

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

DECENT ESPRESSO INTERNATIONAL LTD.,
Petitioner,

v.

DUVALL ESPRESSO IP ENFORCEMENT, LLC,
Patent Owner.

IPR2024-01483
Patent 11,576,524 B2

Before LINDA E. HORNER, ERIC C. JESCHKE, and
RICHARD H. MARSCHALL, *Administrative Patent Judges*.

MARSCHALL, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
35 U.S.C. § 314

Petitioner Decent Espresso International Ltd. filed a Petition requesting *inter partes* review of claims 1–12 of U.S. Patent No. 11,576,524 B2 (Ex. 1001, “the ’524 patent”). Paper 1 (“Pet.”). Patent Owner Duvall Espresso IP Enforcement, LLC filed a Preliminary Response. Paper 13 (“Prelim. Resp.”). With our authorization, Petitioner filed a Preliminary Reply to Patent Owner’s Preliminary Response (Paper 14 (“Prelim. Reply”)) and Patent Owner filed a Preliminary Sur-reply (Paper 15 (“Prelim. Sur-reply”)).

We have jurisdiction under 35 U.S.C. § 314. Under § 314, an *inter partes* review may not be instituted “unless . . . there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the challenged claims in the petition.”

For the reasons that follow, we determine that Petitioner has not demonstrated a reasonable likelihood of prevailing with respect to any of the challenges in the Petition. Accordingly, we do not institute an *inter partes* review.

BACKGROUND

A. Real Parties-in-Interest and Related Matters

Petitioner identifies itself as the only real party-in-interest. Pet. 76. Patent Owner identifies itself as the only real party-in-interest and states that it “is majority owned by Duvall Espresso, Inc.” Paper 7 (Patent Owner’s Mandatory Notices), 2.

The parties indicate that the following infringement action involves the ’524 patent: *Duvall Espresso IP Enforcement, LLC v. Decent Espresso International Ltd.*, 9:23-cv-81246 (S.D. Fla.). Pet. 76; Paper 7, 2. Petitioner

also seeks *inter partes* review of a related patent, U.S. Patent No. 10,772,456 B2, in IPR2024-01492.

B. The '524 Patent

The '524 patent relates to an “infused beverage brewing assembly having a solvent flow management system” and “a solvent temperature modulation system.” Ex. 1001, code (57). The '524 patent states that the beverage brewing system utilizes “pressure, temperature, and flow of a solvent through a solute” to produce the beverage. *Id.* at 1:20–22. The disclosed device seeks to allow “independent, dynamic variation of brewing variables” to optimize beverage flavor. *Id.* at 2:34–41.

We reproduce Figure 3 below to illustrate the key features of the inventions claimed in the '524 patent.

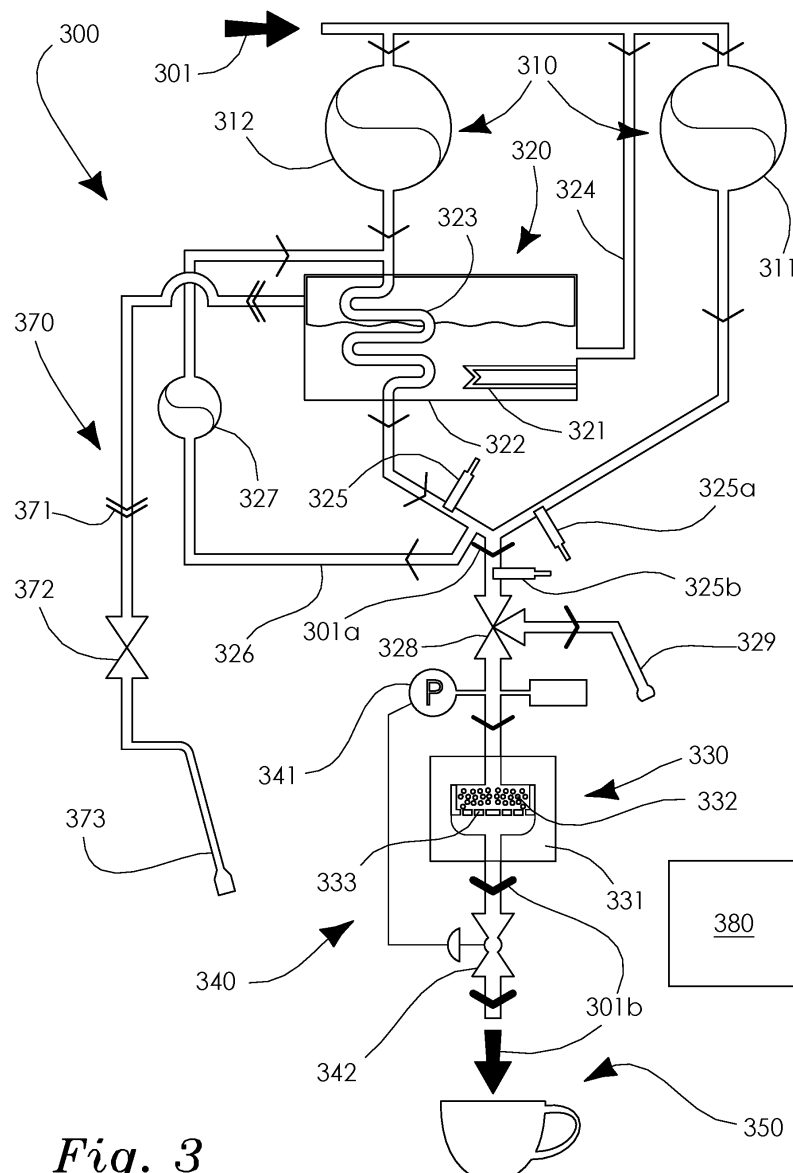


Fig. 3

Figure 3 depicts “a schematic diagram depicting an independently controlled beverage brewing system.” Ex. 1001, 6:65–66. Figure 3 shows solvent 301 entering brewing system 300 via a conduit that includes branches delivering solvent 301 to solvent pumps 311, 312. *Id.* at 11:22–24. A conduit exiting pump 312 passes through heat exchanger 323, which heats the solvent within the conduit to a desired temperature with the aid of an associated solvent recirculation system 326 in fluid communication with heat

