

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

DUPLO U.S.A. CORPORATION,
Petitioner,

v.

MGI DIGITAL TECHNOLOGY S.A.,
Patent Owner.

IPR2023-00936
Patent 8,783,806 B2

Before KRISTINA M. KALAN, CHRISTOPHER M. KAISER, and
KIMBERLY McGRAW, *Administrative Patent Judges*.

McGRAW, *Administrative Patent Judge*.

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

I. INTRODUCTION

Petitioner, Duplo U.S.A. Corporation, filed a Petition for *inter partes* review of claims 1, 2, 4, 9, 10, and 12 of U.S. Patent No. 8,783,806 B2 (Ex. 1001, “the ’806 patent”). Paper 2 (“Pet.”). Patent Owner, MGI Digital Technology S.A., filed a Preliminary Response. Paper 5 (“Prelim. Resp.”).

Under the authority delegated to us by the Director under 37 C.F.R. § 42.4(a), we may only institute an *inter partes* review when “the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a); *see also* 37 C.F.R. § 42.108(c). However, institution of *inter partes* review is discretionary. *See Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1367 (Fed. Cir. 2016) (“[T]he PTO is permitted, but never compelled, to institute an IPR proceeding.”)

After considering the parties’ submissions and the evidence of record, we determine it is appropriate to exercise our discretion and decline to institute an *inter partes* review.

II. BACKGROUND

A. *Related Matters*

The parties identify *MGI Digital Technology S.A. v. Duplo U.S.A. Corporation*, 8:22-cv-00979 (C.D. Cal.) (the “District Court Proceeding”) as a related matter involving the ’806 patent. Pet. 83; Paper 4 (Patent Owner’s Mandatory Notice), 1. The District Court Proceeding also involves U.S. Patent No. 8,506,031 B2 (“the ’031 patent”), which is the subject of IPR2023-00935. The ’806 patent is a divisional of the ’031 patent. Ex. 1001, code (62).

B. Real Parties in Interest

Petitioner and Patent Owner both identify themselves as real parties-in-interest. Pet. 83; Paper 4, 1.

C. The '806 Patent (Ex. 1001)

The '806 patent, titled, “Ink Jet Printer and Method for Depositing a Protective Layer on a Substrate,” relates to “ink jet printers and methods for depositing a protective layer” or coating on a substrate, wherein “a voltage waveform particularly adapted to the ink is applied to a piezoelectric actuator for an inkjet nozzle arrangement,” and the protective layer is “a varnish or ink.” Ex. 1001, code (54), 1:18–24. The '806 patent discloses that the prior art uses a “digital ink jet machine for laying a coating with medium viscosity on a variable coating substrate by using ink jet nozzles.” *Id.* at 1:42–44. The '806 patent explains that the “size and shape of a droplet of material (i.e., an ink or varnish) deposited by each nozzle on the surface of the substrate, depend on the duration and amplitude of an electric wave driving the actuator.” *Id.* at 1:47–50. According to the '806 patent, the prior art device is not suitable for varnishes having a low viscosity. *Id.* at 1:50–54. To address this perceived shortcoming, the '806 patent provides “optimal deposition of a protective ink layer on a surface of a substrate independently of the ink viscosity and the substrate to be covered.” *Id.* at 1:57–59. In particular, the method involves controlling the shapes of the droplets by controlling the shape of an electric waveform that is applied to the piezoelectric actuator. *Id.* at 1:68–2:3. The shape of the waveform is controlled in response to, *inter alia*, the viscosity and/or the temperature of the ink. *Id.* at 2:3–2:5.

D. The Challenged Claims

Petitioner challenges claims 1, 2, 4, 9, 10, and 12 of the '806 patent.

Pet. 1. Claims 1 and 9 are independent and are reproduced below, with Petitioner's bracketed numbering added.

1. [1.P.1] A method of applying a coating of covering ink to a substrate moving relative to an ink jet nozzle arrangement
- [1.P.2] having a piezoelectric actuator for applying droplets of covering ink to the substrate, the method comprising
- [1.1.1] controlling by a computer the shapes of the droplets by controlling the shape of an electric waveform applied to the piezoelectric actuator,
- [1.1.2] said shape being controlled by selecting at least a number of plateaus of the electric waveform,
- [1.2] in response to at least one of the following parameters: viscosity of the ink, composition of the covering ink, temperature of the covering ink, temperature of the substrate, desired thickness of the layer, type of substrate surface to which the droplets are applied, and relative speed of the substrate and the ink jet nozzle arrangement.

Ex. 1001, 8:60–9:6; Pet. v.

9. [9.P] Apparatus for applying a coating of covering ink to a substrate, comprising
- [9.1] a transport mechanism for causing relative movement between the substrate and an ink jet nozzle arrangement,
- [9.2] the inkjet nozzle arrangement having a piezoelectric actuator for applying droplets of covering ink to the substrate;
- [9.3] a computer controlling a heater included in the nozzle arrangement heating the covering ink and
- [9.4.1] an electric source for applying an electric waveform to the piezoelectric actuator, said waveform controlling the shapes of the droplets,

[9.4.2] said apparatus comprising a command device controlling the shape of the electric waveform by selecting at least a number of plateaus of the electric waveform,

[9.5] in response to at least one of the following parameters: viscosity of the covering ink, composition of the covering ink, temperature of the covering ink, temperature of the substrate, desired thickness of the layer, type of substrate surface to which the droplets are applied, and relative speed of the substrate and the ink jet nozzle arrangement.

Ex. 1001, 9:43–60; Pet. vi.

E. Asserted Grounds of Unpatentability

Petitioner contends claims 1, 2, 4, 9, 10, and 12 of the '806 patent are unpatentable on the following grounds.

Claims Challenged	35 U.S.C. §	Reference(s)/Basis
1, 2, 9, 10	103(a) ¹	Nagashima, ²
4, 12	103(a)	Nagashima, Ricoh ³
1, 2, 4, 9, 10, 12	103(a)	Takatsuka, ⁴ Chang ⁵
1, 4	103(a)	Dainippon, ⁶ Chang

¹ The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), amended 35 U.S.C. § 103 effective March 16, 2013.

Because the application giving rise to the '806 patent was filed before that date, the pre-AIA version of § 103 applies. *See* Ex. 1001, code (62).

² Nagashima, JP-2006-240262A (published Sept. 14, 2006) (Ex. 1004).

³ Ricoh, JP-2007-76344 A (published Mar. 29, 2007) (Ex. 1005). Takeyasu Yoshida is the named inventor (Ex. 1005, code (72)) and Ricoh KK is the Applicant (*see* Ex. 1005, (code (71))). We refer to Exhibit 1005 as “Ricoh” for consistency with Petitioner’s nomenclature.

⁴ Takatsuka, US 7,090,323 B2 (issued Aug. 15, 2006) (Ex. 1006).

⁵ Chang, US 6,619,777 B2 (issued Sept. 16, 2003) (Ex. 1007).

