

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SIRIUS XM RADIO INC.,
Petitioner,

v.

FRAUNHOFER-GESELLSCHAFT ZUR FÖRDERUNG DER
ANGEWANDTEN FORSCHUNG E.V.,
Patent Owner.

Case IPR2018-00690
Patent 6,314,289 B1

Before JEFFREY S. SMITH, STACEY G. WHITE, and
MICHELLE N. WORMMEESTER, *Administrative Patent Judges*.

SMITH, *Administrative Patent Judge*.

Final Written Decision
35 U.S.C. § 318(a)

I. INTRODUCTION

Petitioner filed a Petition requesting *inter partes* review of claims 1–15, 17–33, and 35 of U.S. Patent No. 6,314,289 B1 (“the ’289 patent,” Ex. 1001). Paper 1 (“Pet.”). Patent Owner filed a Preliminary Response. Paper 12. Petitioner filed a Reply to the Preliminary Response, and Patent Owner filed a Sur-Reply. Papers 13, 15. We instituted an *inter partes* review as to all challenged claims and on all grounds raised in the Petition. Paper 29 (“Inst. Decision”). Patent Owner filed a Response. Paper 34 (“PO Resp.”). Petitioner filed a Reply, and Patent Owner filed a Sur-Reply. Papers 37 (“Pet. Reply”), 42 (“PO Sur-Reply”). A hearing was held on May 19, 2020 and a transcript was entered into the record. Paper 62 (“Tr.”).

A. Related Matters

The parties state that the ’289 patent is the subject of *Fraunhofer-Gesellschaft Zur Förderung der angewandten Forschung e.V. v. Sirius XM Radio Inc.*, No. 1:17-cv-00184-JFB-SRF (D. Del. 2017). Pet. 2–3; Paper 4, 1.

B. Real Parties in Interest

Petitioner identifies itself and Sirius XM Holdings Inc. as the real parties in interest. Pet. 2, Papers 23, 28. Patent Owner identifies itself as the real party in interest. Paper 4.

C. The '289 Patent

The '289 patent relates to concepts for digital broadcasting suited for fading channels for wireless communication. Ex. 1001, 1:7–10. Figure 1 of the '289 patent is reproduced below.