exchanger 323. *Id.* at 11:31–42. The conduit carrying heated solvent exiting heat exchanger 323 combines with a conduit carrying unheated solvent exiting pump 311 to form a single conduit carrying resulting solvent 301a. *Id.* at 12:6–11. Resulting solvent 301a then passes through valve 328 configured to perform three functions in certain states: (1) “prevent or inhibit the flow” of resulting solvent 301a; (2) facilitate flow of resulting solvent 301a to a non-brewing location such as dispensing spout 329; and (3) facilitate flow of resulting solvent 301a to brewing chamber 330. *Id.* at 12:25–40, 12:41–43.

After resulting solvent 301a passes through brewing chamber 330, brewed solution 301b passes through valve 342 and into removable cup 350. Ex. 1001, 13:8–21. Figure 3 also shows control system 380, which the ’524 patent describes as “communicatively coupled to one or more devices in the system 300” to ensure that the user’s specifications are met. *Id.* at 13:30–38.

C. The Asserted Challenges

Petitioner challenges claims 1–12 on the following grounds (Pet. 9):

Claims Challenged	35 U.S.C. § ¹	Reference(s)/Basis ²
1–5	103	Startz, ³ Lai, ⁴ Santi, ⁵ Porzio, ⁶ Majer ⁷
6–10	103	Startz, AAPA, ⁸ Lai, Santi, Porzio, Majer
11	103	Startz, Upston, ⁹ Lai, Santi, Majer
12	103	Startz, AAPA, Upston, Lai, Santi, Porzio, Majer

¹ The Leahy-Smith America Invents Act (“AIA”) included revisions to 35 U.S.C. § 103 that became effective on March 16, 2013. Petitioner contends that we should apply the AIA version of the statute because none of the challenged claims are entitled to priority prior to March 16, 2013. *See* Pet. 6–7, 18–19. We apply the AIA version of the statute, although our analysis would not change if we applied the pre-AIA version of the statute.

² Petitioner refers to “the knowledge of” a person of ordinary skill in the art in its challenges and includes an “and/or” prior to listing Majer in the list of references, which potentially increases the number and complexity of the challenges. *See* Pet. 9. Because these aspects of the challenges are not germane to our Decision, we omit them from the summary table.

³ US 8,973,487 B2, filed May 21, 2012 (Ex. 1003, “Startz”). Petitioner also refers to the related U.S. Patent Appl. Pub. No. 2012/0291634 A1 (Ex. 1004). *See* Pet. 7. Because Petitioner cites to the issued patent (Ex. 1003) in its challenges, we follow that same approach here. *See id.* at 28–37.

⁴ U.S. Patent Appl. Pub. No. 2012/0171332 A1, filed December 28, 2011 (Ex. 1007, “Lai”).

⁵ U.S. Patent Appl. Pub. No. 2014/0053734, filed April 26, 2012 (Ex. 1005, “Santi”).

⁶ WO 2011/158131, published December 22, 2011 (Ex. 1011, “Porzio”).

⁷ WO 2011/151703 A2, published December 8, 2011 (Ex. 1008, “Majer”).

⁸ Petitioner describes applicant admitted prior art (“AAPA”) as “known devices” described in the ’524 patent at 1:65–2:10. Pet. 55–56.

⁹ U.S. Patent Appl. Pub. No. 2014/0069279 A1, filed May 10, 2012 (Ex. 1009, “Upston”).

In support of these challenges, Petitioner relies on the Declaration of Ian Tinkler. *See* Ex. 1002. Patent Owner relies on the Declaration of Gideon Duvall. *See* Ex. 2001.

D. Challenged Claims

Petitioner challenges claims 1–12 of the '524 patent, with claim 1 the only independent claim. Claim 1 is illustrative and recites:

1. An infused beverage brewing assembly comprising:
 - a solvent flow management system with a first solvent pump fluidly coupled to a first solvent conduit and operably configured to receive a solvent and induce the flow of the solvent therethrough and a second solvent pump fluidly coupled to a second solvent conduit and operably configured to receive another solvent, separate from the solvent operably configured to be received within the first solvent pump, and induce the flow of the another solvent therethrough;
 - a solvent temperature modulation system with at least one thermal modulator in fluid communication with the first solvent conduit, the first and second solvent conduits directly and fluidly coupled together to form a conduit joint downstream of the thermal modulator to form a resulting solvent conduit with a resulting solvent disposed therein at a resulting temperature and the at least one thermal modulator operably configured to thermally modulate the solvent disposed in the first solvent conduit to a raised temperature higher and different than the resulting temperature; and
 - a brewing chamber in fluid communication with the resulting solvent conduit and for housing a solute disposed to receive the resulting solvent to produce an infused beverage;
 - an outlet for discharging the infused beverage; and
 - an electronic controller communicatively coupled to the first and second solvent pumps and the at least one thermal modulator, and operably configured to modulate the flow of the solvent through the first solvent pump and the at least

one thermal modulator and the another solvent through the second solvent pump.