⁶ Dainippon, US 7,207,269 B2 (issued Oct. 14, 2004) (Ex. 1008). Takumi Yoshida is the named inventor (Ex. 1008, code (75)) and Dainippon Screen

Pet. 1.

In support of its unpatentability arguments, Petitioner relies on the declaration of Charles F. Reinholtz, Ph.D. Ex. 1003.

F. Overview of Asserted Art

1. Nagashima (Ex. 1004)

Nagashima is a Japanese patent publication that relates to “a liquid ejection head and an image formation device that eject a liquid onto a recording medium such as paper to form an image.” Ex. 1004 ¶ 1.

Nagashima’s ink ejection head 50 includes “a plurality of pressure chamber units 54 each configured to include the plurality of nozzles 51 that ejects ink.” *Id.* ¶ 55. Nagashima’s device also includes piezoelectric body 58 that is made of a piezoelectric material, and “changes the volume of the pressure chamber 52 via the vibrating plate 56.” *Id.* ¶ 64. In Nagashima, “[a] drive waveform that is an electric signal for driving the piezoelectric body 58 is given from the head driver 156 [] to the piezoelectric body 58.” *Id.*

Nagashima discloses five drive waveforms including a first “drive waveform (referred to as ‘ejection drive waveform’) that generates, in the piezoelectric body 58, ejection vibration for ejecting ink from the nozzles 51,” a second “drive waveform (referred to as ‘heating drive waveform’) that heats ink by heating the piezoelectric body 58 without ejecting the ink from the nozzles 51,” a third “drive waveform (referred to as “ejection and heating drive waveform”) that heats the piezoelectric body 58 in parallel with the ejection vibration,” a fourth “drive waveform (referred to as “meniscus

Mfg. Co., Ltd. is the Assignee (Ex. 1008, code (73)). We use “Dainippon” to refer to Exhibit 1008 for consistency with Petitioner’s nomenclature.

tickling waveform”) that tickles the meniscus in the nozzles 51 with a minute amplitude so as to suppress rise in viscosity of the ink without ejecting the ink from the nozzles 51,” and a fifth, “non-drive waveform that does not drive the piezoelectric body 58.” *Id.* ¶ 65. By using one or more of these waveforms, the piezoelectric body “not only constitutes a pressure generation unit that generates a pressure for ejecting ink from the nozzles 51 but also constitutes a heating unit that heats the ink and a viscosity adjustment unit that adjusts the viscosity of the ink.” *Id.* ¶ 66.

2. *Ricoh*

Ricoh is a Japanese patent publication that relates to “an image formation device including a recording head that ejects a liquid droplet of a recording liquid.” Ex. 1005 ¶ 1. Ricoh describes waveform features that can reduce the difference in the amount of ejected droplets during low-frequency driving and high-frequency driving to perform stable droplet ejection during high-frequency driving and to form high-quality images at high speed. *Id.* ¶ 13. Ricoh explains that by controlling the droplet ejection speed, it is possible “to reduce a difference in ejection droplet amount between during low-frequency driving and during high-frequency driving, and to stably ejection the droplets during high-frequency driving.” *Id.* ¶¶ 72–73.

3. *Takatsuka*

Takatsuka relates to “a liquid discharge head and an image recording apparatus that includes temperature adjustment in the liquid ejection head. Ex. 1006, 1:7–9. In particular, Takatsuka discloses applying a voltage to piezo element 6, using a controller in order to generate pressure inside a

pressure chamber and eject an ink droplet from a nozzle. *Id.* at 11:46–51. Takatsuka explains that “it is also possible for the piezo actuator to apply pressure to the pressure chamber 102 within a range that does not cause ink to be ejected, in such a manner that air bubbles inside the pressure chamber 102 are broken up and the air is caused to become dissolved inside the ink.” *Id.* at 20:52–57.

4. *Chang*

Chang relates to a “liquid jet apparatus for ejecting liquid drops of a plurality of [kinds] different in volume from the same nozzle opening.” Ex. 1007, 1:7–9. Chang describes piezo drive waveform elements for ejecting “large ink drops for forming large dots, medium ink drops for forming medium dots, and small ink drops for forming small dots from the same nozzle opening 13.” *Id.* at 9:1–9. Chang discloses that ink is stirred by minute vibration of the meniscus (the free surface of ink exposed at the nozzle openings to air) to prevent “an increase in ink viscosity at the nozzle openings.” *Id.* at 2:11–21. Chang explains that because of this stirring, “it is possible to generate a minute vibration pulse of relatively high wave height when an ink of high viscosity is used, and to generate a minute vibration pulse of relatively low wave height when an ink of low viscosity is used,” so that minute vibrations of a suitable level of intensity can be applied to an ink in accordance with its viscosity. *Id.* at 12:17–23.

5. *Dainippon*

Dainippon relates to a “coating material applying apparatus” that “includes a guide board, a droplet spray nozzle head, and an ultraviolet light emitting device.” Ex. 1008, at code (57). The droplet spray nozzle head is

disposed opposite the guide board and has numerous droplet spray nozzles. *Id.* The nozzles spray ultraviolet-curable varnish to printing paper transported toward a paper discharge station. *Id.* Dainippon explains that the “coating thickness of the varnish” can be varied by controlling “the quantity (droplet size) of the varnish sprayed from the droplet spray nozzles.” *Id.* at 12:12–19. Figure 6 below depicts a droplet spraying device and an ultraviolet light emitting device shown with an image pickup device. *Id.* at 2:48–50.