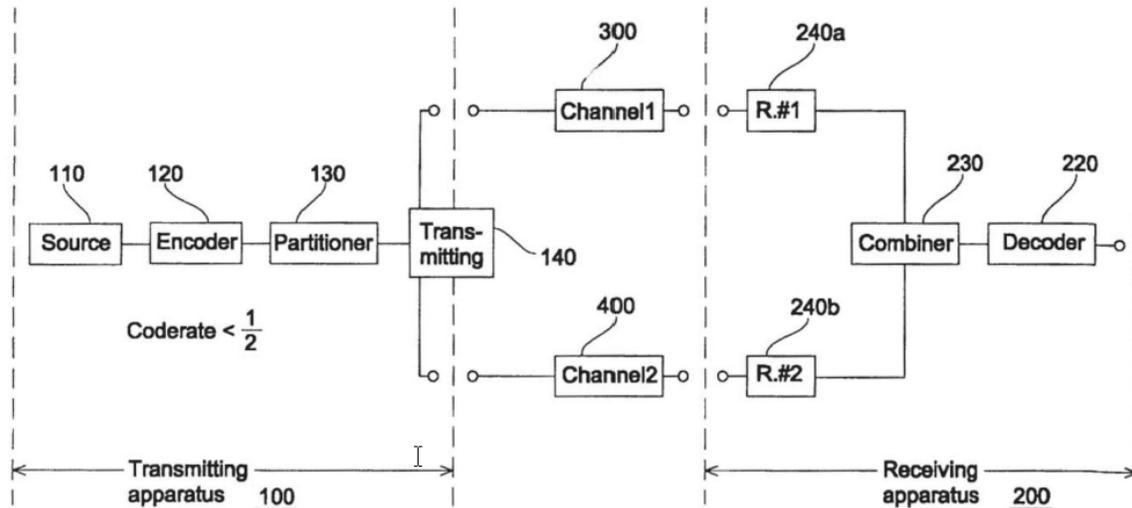


Fig. 1

Figure 1 above shows a block diagram of transmitting apparatus 100 and receiving apparatus 200. *Id.* at 7:14–16. Transmitting apparatus 100 includes bitstream source 110, redundancy adding encoder 120, and partitioner 130. *Id.* at 7:16–18. Encoder 120 is set to output at least twice as many output bits as the number of input bits from bitstream source 110, such that the output bits can be divided into a first portion and a second portion. *Id.* at 7:22–38. Each portion of output bits individually allows the retrieval of information represented by the input bits, such that decoder 220 located in receiving apparatus 200 is able to retrieve the input information when only one channel, such as channel 1 or channel 2, provides a useful signal. *Id.* at 7:38–45.

Figure 3, reproduced below, shows an example of transmitting apparatus including encoder 120, puncturing unit 125, and partitioner 130.

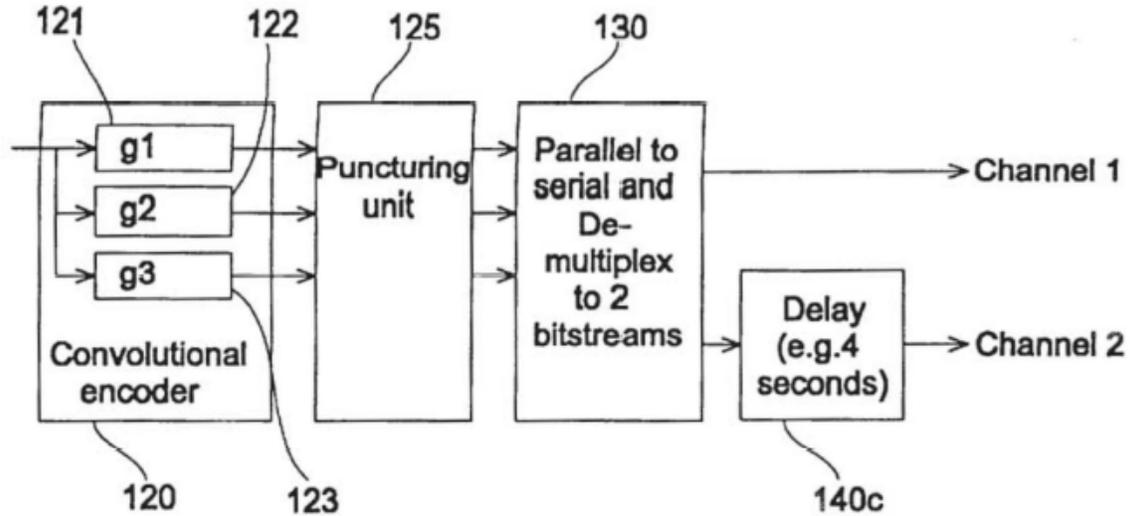


Fig. 3

Figure 3 above shows encoder 120 implemented as a convolutional encoder with three generator polynomials, g_1 , g_2 , and g_3 . *Id.* at 8:46–54. The functionality of the convolutional encoder is shown in Figure 4, reproduced below.