Ex. 1001, 17:55–18:20.

ANALYSIS

A. Level of Ordinary Skill in the Art

The level of ordinary skill in the art is “a prism or lens” through which we view the prior art and the claimed invention. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). The person of ordinary skill in the art is a hypothetical person presumed to have known the relevant art at the time of the invention. *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995). In determining the level of ordinary skill in the art, we may consider certain factors, including: “(1) the educational level of the inventor; (2) type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of active workers in the field.” *Best Med. Int’l, Inc. v. Elekta Inc.*, 46 F.4th 1346, 1353 (Fed. Cir. 2022) (quoting *Daiichi Sankyo Co. v. Apotex, Inc.*, 501 F.3d 1254, 1256 (Fed. Cir. 2007)). “The patent’s purpose can also be informative.” *Id.*

Petitioner contends that a person having ordinary skill in the art at the time of the invention “would have had at least the following (or equivalents): a B.S. degree in mechanical engineering with at least five years of experience in product design; or an M.S. degree in mechanical engineering with at least two years of experience in product design.” Pet. 17 (citing Ex. 1002, 13). Patent Owner “submits a person of ordinary skill in the art (‘POSITA’) would be a mechanical or materials engineer, or other similar degree, having at least two to three years of personal experience in

designing or development of espresso machines.” Prelim. Resp. 8. In the alternative, Patent Owner states that “because Petitioner’s definition is so close to that of Patent Owner’s definition, that no express finding is necessary to find Petitioner has not met its burden to show with particularity that claim 1 is unpatentable.” *Id.*

We find Petitioner’s definition to be consistent with the problems and solutions disclosed in the ’524 patent and prior art of record, and adopt it as our own for purposes of this Decision. *See, e.g., GPAC*, 57 F.3d at 1579 (approving the determination of the level of ordinary skill in the art by appeal to the references of record). The outcome of this case would remain the same if we applied Patent Owner’s similar proposal.

B. Claim Construction

Pursuant to 37 C.F.R. § 42.100(b), we apply the claim construction standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). Under that standard, we give the words of a claim their plain and ordinary meaning as would have been understood by one skilled in the art at the time of the invention and in the context of the entire patent disclosure. *Id.* at 1312–13. Only terms in controversy need be construed, and only to the extent necessary to resolve the controversy. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017).

The parties propose constructions for several claim terms. For example, Petitioner contends that we should construe “conduit,” “coupled,” “another solvent,” and “dynamically modulate.” *See* Pet. 13–17. Patent Owner reserves its right to challenge Petitioner’s constructions and proposes its own constructions for “another solvent” and “communicatively coupled.” Prelim. Resp. 9–11. We determine that we need not construe any of these

additional terms to determine whether Petitioner met its burden as to any of its challenges in the Petition.

C. Obviousness Based on Startz, Lai, Santi, Porzio, and Majer

Petitioner argues that claims 1–5 would have been obvious based on Startz, Lai, Santi, Porzio, and Majer. Pet. 28–52. Patent Owner raises several arguments against this ground. See Prelim. Resp. 11–35. We first provide a brief overview of the prior art and then address the parties’ arguments.

1. Overview of the Prior Art

Startz discloses a coffee machine. Ex. 1001, code (57). We reproduce Startz’s Figure 1¹⁰ below.

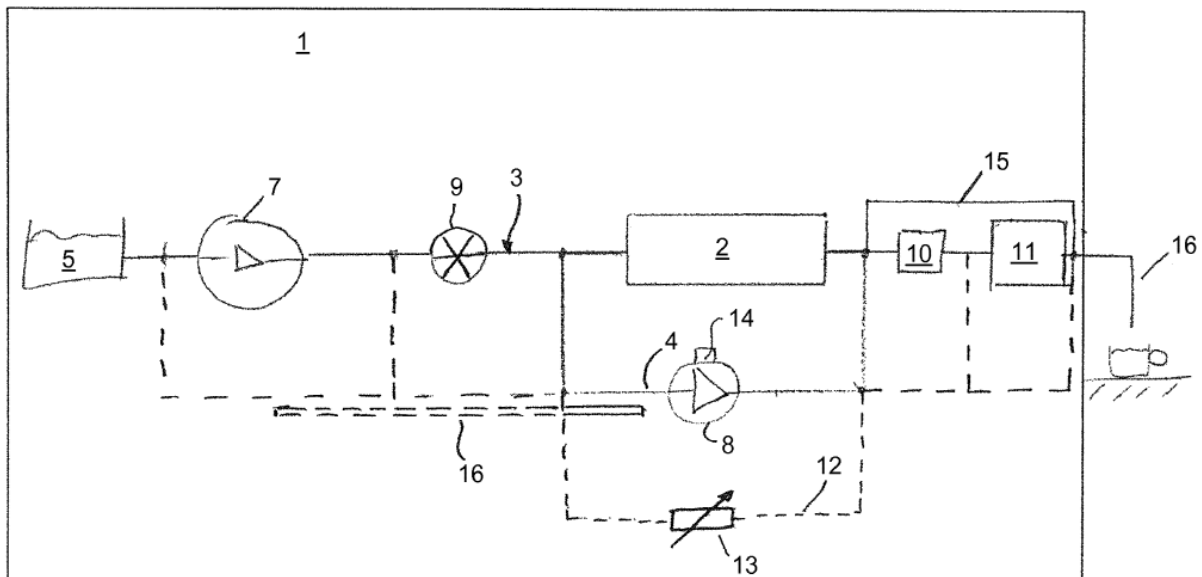


Figure 1 depicts an embodiment Startz’s beverage machine 1. Ex. 1001, 3:3–10. Figure 1 shows main flow path 3, which leads through heating device 2, and bypass flow path 4, which branches off from main flow path 3