F I G . 6

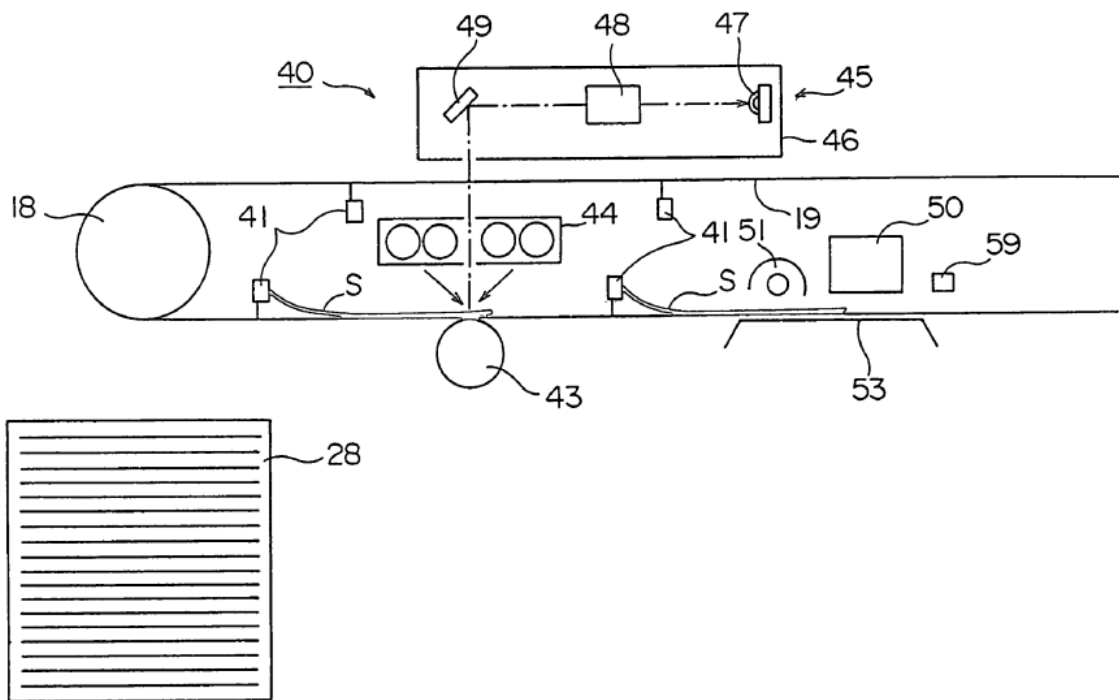


Figure 6 above is a schematic side view of droplet spray nozzle head 50 and ultraviolet light emitting device 51 shown with image pickup device 40. *Id.* at 7:1–4. Droplet spray nozzle head 50 sprays ultraviolet curable varnish as a coating material to printer paper S. *Id.* at 7:54–56.

Figure 9 below depicts a coating material apparatus of the printing machine. *Id.* at 9:54–56.

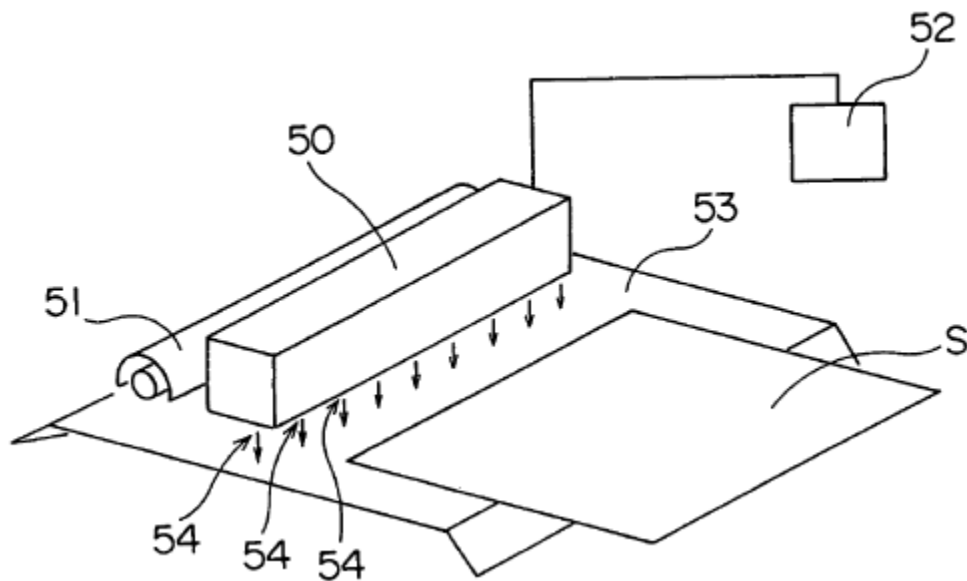


Figure 9 above depicts a coating material applying apparatus having guide board 53 and droplet spray nozzle head 50 for spraying ultraviolet-curable varnish on printing paper S. *Id.* at 9:54–62. Droplet spray nozzle head 50 is opposite guideboard 53 and includes numerous droplet spray nozzles 54 arranged perpendicular to the direction in which printing paper S is transported. *Id.* at 10:10–13. In response to a signal from controller 140, the ultraviolet-curable varnish is allowed to flow from varnish tank unit 52 into droplet spray nozzle head 50. *Id.* at 10:25–28. “Selected nozzles 54 among the numerous droplet spray nozzles 54 spray the ultraviolet-curable varnish toward a particular portion of the printing paper S to be coated with the varnish, in the same way as the ink jet nozzles of an ink jet printer spray ink.” *Id.* at 10:28–32. In one embodiment, each droplet spray nozzle head has numerous resistors arranged in corresponding relationship to the respective nozzles. *Id.* at 10:32–35. Dainippon explains that a different droplet spraying mode “may [use] piezoelectric elements.” *Id.* at 10:40–41. Dainippon also states that its varnish coating operations “may be

implemented with various printing machines other than the printing machines according to the foregoing embodiment, such as a web press, intaglio printing machine, letterpress printing machine, mimeograph printing machine, screen printing machine, electrophotographic printing machine, and ink jet printing machine.” *Id.* at 12:52–57.

III. DISCRETION TO DENY INSTITUTION UNDER § 314(A)

Under 35 U.S.C. § 314(a), the Director has discretion to deny institution. In determining whether to exercise that discretion on behalf of the Director, we are guided by the Board’s precedential decision in *NHK Spring Co., Ltd. v. Intri-Plex Technologies, Inc.*, IPR2018-00752, Paper 8 (PTAB Sept. 12, 2018) (precedential). In *NHK*, the Board found that the “advanced state of the district court proceeding” was a “factor that weighs in favor of denying” the petition under § 314(a). *NHK*, Paper 8 at 20. The Board determined that “[i]nstitution of an *inter partes* review under these circumstances would not be consistent with ‘an objective of the AIA . . . to provide an effective and efficient alternative to district court litigation.’” *Id.* (citing *Gen. Plastic Indus. Co., Ltd. v. Canon Kabushiki Kaisha*, IPR2016-01357, Paper 19 at 16–17 (PTAB Sept. 6, 2018) (designated precedential in relevant part)). “[T]he Board’s cases addressing earlier trial dates as a basis for denial under *NHK* have sought to balance considerations such as system efficiency, fairness, and patent quality.” *Apple Inc. v. Fintiv Inc.*, IPR2020-00019, Paper 11 at 5 (PTAB Mar. 20, 2020) (precedential).

Fintiv sets forth six non-exclusive factors for determining “whether efficiency, fairness, and the merits support the exercise of authority to deny institution in view of an earlier trial date in the parallel proceeding.” *Id.* at 6. These factors are:

1. whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted;
2. proximity of the court's trial date to the Board's projected statutory deadline for a final written decision;
3. investment in the parallel proceeding by the court and the parties;
4. overlap between issues raised in the petition and in the parallel proceeding;
5. whether the petitioner and the defendant in the parallel proceeding are the same party; and
6. other circumstances that impact the Board's exercise of discretion, including the merits.

Id. at 5–6. In evaluating these factors, we “take[] a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review.” *Id.* at 6.

We are also guided by the Director's Memorandum, Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation, issued June 21, 2022 (“Guidance Memo”),⁷ which provides several clarifications concerning the application of the *Fintiv* factors.

One such clarification instructs that “the PTAB will not discretionarily deny institution in view of parallel district court litigation where a petitioner presents a stipulation not to pursue in a parallel proceeding the same grounds or any grounds that could have reasonably been raised before the PTAB.” Guidance Memo 3 (emphasis omitted); *see also id.* at 7–8. Thus, we will not

⁷ Available at https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621_.pdf

exercise our discretion to deny institution if a petitioner makes the stipulation provided in *Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 at 18–19 (PTAB Dec. 1, 2020) (precedential as to § II.A).

