food processor, rendering the subject matter of claim 2 obvious. As Dr. Jones declares, whether the motor is side mounted or mounted directly under the central shaft would not affect how Brezovnik’s gearing rotates the outlet drives. *See* Ex. 1007 ¶¶ 54–59.

We agree with Homeland’s characterization of Liang, Beaudet, and Brezovnik and, based on this record evidence, we find that Brezovnik, as modified by Liang’s and Beaudet’s teachings of their motors’ position, teaches or suggests the subject matter of claim 2. Based on the record evidence, we find that a person having ordinary skill in the art would understand that the motor’s positioning taught by Liang would yield

predictable results, as Liang's gearing system is similar to Brezovnik's gearing system. *See* Ex. 1007 ¶ 59; *see also KSR Int'l Co.*, 550 U.S. at 417 (“[W]hen a patent ‘simply arranges old elements with each performing the same function it had been known to perform’ and yields no more than one would expect from such an arrangement, the combination is obvious.”). This simple rearrangement of Brezovnik's configuration, a rearrangement that yields predictable results, provides the requisite rational underpinnings in support of Homeland's reason to modify Brezovnik by placing its motor directly under the central shaft. Accordingly, based on the complete record before us, we conclude that Homeland has shown, by a preponderance of the evidence, that claim 2 is obvious over Brezovnik, Liang, and Beaudet.

6. Alleged obviousness of claim 7 over Liang

Homeland contends that Liang renders the subject matter of claim 7 obvious. Pet. 50–51. Claim 7 depends from claim 1 and further recites “wherein each of the drive outlets are a cylindrical shape or round shape, and each drive outlet has an inner wall having a plurality of key grooves, each of which is coupled to a blade of the food processor or mixer.” Ex. 1001, 3:57–4:3. Homeland contends that Liang's drive outlet 24 includes an outer wall with key grooves and drive outlet 19 has an inner wall with key grooves. Pet. 50. Further, ring gear 14 has notches along an outer wall and drive outlet 30 has rectangular protruding members on its outer wall. *Id.* Homeland reasons that this disclosure demonstrates that “[t]hose skilled in the art would [have understood that] they could choose different types of engagement mechanisms for each drive outlet.” *Id.* Accordingly, this teaching of a variety of engagement mechanisms renders obvious the subject matter of claim 7 as having all drive outlets with inner walls and key

grooves is merely a repetition of elements—the application of a known technique to arrive at a predictable result. *Id.* at 50–51.

On the complete record, we find that Homeland has failed to identify persuasive facts or argument for why a person having ordinary skill in the art would have reason to modify *each* of Liang’s drive outlets to have an inner wall having a plurality of key grooves. Similar to our analysis of claim 7 with respect to Brezovnik, Homeland fails to adequately explain why or how a person having ordinary skill in the art would have modified Liang’s drive outlet 24 (the alleged first drive outlet) and ring gear 14 (the alleged second drive outlet) to include inner walls with grooves to receive a tool.

Accordingly, on the complete record before us, we conclude that Homeland has not shown, by a preponderance of the evidence, that claim 7 is obvious over Liang.

III. CONCLUSION

For the foregoing reasons, we determine that the information presented in the Petition establishes, by a preponderance of the evidence, that claims 1–6 and 9–17 are unpatentable, but not claims 7 and 8.

IV. ORDERS

After due consideration of the record before us, it is:

ORDERED that claims 1, 3–5, 9–12, and 14–17 are anticipated under 35 U.S.C. § 102(b) by Brezovnik;

FURTHER ORDERED that claims 1–3 and 9 are anticipated under 35 U.S.C. § 102(a) by Liang;

FURTHER ORDERED that claims 1–6, and 9–17 are unpatentable under 35 U.S.C. § 103(a) over Brezovnik;

FURTHER ORDERED that claims 2, 9–11, and 14–17 are unpatentable under 35 U.S.C. § 103(a) over Brezovnik and Liang;

FURTHER ORDERED that claim 2 is unpatentable under 35 U.S.C. § 103(a) over Brezovnik, Liang, and Beaudet; and

FURTHER ORDERED that, because this is a Final Written Decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

IPR2016-00841
Patent 8,382,627 B2

For PETITIONER:
R. Joseph Trojan
TROJAN LAW OFFICES
trojan@trojanlawoffices.com

For PATENT OWNER:

Otto O. Lee
Jenny H. Hong-Gonzalez
INTELLECTUAL PROPERTY LAW GROUP LLP
pt_docket@iplg.com