¹⁰ This hand-drawn version of Figure 1 appears in the Startz issued patent (Ex. 1003).

upstream of heating device 2 and does not pass through heating device 2. *Id.* at 3:11–15. Water tank 5 provides water to flow paths 3, 4. *Id.* at 3:11–21, Fig. 1. Main flow pump 7 and bypass flow pump 8 are arranged within main flow paths 3 and bypass flow path 4, respectively. *Id.* at 3:17–21. Figure 1 also shows fluid flow meter 9 downstream of main flow pump 7, brewing valve 10 downstream of heating device 2, and brewing device 11 downstream of brewing valve 10. *Id.* at 3:24–27. Control device 14 “controls/regulates the bypass flow pump 8 as a function of a flow volume,” a beverage temperature, or a water temperature in water tank 5. *Id.* at 3:53–56. Startz states that the “mixing portion and thus the admixing quantity of the bypass flow pump 8 can be controlled accurately if the total rate of flow is known, which can be determined via the fluid flow meter 9.” *Id.* at 3:63–66.

Lai describes a “beverage appliance” having a pivotable receptacle that receives a container that includes drink ingredients. Ex. 1007, code (57). We reproduce Lai’s Figure 60 below.

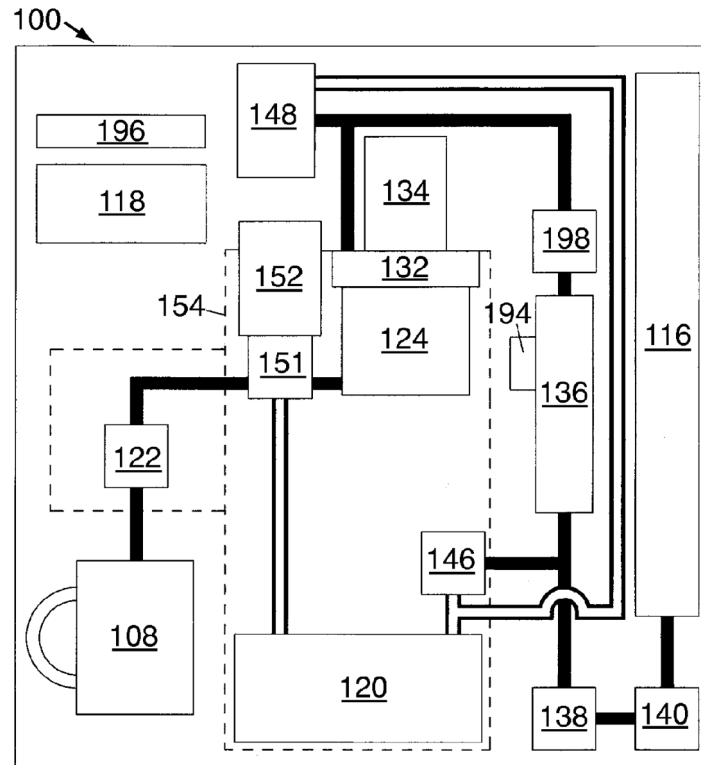


FIG. 60

Figure 60 depicts “a schematic view of the brewed beverage appliance” in a brewing mode, illustrated in block form. Ex. 1007 ¶¶ 65, 98. Figure 60 shows water reservoir 116, pump 138, heater 136, and temperature sensor 198, which detects the temperature of water exiting heater 136. *Id.* ¶¶ 97–98. Solenoid 152 controls three-way valve 151, which directs the flow path of coffee to spout 122. *Id.* ¶¶ 96, 98. Lai describes several components that help regulate water temperature, including PCB 196 of control panel 118, heater sensor 194 “that controls heater 136,” temperature sensor 198, flow meter 140, and pressure release valve 148. *Id.* ¶¶ 97–98.

Santi discloses a device for producing hot beverages. Ex. 1005, code (57). We reproduce Santi’s Figure 1 below.