After Patent Owner filed its Preliminary Response, Petitioner served stipulations (Ex. 1022) on Patent Owner involving patents challenged in the District Court Proceeding, including the '086 patent, and requested that we consider the stipulations “on the issue of Fintiv.” Ex. 3001 (Petitioner’s email requesting authorization to file stipulations).⁸

Petitioner’s stipulation recites:

we stipulate that . . . , if the PTAB institutes inter partes review (IPR) of the claims of U.S. Pat. No. 8,783,806 challenged by PTAB proceeding IPR2023-00936, and only while the IPR is pending, Duplo will not advance against the same claims of the '806 patent, and claims 8 and 27, in Civil Action No. 8:22-cv-00979: (1) the same grounds advanced in the instituted IPR, or (2) any grounds that could have reasonably been raised against those same claims in PTAB proceeding IPR2023-00936. This stipulation addresses all claims of the '806 patent that MGI is currently asserting in the district court.

Ex. 1022.

On the present record, we determine that Petitioner’s stipulation does not preclude us from exercising our discretion to deny institution under § 314.

Although Petitioner’s stipulation recites the language set forth in the Guidance Memo at page 7 (i.e., Petitioner “stipulates not to pursue in a parallel district court proceeding the same grounds as in the petition or any

⁸ Neither party requested authorization for further briefing on the issue. *See, e.g.*, Ex. 3001, 1 (stating that because “the stipulations are Sotera stipulations, we [(Petitioner)] do not believe briefing is necessary”).

grounds that could have reasonably been raised in the petition”), Petitioner’s stipulation is limited to “those same claims in PTAB proceeding IPR2023-00936,” as well as claims 8 and 27. Ex. 1022. This qualification leaves open the possibility that Petitioner might still raise in the parallel District Court Proceeding a ground that it asserted or reasonably could have asserted in the Petition with respect to a claim that is not subject to an instituted *inter partes* review.

In particular, the ’086 patent contains a number of claims that were not challenged in the present Petition, including claims 3, 5–7, 11, and 13–17, each of which depends directly or indirectly from a claim challenged in the Petition. *See* Ex. 1001, 9:3–10:58. Accordingly, this qualification limiting the stipulation to only certain claims raises the possibility that the district court could make findings about the invalidity of the claims not challenged in this Petition, but dependent on claims that are challenged in this Petition, potentially leading to conflicting decisions. Moreover, Petitioner states that its “stipulation addresses all claims of the ’086 patent that MGI *is currently asserting* in the district court” (Ex. 1022, 1) (emphasis added). Petitioner has provided no evidence or argument that these claims could not, or would not, be added to the District Court Proceeding. The fact that these possibilities exist shows that Petitioner’s stipulation does not mitigate the risk of duplicative proceedings and conflicting decisions to the same degree as the stipulation in *Sotera*. Furthermore, Petitioner’s stipulation only applies “while the IPR is pending.” Ex. 1022, 1. Petitioner provides no argument as to the impact of this qualification, which was not included in the stipulation at issue in *Sotera*. This qualification adds narrowing language to the wording of the *Sotera* stipulation and potentially

creates additional concerns that we have insufficient reasoning to resolve on this record. Accordingly, for the above reasons, we do not find that Petitioner’s stipulation implicates the Guidance Memo’s prohibition against discretionary denial where a *Sotera*-type stipulation is presented.

Thus, we proceed to analyze the *Fintiv* factors and whether to exercise our discretion to deny institution in view of the parallel litigation.

In the Petition, Petitioner does not dispute that the final written decision will issue nearly nine months after the District Court’s estimated trial date of February 6, 2024. *See* Pet. 82 (“Petitioner projects that the final written decision will issue after the District Court’s estimated trial date of February 6, 2024”). Nor does Petitioner, in its Petition,⁹ argue that any *Fintiv* factor, other than factor 6, supports institution. *Id.* Rather, Petitioner asserts that regardless of what other factors favor denial, “Factor 6 (Merits) more than compensates in favor of institution.” *Id.* (also stating that the strength of Petitioner’s obviousness challenges “strongly favors institution”).

Patent Owner responds that Petitioner has not presented a “strong” challenge of unpatentability, let alone presented, or even argued that it presents, a “compelling meritorious challenge.” Prelim. Resp. 1–2, 17–20. Patent Owner further argues that each of the remaining *Fintiv* factors favor denial. *Id.* at 11.

⁹ As discussed above, after Patent Owner submitted its Preliminary Response, Petitioner requested that we consider the effect its stipulations “on the issue of *Fintiv*.” Ex. 3001.

A. Fintiv Factor 1: Whether the Court Granted a Stay or Evidence Exists that One May be Granted if a Proceeding is Instituted

Patent Owner argues that the first *Fintiv* factor weighs in favor of discretionary denial because Judge Carter, who presides over the parallel District Court Proceeding, “specifically warned the parties that any continuance of the Final Pretrial Conference ‘is *highly unlikely*,’ even if requested and stipulated by both parties.” Prelim. Resp. 12 (quoting Ex. 2009 (Initial Scheduling Order), 8) (emphasis in Order). Patent Owner further states that a stay is unlikely given that fact discovery is closed. *Id.* at 12–13.

Neither party has brought to our attention any request for a stay or any specific indication from Judge Carter that a stay is likely in the parallel District Court Proceeding. On the present record, we decline to infer that the court’s stated reluctance to grant a continuance means that the court is unlikely to grant a stay, if requested. Thus, we regard the factor as neutral. *See Fintiv*, Paper 15, 11–12 (May 13, 2020).

B. Fintiv Factor 2: Proximity of the Court’s Trial Date to the Board’s Projected Statutory Deadline for a Final Written Decision

Petitioner projects that that the final written decision will issue after the District Court’s estimated trial date of February 6, 2024 (Pet. 82), which is more than nine months before the expected Final Written Decision in this case. Patent Owner agrees that that the Board will not issue a Final Written Decision until long after the Court’s trial date in the parallel litigation. Prelim. Resp. 14. Patent Owner also asserts that the median time-to-trial

statistics should not be considered as an expected trial date, as to do so would require that the parallel litigation be delayed for over a year, even though expert discovery is scheduled to end in October 2023. *Id.* (citing Ex. 2004). Patent Owner further notes that even applying the median time-to-trial statistics, the final written decision would still issue around the same time as the statistically-expected trial date. *Id.*

We agree with both parties that, if we were to institute an *inter partes* review, that a final written decision would likely issue long after the trial in the parallel District Court Proceeding. *See* Pet. 82; Prelim. Resp. 13–14; *see also* Ex. 2009 (Initial Scheduling Order), 8) (stating that any continuance of the Final Pretrial Conference ‘is *highly unlikely*,’ even if requested and stipulated by both parties”) (emphasis in Order). Because the district court would address issues relating to the validity of the ’806 patent well before we would issue a final written decision, we find that the second *Fintiv* factor weighs heavily in favor of discretionary denial of institution.