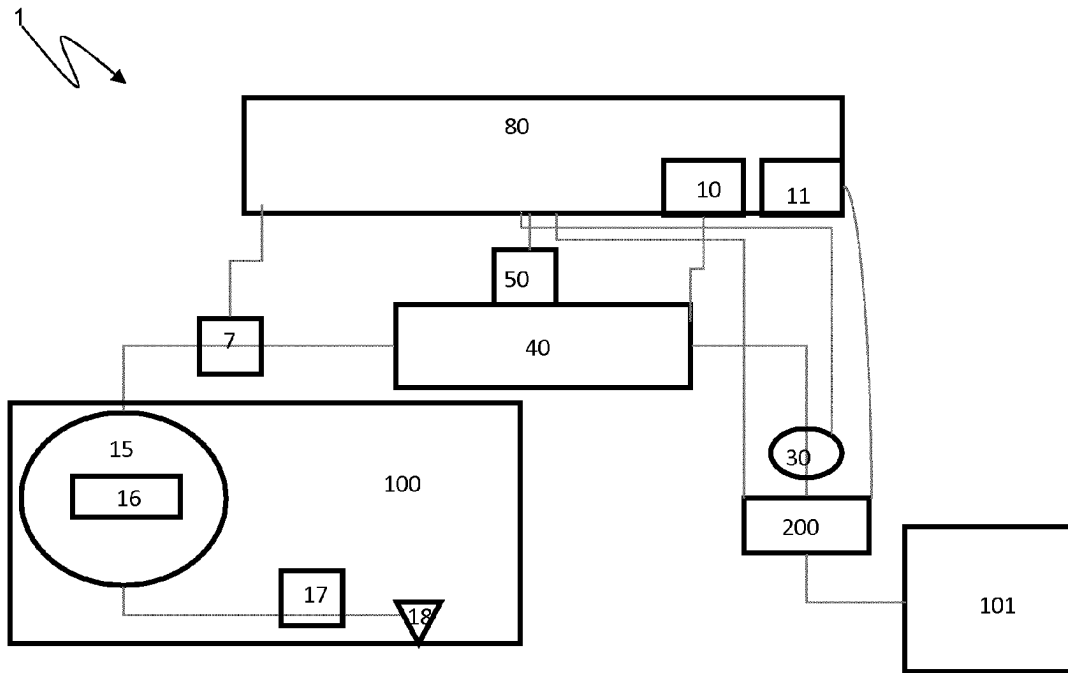


FIG. 1

Figure 1 depicts “a schematic view” of Santi’s “movable device 1 for producing hot beverages.” Ex. 1005 ¶¶ 45, 61. Figure 1 shows “heating means 40 for producing hot water and first sensor means 50 for measuring first temperature data of the hot water.” *Id.* ¶ 63. Figure 1 also shows pumping means 200—“preferably constituted by a vibratory pump”—operatively connected to heating means 40, second sensor means 30 (for measuring the first pressure data), and dispensing means 100. *Id.* ¶¶ 63–64. Control means 80, operatively connected to sensor means 30, 50, continuously monitors the first temperature data and the first pressure data. *Id.* ¶ 63.

Porzio describes a machine for espresso coffee. Ex. 1011, code (57). We reproduce Figure 1B of Porzio below.

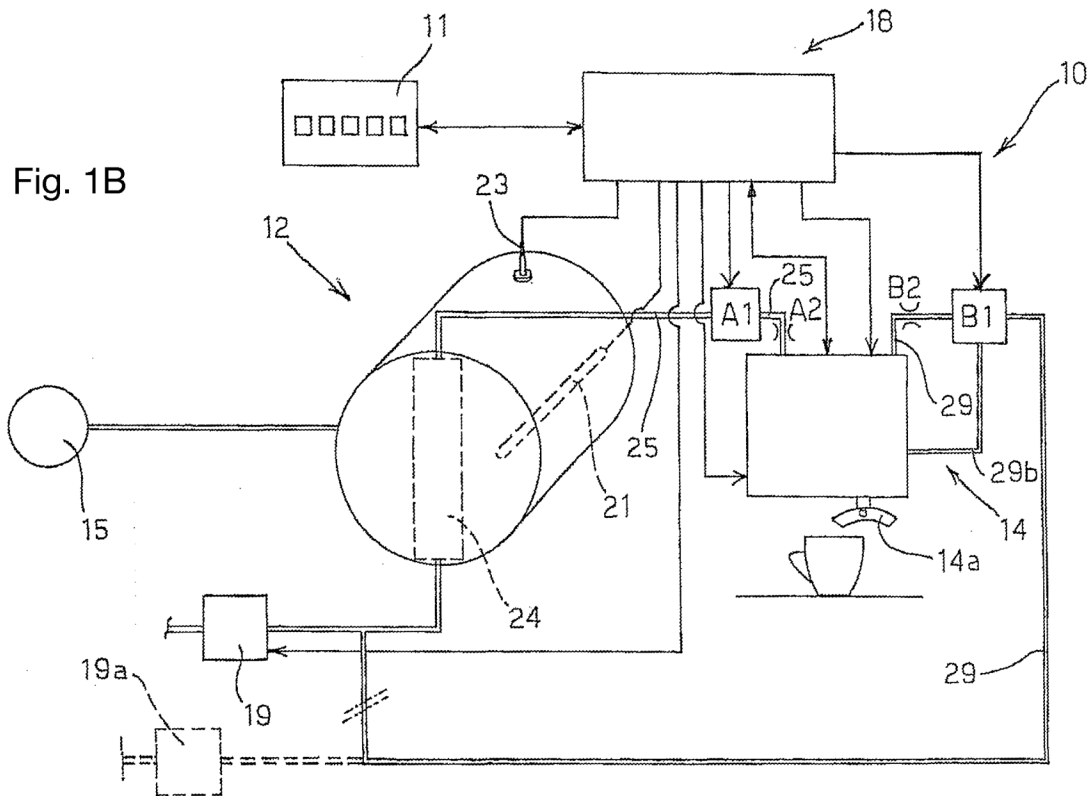


Figure 1B “shows a general diagram of a variant of the espresso coffee machine.” Ex. 1011, 5:25–26. Porzio’s machine, as shown in Figure 1B, includes two pumps 19, 19a and heat exchanger 24. *Id.* at 7:6–8, 8:10–12. Porzio describes using two different solvents, water and an aromatic liquid, in its machine. *Id.* at 8:10–14. The conduits 25, 29 carrying the solvents join at brew group 14 where they are mixed with ground espresso to create a beverage dispensed through spout 14a. *Id.* at 6:5–7, 7:19–21. Porzio also refers to using control unit 18 to monitor and control the temperature of water and carry out different programs on the machine. *Id.* at 13:28–14:2, 18:8–13.