C. Fintiv Factor 3: Investment in the Parallel Proceeding by the Court and the Parties

Patent Owner argues that the third *Fintiv* factor “strongly favors the exercise of discretion to deny institution” because the parallel litigation is in the expert discovery phase, and fact discovery is closed.” Prelim. Resp. 15 (citing Ex. 2003, Ex. 2002, 2; Ex. 2009, 1). According to Patent Owner, the parallel litigation is extremely advanced because it “includes appointment of a Special Master in the parallel litigation,” who meets regularly with both parties, issued a report and recommendation on claim construction, discovery issues, and other matters, and the Court through the Special

Master has issued a claim construction ruling and multiple discovery dispute rulings. *Id.* at 15 (citing Ex. 1021; Ex. 2005; Ex. 2006).

We agree with Patent Owner that there has been substantial investment by the parties and the district court in the parallel proceeding, including the completion of preliminary disclosures and claim construction, and the near-completion of discovery. Under the circumstances, we find that the third *Fintiv* factor weighs heavily in favor of discretionary denial of institution.

D. Fintiv Factor 4: Overlap Between Issues Raised in the Petition and in the Parallel Proceeding

According to Patent Owner, “Petitioner asserts invalidity of the same claims in the parallel litigation.” Prelim. Resp. 16 (citing Ex. 2007, 24, 28, 50–53. Patent Owner also notes that, at the time of its Preliminary Response, Petitioner had not submitted any stipulation not to pursue any subject matter in the parallel District Court Proceeding that overlaps with its challenges in the Petition. *Id.* As noted above, however, after Patent Owner filed its Preliminary Response, Petitioner did serve a stipulation relating to the ‘806 patent, which states that, so long as the “IPR is pending, [Petitioner would] not advance against the same claims of the ‘806 patent, and claims 8 and 27, in Civil Action No. 8:22-cv-00979: (1) the same grounds advanced in the instituted IPR, or (2) any grounds that could have reasonably been raised against those same claims in PTAB proceeding IPR2023-00936.” Ex. 1022.

Petitioner’s stipulation removes some, but not all, of the overlap of issues between the Petition and the District Court Litigation. As discussed above, although Petitioner’s language diverges from the *Sotera* stipulation

language, it potentially minimizes the overlap of issues. Accordingly, we find that the fourth *Fintiv* factor weighs somewhat against discretionary denial of institution.

E. Fintiv Factor 5: Whether the Petitioner and the Defendant in the Parallel Proceeding Are the Same Party

The parties in this proceeding are the same as the parties in the parallel District Court Proceeding. *See* Prelim. Resp. 16; Pet. 83. Accordingly, the fifth *Fintiv* factor weighs against institution.

F. Fintiv Factor 6: Other Circumstances that Impact the Board's Exercise of Discretion, Including the Merits

Petitioner argues that the “Factor 6 (Merits) more than compensates in favor of institution” and that the “strength of the obvious[ness] analysis” detailed in its Petition strongly favors institution. Pet. 82. Patent Owner responds that Petitioner fails to present a “strong” challenge, let alone a “compelling, meritorious challenge” because the Petitioner’s grounds “fail to teach every claim limitation of the independent claims, and rely on misinterpretation, misapprehensions, and/or out-of-context quotations.” Prelim. Resp. 20.

The Guidance Memo directs that “compelling, meritorious challenges will be allowed to proceed at the PTAB even where district court litigation is proceeding in parallel.” Guidance Memo, 4. The Director defines “compelling, meritorious challenges [as] those in which the evidence, if unrebutted in trial, would plainly lead to a conclusion that one or more claims are unpatentable by a preponderance of the evidence.” *Id.* For the reasons below, we determine that the Petition and the preliminary evidence

do not present a compelling, meritorious challenge and that Factor 6 does not weigh in favor of denying institution.

1. Level of Ordinary Skill in the Art

The level of ordinary skill is a factor to be considered when determining obviousness. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). Petitioner states that a person of ordinary skill in the art would have had a bachelor’s degree in mechanical or electrical engineering or a related field and at least two years of practical experience with printer technology. Pet. 5. Petitioner further asserts that more relevant experience may compensate for less formal education and that more relevant formal education may compensate for less practical experience. *Id.* (citing Ex. 1003 ¶¶ 27–28). Patent Owner does not propose its own definition but does assert that Petitioner has understated the level of ordinary skill in the art. Prelim. Resp. 9. For the purpose of this Decision, we apply Petitioner’s definition, because Patent Owner presents no countervailing definition and because we find Petitioner’s statement of the level of ordinary skill in the art adequate and supported on this record. We also note that our analysis would not change if we were to apply a higher level of skill in the art.

2. Nagashima-Based Grounds

Petitioner asserts independent claims 1 and 9 and dependent claims 9 and 10 would have been obvious over Nagashima, and that dependent claims 4 and 12 would have been obvious over Nagashima and Ricoh. Pet. 1, 6–44. Both independent claims 1 and 9 recite limitations involving using an electric waveform applied to a piezoelectric actuator to control the “shapes of [covering ink] droplets” in response to various parameters, including

viscosity or ink temperature. In particular, claim elements [1.1.1] and [1.2] recite, *inter alia*, “controlling by a computer the shapes of the droplets [of covering ink]¹⁰ by controlling the shape of an electric waveform applied to the piezoelectric actuator” in response to ink viscosity or temperature.

Ex. 1001, 8:63–67. Claim element [9.4.1] similarly recites, *inter alia*, an electric source for applying an electric waveform to the piezoelectric actuator, “said waveform controlling the shapes of the droplets [of covering ink]” in response to ink viscosity or temperature. *Id.* at 9:42–60.

Petitioner relies on Nagashima for teaching these limitations. In particular, Petitioner argues that “Nagashima teaches controlling the shapes of the droplets by controlling ink temperature” by, in part, heating the drive waveform to heat the ink in the vicinity of the nozzle. Pet. 16–17 (citing Ex. 1003 ¶¶ 82–84); *see also* Pet. 22–23 (asserting Nagashima teaches the shape of the electric waveform is controlled in response to the temperature of the ink).

Petitioner further asserts that although Nagashima does not expressly disclose that its ink droplets are “covering ink droplets” as required by the claims, Nagashima does not limit use of its device to any particular type of ink, and that a POSITA would understand that “Nagashima teaches coating with a covering ink.” Pet. 8 (citing Ex. 1003 ¶¶ 57–61). Petitioner explains that although Nagashima discusses “black (K), cyan (C), magenta (M), and yellow (Y) [i.e., printing inks], this example is not said to be limiting” and that Nagashima does not limit use of its image formation device to any particular type of ink. *Id.* (citing Ex. 1003 ¶¶ 39, 57–61). Dr. Reinholtz

¹⁰ The antecedent basis of “the droplets” recited in claim elements 1.1.1 and 9.4.1 is “droplets of covering ink.” *See* claim elements [1.P.2] and [9.2].

testifies that Nagashima teaches its device can “eject inks of various viscosities, including viscosities of covering inks.” Ex. 1003 ¶ 58 (citing Ex. 1004 ¶ 110 (discussing a viscosity-dependent equation), 218 (disclosing ink having a viscosity of 20 cp or 30 cp); Ex. 1001, 6:44–45 (stating ideally, “the varnish used has a viscosity from 4 to 100 mPa·s”)).