Majer discloses a “beverage dispensing machine” capable of preparing beverages “with differing tastes.” Ex. 1008, codes (54), (57), 2:1. We reproduce Majer’s Figure 1 below.

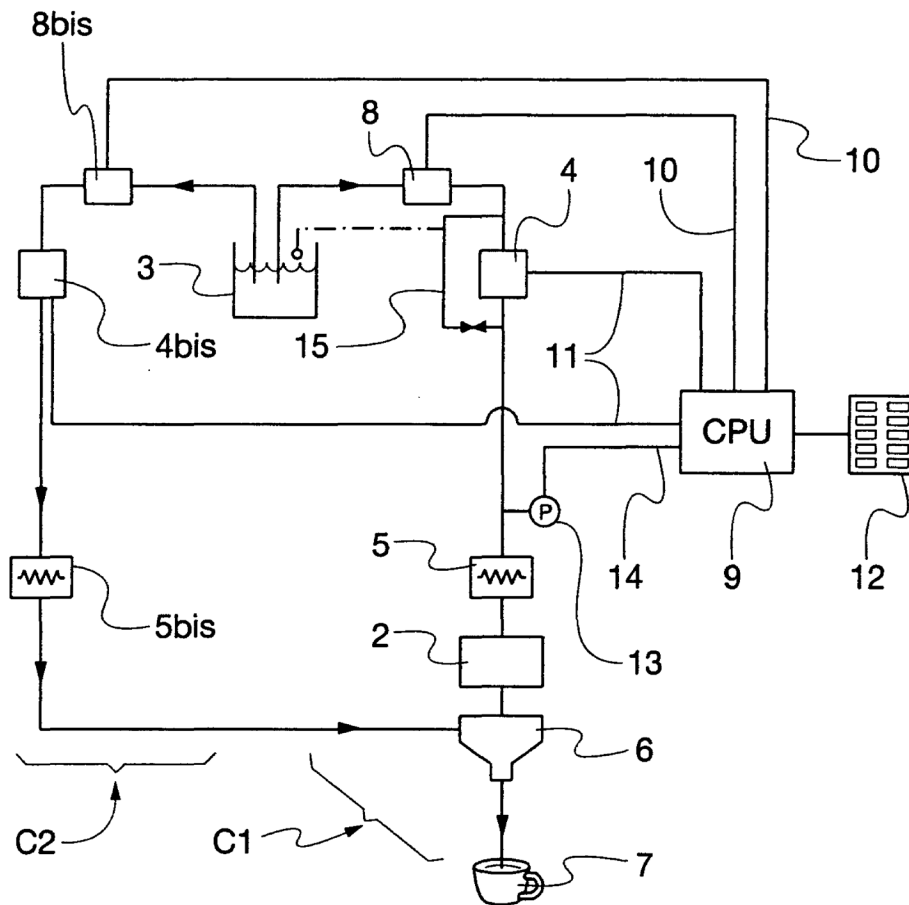


Fig. 1

Figure 1 depicts beverage dispensing machine 1 having a first circuit C1 with brewing means 2, pump 4, and heater 5. Ex. 1008, 8:27–29, 9:8–10. A second circuit C2 includes a second pump 4bis, second heater 5bis, “but no brewing means.” *Id.* at 10:11–12. “Controller unit 9 can operate motor M of pump 4bis to control the amount and the flow rate of water sent to circuit C2” and can also operate pump 4 in concert with pressure sensor 13. *Id.* at 11:8–9, 17:29–31.

2. Discussion

A claim is unpatentable under 35 U.S.C. § 103 “if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains.” 35 U.S.C. § 103; *see also 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 skill in the art; and (4) when of record, objective evidence of obviousness or non-obviousness. *Graham v. John Deere Co. of Kan. City*, 383 U.S. 1, 17–18 (1966).

We begin with an analysis of Petitioner’s challenge to claim 1, with particular attention to the limitations most relevant to our analysis. Claim 1 requires “a first solvent pump” and “a second solvent pump” as well as “at least one thermal modulator.” Ex. 1001, 17:56–66. Petitioner contends that Startz’s pumps 7, 8 disclose the two claimed pumps and Startz’s heating device 2 discloses the claimed thermal modulator. *See* Pet. 29–30, 32. Claim 1 also requires conduits coupled to the pumps and coupled to one another “to form a conduit joint downstream of the thermal modulator to form a resulting solvent conduit,” and “a brewing chamber in fluid communication with the resulting solvent conduit.” Ex. 1001, 17:56–18:10. In other words, the claimed pumps are in fluid communication with and upstream of the brewing chamber. Petitioner relies on Startz’s conduits and a conduit joint downstream of heating device 2 and upstream of brewing device 11 to meet these limitations. Pet. 29–30, 32–33, 35.

Claim 1 also requires “an electronic controller communicatively coupled to the first and second solvent pumps and the at least one thermal modulator.” Ex. 1001, 18:15–17.¹¹ Petitioner argues that “Startz in view of Lai, Santi, and/or Majer discloses this limitation.” Pet. 36. Petitioner first notes that Startz discloses a controller, “control device 14, which controls/regulates the bypass flow pump 8 as a function of a flow volume, a beverage temperature at the dispensing location 6 or a water temperature in the water tank 5.” *Id.* at 37 (quoting Ex. 1003, 3:53–56). Petitioner asserts that “Startz states that both pumps can be controlled, ‘Generally, the bypass flow pump 8 and/or the main flow pump 7 can be . . . a cost-efficient and at the same time an accurately controllable pump.’” *Id.* (quoting Ex. 1003, 3:46–50).