Petitioner also asserts that the ’086 patent “defines the term ‘covering ink’ broadly as synonymous with ‘viscous product.’” Pet. 8–9 (citing Ex. 1001, 3:31–22). Petitioner explains that because “Nagashima discusses example viscosities when discussing inks, such example inks expressly disclosed by Nagashima are ‘viscous products’ and there is little doubt that Nagashima’s inks ‘cover’.” Pet. 9 (citing Ex. 1003 ¶¶ 57–61).

Petitioner further argues that, to the extent that Nagashima does not teach a covering ink, that a POSITA would have found it obvious to use Nagashima to apply a covering ink. Pet. 9–10 (citing Ex. 1003 ¶¶ 62–66). Petitioner explains that a POSITA would have known that ink jets could be used to apply a coating of covering ink or varnish and “would have recognized that Nagashima’s image recording device was an inkjet printer.” Pet. 9 (citing Ex. 1001, 1:37–50; Ex. 1008 (US 7,207,269, “Dainippon”), 10:28–32, 12:52–57; Ex. 1011, (US 7,451,698, “Schneider”), Abstract, 3:21–35 (stating “[f]urther advantages of using the inkjet printing method for printing or coating are achieved through the ability of the inkjet to distribute the amount of liquid coating material (for example, varnish) variably”), Fig. 8–9; Ex. 1003 ¶¶ 62–66); *see also* Pet. 9–10 (stating that all inkjet printers involve ink ejection by a piezo; citing Ex. 1004 ¶¶ 3, 61; Ex. 1003 ¶¶ 62–66).

Patent Owner responds, *inter alia*, that Nagashima uses “*printer ink*” and does not disclose or suggest the protective “*covering ink*” or droplets of *covering ink* as required by the independent claims. *Id.* at 28–32. Patent Owner explains that covering ink is not intended to generate an image, but rather to protect an already printed image or enhance the graphic value of that image, and must have varying thicknesses to further enhance the value. *Id.* at 28 (citing Ex. 1001, 1:28–41). Patent Owner further states that the ’806 patent teaches varying the thicknesses of the deposited covering ink by varying the shapes of the droplets ejected by the nozzle arrangement. *Id.* (citing Ex. 1001, 2:6–24, 4:37–40, 5:16–17, 5:53–55, 5:66–67, 6:50–61).

Patent Owner contends that Petitioner has not sufficiently shown that Nagashima’s device is compatible with covering ink; Patent Owner also contends that Nagashima’s device, which deposits uniform printing ink droplets, is incompatible with covering ink which is deposited in varying shapes/sizes. *Id.* at 28–32. Patent Owner argues that a POSITA seeking to apply a coating of covering ink to a substrate using Nagashima’s device would not simply insert a covering ink cartridge and expect success because numerous modifications, including modifying the print ejection head to produce droplets having different sizes as well as adding a drying station, are necessary for Nagashima to apply covering ink. *Id.* Patent Owner contends that these modifications were not even proposed by Petitioner, and that any such modifications would be based on hindsight and would defeat’s Nagashima’s purpose of depositing uniform shaped droplets to generate high resolution, high quality images. *Id.* Thus, Patent Owner contends Petitioner has not sufficiently shown a reason to modify Nagashima so as to arrive at the claimed invention. *Id.*

We agree with Patent Owner that Petitioner has not sufficiently shown that Nagashima discloses or suggests the claimed covering ink ordroplets of covering ink and, thus, Petitioner’s Nagashima-based grounds fail to present a compelling, meritorious, challenge. First, we disagree with Petitioner’s assertion that the ’806 patent defines covering ink as synonymous with “viscous product” so that “covering ink” broadly covers any “viscous product” including printing ink. *See* Pet. 8–9 (citing Ex. 1001, 3:21–22; Ex. 1003 ¶ 57–61). Rather, the ’806 patent states that “[i]n the present document, the terms of ‘covering ink’, ‘viscous product’ and ‘varnish’ are synonyms.” Ex. 1001, 3:21–22. We understand this sentence to mean that when ’806 patent uses the term “viscous product,” that the term is synonymous with “covering ink” within the ’806 patent, but is not intended to broadly mean that “covering ink” encompasses the entire universe of viscous products.

We also determine that there are substantial issues with Petitioner’s argument that Nagashima discloses or suggests using covering ink in its device. Petitioner’s argument that Nagashima does not limit its device to any particular ink and identifies ink having different characteristics, including viscosity, does not plainly lead to a conclusion that Nagashima discloses use of covering ink. *See* Pet. 8. Nor does Petitioner’s argument that because some inkjet printers have been used to deposit covering ink, and those inkjet printers and Nagashima’s device both involve similar piezo-type ink ejection heads for ejecting different ink types and viscosities, plainly lead to a conclusion that a POSITA would have found it obvious to use Nagashima to apply a covering ink. *See* Pet. 9–10; Ex. 1003 ¶¶ 62–66; *see*

also Prelim. Resp. 27 (“The Petitioner never suggests modifying Nagashima so that Nagashima outputs variable droplet sizes).

As such, even if we were to determine that Petitioner’s Nagashima-based challenges met the lower threshold for instituting an *inter partes* review (a question we need not reach in our *Fintiv* analysis), these challenges, if unrebutted in trial, do not plainly lead to a conclusion that one or more claims are unpatentable by a preponderance of the evidence.

3. *Takatsuka-Based Ground*

Petitioner asserts independent claims 1 and 9, and dependent claims 2, 4, 10, and 12 would have been obvious over Takasuka and Chang. Pet. 1, 44–76. Petitioner asserts that “Takatsuka discloses that the print controller 208 controls the ‘amount of ink ejected’ through the head driver 222” and that “Chang teaches that the volume of a droplet ejected from a nozzle “is based on the waveform driving the piezo-vibrator” as shown in Chang Figure 5, an annotated version of which is reproduced below. Pet. 60–61 (citing Ex. 1007, Fig. 5).