Petitioner acknowledges that “Startz does not explicitly disclose that controller 14 is electronic,” as claim 1 requires. Pet. 38. Petitioner argues that one of ordinary skill in the art “would have recognized that electronic controllers were widely used in the field” and “would also have recognized it would have been appropriate to connect an electronic controller to communicate with multiple pumps and receive Startz’s numerous types of specified feedback data.” *Id.* at 38 (citing Ex. 1002, 41). Petitioner contends that in this art “many electronic controllers were connected to communicate with heating devices in beverages machines” and highlights the alleged use of such controllers in Lai, Santi, and Majer in support of this

¹¹ The ’524 patent provides examples of these claimed structures, including pumping units 211, 212 (the “first and second solvent pumps”) and thermal modulators 221, 222 coupled to and controlled by control system 280 (the “electronic controller”). Ex. 1001, 9:7–24, 9:48–51.

assertion. *Id.* at 38–40 (citing Ex. 1002, 41–43). After summarizing the teachings of Lai, Santi, and Majer, Petitioner concludes that one of ordinary skill in the art “would have recognized that it would be obvious to combine Startz’s machine with the electronic controller of any of Lai, Santi, and/or Majer, and that such electronic controller would be communicatively coupled to both the thermal modulator and the pumps.” *Id.* at 40 (citing Ex. 1002, 43).

Patent Owner argues that the prior art “does not teach or render obvious a brewing assembly having an electronic controller communicatively coupled to the first and second solvent pumps and the at least one thermal modulator.” Prelim. Resp. 22 (emphasis omitted). Patent Owner asserts that Petitioner “reproduces a fragmented and mischaracterized cite” from Startz in support of its argument that Startz discloses two “controllable” pumps. *Id.* (citing Pet. 37; Ex. 1004 ¶ 17; Ex. 2001 ¶ 50). According to Patent Owner, Startz does not support Petitioner’s contention that Startz discloses the “connections and operability” required by the claim, and does not support Petitioner’s suggestion that Startz couples control device 14 to main flow pump 7. *Id.* at 22–23 (citing Pet. 37–38; Ex. 1002 ¶ 79; Ex. 1004 ¶ 17; Ex. 2001 ¶ 52). As to Petitioner’s reliance on additional art, Patent Owner argues that Petitioner overstates their teachings. As to Lai, for example, Patent Owner contends that it at most teaches a connection between a controller (Lai’s PCB) and one pump, not multiple pumps as required by the claim. *Id.* at 26–27 (citing Ex. 1002 ¶ 81; Ex. 1007 ¶ 98; Ex. 2001 ¶ 56). Patent Owner asserts that the controller disclosed in Santi is connected to merely a single pump and single heater. *Id.* at 27–28 (citing Ex. 1002 ¶ 82; Ex. 2001 ¶ 57). As to Majer, Patent

Owner argues that it discloses a controller connected to two pumps but does not include a thermal modulator, and only one of the pumps would fall within the scope of claim 1, which requires pumps in the same flow path as the brewing chamber. *Id.* at 28–29 (citing Ex. 1002 ¶ 83; Ex. 2001 ¶ 58).

Finally, Patent Owner faults Petitioner for failing to “explain why a POSITA would have taken the individual teachings and modify the structural configuration of Startz.” *Id.* at 29–30 (citing Pet. 26–28, 40). Patent Owner contends that Petitioner’s reliance on Mr. Tinkler’s declaration does not aid Petitioner, because he “omits an important purpose/feature of the claimed invention”—to “accurately control flow in addition to temperature of the solvent (i.e., in tandem)” without modifying other parameters. *Id.* at 31 (citing Pet. 27; Ex. 2001 ¶ 32).

In its Preliminary Reply, Petitioner argues that Patent Owner “mischaracterizes the Startz reference” and contends that both pumps in Startz “can be ‘accurately controllable pump[s]’” as it asserts in the Petition. Prelim. Reply 6–7 (alternation in original) (citing Ex. 1003, 3:63–65). Petitioner also contends that Patent Owner “mischaracterizes the disclosures of the Lai, Santi, and Majer art” in various ways, although Petitioner only addresses the specifics of Lai, due to alleged space constraints. *Id.* at 7–8 (citing Prelim. Resp. 26–28; Ex. 1002 ¶¶ 42, 81; Ex. 1007 ¶ 82). In its Preliminary Sur-reply, Patent Owner argues that it did not mischaracterize the art and that Petitioner’s arguments still fail to persuade. Prelim. Sur-reply 5–7.¹²

¹² The parties dispute other aspects of Startz, including the role of heating device 16, but those disputes are not relevant to the central dispute over whether Startz teaches a controller coupled not only to a heater, but also to

Based on our review of the arguments and evidence, we agree with Patent Owner that Petitioner fails to establish that its proposed combination discloses the limitation requiring “an electronic controller communicatively coupled to the first and second solvent pumps and the at least one thermal modulator.” *See* Pet. 36–40.

The parties dispute whether Startz discloses a control device 14 that controls main flow pump 7 and Petitioner’s use of a partial quote from Startz to support that argument.¹³ The relevant text from Startz appears below.

Generally, the bypass flow pump 8 and/or the main flow pump 7 can be embodied as vane-type pump, as gear-type pump or as magnetic piston pump, whereby in particular the latter alternative represents a cost-efficient and at the same time an accurately controllable pump. The heating device 2 can be embodied as a common continuous-flow water heater, for example.

Provision can furthermore be made for a control device 14, which controls/regulates the bypass flow pump 8 as a function of a flow volume, a beverage temperature at the dispensing location 6 or a water temperature in the water tank 5.

Ex. 1003, 3:46–56. The first quoted paragraph describes the types of pumps that may be employed in Startz’s beverage machine and refers to one type of pump (a “magnetic piston pump”) as “controllable,” but does not describe how the pumps are controlled. *See id.* Control device 14 appears for the

two pumps. *See* Prelim. Reply 5–6; Prelim. Sur-reply 5–6. We assume, for purposes of our analysis, that Startz discloses control device communicatively coupled to a thermal modulator.

¹³ The Petition does not directly assert that Startz alone discloses “an electronic controller communicatively coupled” to both pumps 7, 8 and heating device 2, but Mr. Tinkler does so. *See* Ex. 1002 ¶ 78 (“Startz discloses this limitation.”).

first time in Startz in the next paragraph, and Startz only ties control device 14 to bypass flow pump 8, which tracks the depiction in Startz's Figure 1 showing control device 14 attached to pump 8. *See id.* at Fig. 1. Taken together, these descriptions do not suggest that control device 14 controls pump 7 or that Startz's system would have any need to do so. At most, Startz suggests monitoring the "flow volume" out of pump 7, which may be accomplished by monitoring fluid flow meter 9, but that does not require coupling control device 14 to pump 7. *See id.* at 3:54–55, 3:63–66.

Petitioner's reliance on the additional references also fails to establish that any of them disclose an electronic controller coupled to two pumps and a thermal modulator, such as a heater. Petitioner suggests that Lai's controller controls two "pump(s)," but Lai appears to describe a single pump 138, and Petitioner fails to point to any disclosure or suggestion in Lai that its system employs more than one pump. *See* Pet. 38–39 (citing Ex. 1002, 41–42); Ex. 1007 ¶ 98, Fig. 60. Petitioner does not directly assert that Santi discloses a controller connected to two pumps, and it too, like Lai, appears to only disclose a single pump. *See* Pet. 39; Ex. 1005 ¶ 64, Fig. 1. Petitioner correctly notes that Majer discloses controller 9 connected to two pumps, but we agree with Patent Owner that only one of those pumps meets the requirements of the claimed pumps, which are both connected to conduits that eventually lead to the brewing chamber. *See* Pet. 40; Prelim. Resp. 28; Ex. 1008, 9:11–12 (describing circuit C2 containing pump 4bis as not including any "brewing means"). In addition, Petitioner does not allege, and Majer does not appear to disclose, a controller coupled to Majer's heating elements. *See* Pet. 40.

Based on the foregoing, none of the prior art Petitioner relies on discloses an electronic controller that controls both claimed pumps and a thermal modulator. Despite these deficiencies, Petitioner summarily concludes that one of ordinary skill in the art “would have recognized that it would be obvious to combine Startz’s machine with the electronic controller of any of Lai, Santi, and/or Majer, and that such electronic controller would be communicatively coupled to both the thermal modulator and the pumps.” Pet. 40 (citing Ex. 1002, 43). The Petition provides no additional rationale or argument in support of this conclusion, and the cited declarant testimony provides no further analysis. *See id.*; Ex. 1002, 43. Given the lack of any teaching of a controller coupled to two pumps and a thermal modulator, it was incumbent upon Petitioner to provide some reason why one of ordinary skill in the art would have been motivated to combine the references in a manner that meets the limitation.¹⁴ Because the Petition lacks any such statement or rationale, we find Petitioner’s obviousness argument and evidence lacking in this critical respect.

Based on the foregoing, we conclude that Petitioner fails to establish that its proposed combination discloses “an electronic controller

¹⁴ The Petition also contains a general motivation to combine statement earlier in the Petition, that “[e]ach identified prior patent/publication provides at least one enhancement in the form of control systems, sensors, and components for enhancing precision, accuracy, and dynamic temperature control.” Pet. 27. This argument does not refer to any specific combination of references or claims, and such broad assertions do not establish that it would have been obvious to combine the specific references relied on in the challenge to claim 1 to teach a controller communicatively coupled to the claimed pumps and thermal modulator.

communicatively coupled to the first and second solvent pumps and the at least one thermal modulator” as required by claim 1. *See* Pet. 36–40.

3. Conclusion

Based on our review of the current record, Petitioner does not establish a reasonable likelihood of proving that claim 1 would have been obvious based on Startz, Lai, Santi, Porzio, and Majer. The remaining challenged claims, claims 2–12, all ultimately depend from claim 1. *See* Ex. 1001, 18:21–20:21. Petitioner’s obviousness challenges to claims 2–12 build on its analysis for claim 1. *See* Pet. 9, 42–75. Accordingly, for the same reasons we discuss above in the context of claim 1, Petitioner has not shown a reasonable likelihood in prevailing on its challenge to any of the dependent claims.

CONCLUSION

After considering the evidence and arguments presented in the current record, we determine that Petitioner has not demonstrated a reasonable likelihood that it would prevail in proving unpatentability of any claims of the ’524 patent challenged in the Petition. Therefore, we do not institute *inter partes* review.

ORDER

Accordingly, it is

ORDERED that the Petition is denied and no *inter partes* review is instituted.

IPR2024-01483
Patent 11,576,524 B2

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