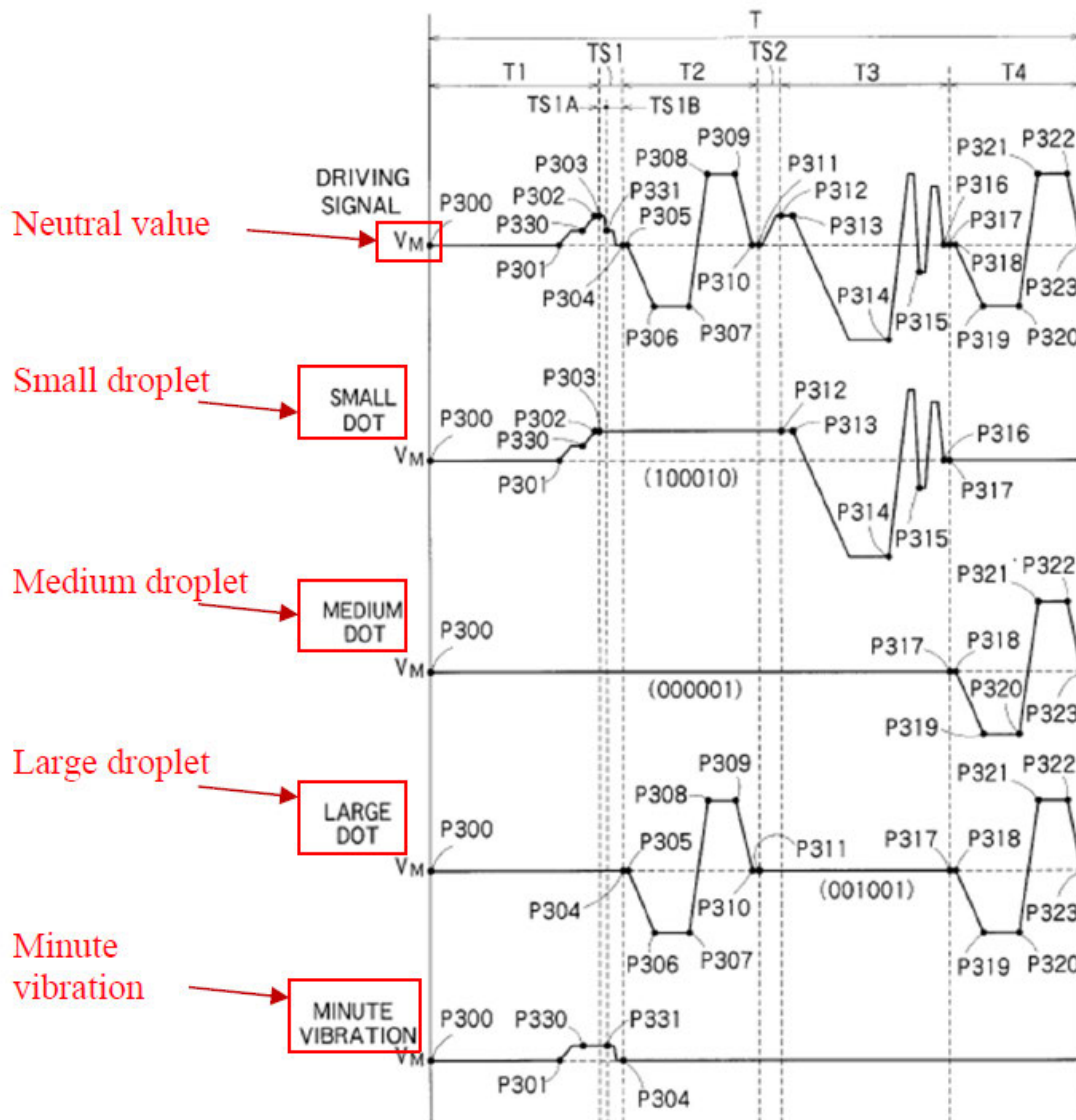


FIG. 5

Figure 5 is a drawing showing a driving signal, various driving pulses, and a minute vibration pulse of an embodiment of Chang, annotated by Petitioner to include red rectangles that denote various elements. Pet. 62; Ex. 1007, 5:29–31. Petitioner asserts that Chang uses an electrical waveform “to eject ‘large ink drops for forming large dots, medium drops for forming medium dots, and small ink drops for forming small dots from the same nozzle opening 13.’” Pet. 63 (citing Ex. 1007, 9:1–4). According to Petitioner,

“because the volume of the drop is different, the shape of the drop is different.” *Id.* at 63 (citing Ex. 1003 ¶ 219). Petitioner asserts that Chang also uses “a minute vibration pulse, which is ‘a preparatory waveform element which contracts said pressure chamber of waiting condition without ejecting said liquid drop,’” and which is “applied to said pressure generating element so as to finely vibrate a meniscus of said liquid.” *Id.* (citing Ex. 1007, 3:26–29, 3:67–4:2).

With respect to claim element [1.1.2] (“in response to . . . the viscosity), Petitioner asserts Chang’s “minute vibration pulse” can be generated by a combination of a waveform element and a connection element, and that the “particular minute vibration waveform is generated based on the viscosity of the ink.” Pet. 65 (citing Ex. 1007, 12:4–17, 11:66–12:3). Petitioner explains that when a high viscosity ink is used, “the pulse generation means selects the whole of the first waveform element (P300 to P303) and the whole of the first connection element (P303 to P304) to generate a minute vibration pulse of relatively high wave height.” Pet. 65–66 (quoting Ex. 1007, 11:66–12:3). Thus, according to Petitioner, the combination of Takatsuka and Chang renders obvious “controlling by a computer the shapes of the droplets by controlling the shape of an electric waveform applied to the piezoelectric actuator, in response to . . . the viscosity of the ink” as required by independent claims 1 and 9. *Id.*

Patent Owner responds that Chang does not teach these limitations because “the waveform elements of Chang that control droplet shapes do not consider *ink viscosity* whatsoever and remain static regardless of the ink’s viscosity.” Prelim. Resp. 34 (citing Ex. 1007, 11:41–49, 12:38–47). Patent Owner asserts that the only waveform in Chang that considers ink viscosity

is a waveform that specifically does not generate a droplet. *Id.* at 33–35 (citing, *inter alia*, Ex. 1007, 9:38–41, 12:52–57). According to Patent Owner, “Chang differentiates between driving pulses and connection elements of the driving waveform” and teaches that connection elements are “not used to generate the driving pulses for ejecting an ink droplet,” including the connection element “‘minute vibration pulse,’ which Petitioner relies upon.” *Id.* at 34 (citing Ex. 1007, code (57) 9:17–27, 9:38–45). Patent Owner asserts that “the shape of an ink droplet is not controlled by the minute vibration pulse because the minute vibration pulse does not generate any droplet,” and rather, it is “only the ‘driving pulses’ of Chang [that] control the sizes of drops,” but the driving pulses of Chang remain the same regardless of whether the ink is ‘high viscosity’ or ‘low viscosity.’” *Id.* at 35 (citing Ex. 1007, 12:17–21).

Based on the preliminary record, Patent Owner has raised substantial issues with Petitioner’s analysis of Chang, namely, whether the computer of Chang controls the shape of the droplets by controlling the shape of the particular electric waveform that is applied to piezoelectric actuator, and is relied upon by Petitioner, in response to the viscosity of the ink. *See, e.g.*, Prelim. Resp. 34 (citing Ex. 1007, 11:41–49, 12:38–47); *see also id.* at 37 (stating that “[t]he only waveform [in Chang] that considers ink viscosity is a waveform that specifically does not generate a droplet and citing Ex. 1007, 11:66–12:3, 12:17–25).

As such, even if we were to determine that Petitioner’s Takatsuka and Chang based challenge met the lower threshold for instituting an *inter partes* review (a question we need not reach in our *Fintiv* analysis), this challenge,

if unrebutted in trial, does not plainly lead to a conclusion that one or more claims are unpatentable by a preponderance of the evidence.

4. *Dainippon-Based Ground*

Petitioner asserts independent claims 1 and 9 and dependent claims 7 and 18 would have been unpatentable over Dainippon and Chang. Pet. 1, 77–81. Both independent claims require an “ink jet nozzle arrangement.” In particular, method claim 1 requires, *inter alia*, an “ink jet nozzle arrangement having a piezoelectric actuator for applying droplets of covering ink” to a substrate wherein the shape of the droplets is controlled “by controlling the shape of an electric waveform that is applied to the piezoelectric actuator” of the ink jet nozzle arrangement. Ex. 1001, 8:60–63. Apparatus claim 9 similarly requires an “ink jet nozzle arrangement having a piezoelectric actuator for applying droplets of covering ink to the substrate” and an “electric source for applying an electric waveform to the piezoelectric actuator” of the ink jet nozzle arrangement. Ex. 1001, 9:43–49.

Petitioner asserts that Dainippon teaches an ink printing machine having an ink jet nozzle arrangement (i.e., droplet spray nozzle head 50) with piezoelectric elements for varying the size of droplets sprayed from the nozzles, and that Chang teaches using an electric waveform to drive the piezoelectric elements and control droplet size. Pet. 77–79. In particular, Petitioner states Dainippon’s “printing machine can include an ‘ink jet printing machine’ that uses piezoelectric elements for droplet spraying.” Pet. 77 (citing Ex. 1008, 12:52–57 (for “ink jet printing machine”), 10:40–41 (for “piezoelectric elements))). Petitioner further states Dainippon’s “coating material applying apparatus” has “droplet spray nozzle head 50” and that the “droplet spray nozzles 54 [of] droplet spray nozzle head 50 spray the

ultraviolet-curable varnish” onto a printing paper substrate. Pet. 79 (citing Ex. 1008, 9:58–61, 10:5–9); *see also id.* (stating that Dainippon’s “‘droplet spray nozzle head’ structure is the [claimed] nozzle arrangement because it is an arrangement of droplet spray nozzles”). Petitioner further asserts Dainippon teaches that “[s]elected nozzles 54 among the numerous droplet spray nozzles 54 spray varnish toward a particular portion of the [substrate] to be coated with the varnish, in the same way as the inkjet nozzles of an inkjet printer spray ink.” *Id.* (quoting Ex. 1008, 10:25–32); *see also* Pet. 80 (stating “‘selected droplet spray nozzles 54 spray droplets of the varnish onto the printing paper’ in the same way as the inkjet nozzles of an inkjet printer spray ink” and quoting Ex. 1008, 10:32–39).

Petitioner admits that Dainippon is silent on the signal that is used to drive its piezoelectric elements, but contends that it would have been obvious to use Chang’s waveforms to drive Dainippon’s piezoelectric elements in order to control the amount of varnish sprayed from Dainippon’s nozzles and thus control the thickness of the applied varnish. Pet. 78 (citing Ex. 1003 ¶¶ 289–290; Ex. 1007, 9:4–9, Figs. 4–6), 80.

Patent Owner responds that the embodiments relied upon by Petitioner have a spray nozzle head, not an ink jet nozzle, and thus Petitioner’s ground fails to teach an “ink jet nozzle arrangement” as required by the claims. Prelim. Resp. 53–56.

We agree with Patent Owner. Petitioner relies on Dainippon’s “droplet spray nozzle head 50” for teaching the claimed “ink jet nozzle arrangement.” Pet. 77–81; *see also* Pet. 79 (stating Dainippon’s “‘droplet spray nozzle head’ structure is the [claimed] nozzle arrangement because it is an arrangement of droplet spray nozzles”). As discussed in more detail

below, Petitioner does not sufficiently show that Dainippon's droplet *spray nozzle* head is the claimed *ink jet nozzle* arrangement; nor does Petitioner present arguments that it would have been obvious to replace Dainippon's droplet spray nozzle head with an ink jet nozzle arrangement. *See generally* Pet.

Significantly, Dainippon draws a distinction between spray nozzles and ink jet nozzles. *See, e.g.*, Ex. 1008, 10:28–32; *see also* Pet. 79 (citing Ex. 1008, 10:25–32). For example, Dainippon indicates that its spray nozzles are not the same as ink jet nozzles by stating that both ink jet nozzles and spray nozzles can operate in the same way. *Id.* at 10:28–32 (stating droplet spray nozzles 54 spray varnish in the same way ink jet nozzles of an ink jet printer spray ink). We do not understand Dainippon's statement that spray and ink jet nozzles may varnish in the same way to mean that spray nozzles are the same as ink jet nozzles; if anything, these statements distinguish spray nozzles from ink jet nozzles.

Petitioner's argument that Dainippon teaches the claimed ink jet nozzle arrangement because Dainippon discloses an "ink jet printing machine" is not persuasive on the present record. Pet. 77 (citing Ex. 1008, 12:52–57). The sentence of Dainippon cited by Petitioner merely states that its "varnish coating operation may be implemented with other various printing machines" including a web press, letterpress printing machine, screen printing machine, and "ink jet printing machine." Ex. 1008, 12:52–57. Petitioner presents no persuasive argument or evidence relying on this alternative embodiment involving an ink jet printing machine. Nor does the Petition present any reason to modify the embodiment having a spray nozzle

to use an ink jet nozzle arrangement rather than the spray nozzle. *See generally* Pet.

As such, even if we were to determine that Petitioner's Dainippon-based challenge met the lower threshold for instituting an *inter partes* review (a question we need not reach in our *Fintiv* analysis), this challenge, if unrebutted in trial, does not plainly lead to a conclusion that one or more claims are unpatentable by a preponderance of the evidence. Thus, we determine that the Petitioner does not present a compelling, meritorious, challenge to any claim of the '806 patent.

Accordingly, for the foregoing reasons, we find that the sixth *Fintiv* factor does not weigh against discretionary denial.

G. Balancing the Fintiv Factors

A holistic balancing of the *Fintiv* factors weighs in favor of discretionary denial. As discussed above, only factor 4 weighs somewhat against discretionary denial. The remaining factors either do not support institution (factors 1 and 6) or weigh in favor of denial of institution (factors 2, 3, and 5). Moreover, Petitioner has not submitted a *Sotera*-type stipulation or shown compelling evidence of unpatentability that would make discretionary denial inappropriate under the Guidance Memo.

Given the late stage of the parallel District Court Proceeding, the substantial investment by the parties in that proceeding, and the lack of strong countervailing considerations, the evidence of record favors exercising our discretion to deny institution of an *inter partes* review.

IV. CONCLUSION

For the above reasons, we exercise our discretion under 35 U.S.C. § 314(a) to deny institution of an *inter partes* review challenging claims 1, 2, 4, 9, 10, and 12 of the '806 patent.

V. ORDER

In consideration of the foregoing, it is
ORDERED that the Petition is *denied*, and no trial is instituted.

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Patent 8,783,806 B2

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