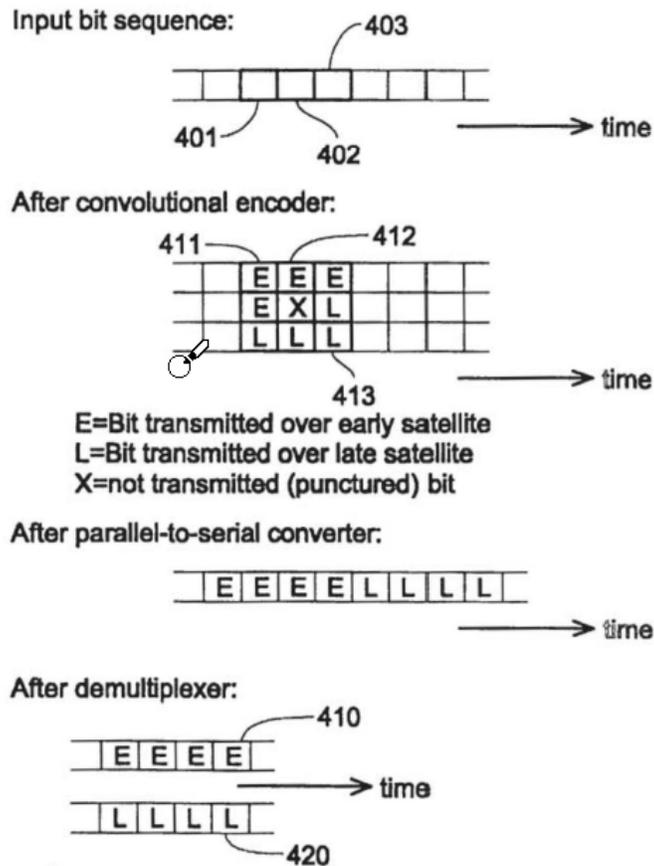


Fig. 4

Figure 4 above shows an input bitstream of three input bits, 401, 402, and 403 encoded into an output of eight bits. *Id.* at 9:7–8. The code rate shown in Figure 4 is 3/8, which means that for three input bits, eight output bits are produced. *Id.* at 7:20–35. For each input bit, convolutional encoder 120 produces three parallel output bits 411, 412, and 413. *Id.* at 9:8–11. The output bits labeled “E” are transmitted early and the output bits labeled “L” are transmitted late, after a delay (such as 140c shown in Figure 3). *Id.* at 9:13–17. The X bit is not transmitted. *Id.* at 9:17.

The encoded bits are processed by puncturing unit 125 and partitioner 130, to produce a first portion of output bits 410 and a second portion of output bits 420. *Id.* at 9:17–37. The first portion of output bits is encoded in a different way than the second portion of output bits. *Id.* at

7:46–48. For example, as shown in Figure 4, the first portion contains two encoded output bits 411, each corresponding to input bit 401, and the second portion contains two encoded output bits 413, each corresponding to input bit 403, providing some redundancy that can be used by decoder 220. *See id.* at 9:36–40.

D. Illustrative Claim

Of the challenged claims, 1, 2, 6, 9, 10, 13, 18, 19, 23, 26, 27, and 31 are independent. Challenged claim 1 is reproduced below.

1. An apparatus for transmitting information, comprising:
 - a bitstream source for providing a bitstream representing the information;
 - a redundancy adding encoder for generating an encoded bitstream based on the bitstream provided by the bitstream source wherein the encoder is arranged to output, for a first number of input bits, a second number of output bits, the second number of output bits having at least twice as many output bits as the first number of input bits, and wherein the second number of output bits includes two portions of output bits, each portion of output bits individually allowing the retrieval of information represented by the first number of input bits, and the first portion of output bits being coded based on the bitstream in a different way with respect to the second portion of output bits;
 - a partitioner for partitioning the second number of output bits into the two portions of output bits;
 - a transmitter for transmitting the output bits of the first portion via a first channel and the output bits of the second portion via a second channel, the second channel being spatially different from the first channel;
 - the transmitter being a single transmitter;
 - the first channel being defined by the single transmitter and a first position of a mobile receiver;

the second channel being defined by the single transmitter and a second position of the mobile receiver; and

the transmitter further includes delay means for delaying the second portion of output bits transmitted via the second channel such that time diversity is obtained.

Id. at 13:6–36

E. Asserted Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability:

Reference(s)	Basis	Claims
Chen, ¹ Campanella ²	§ 103	1–15, 17–33, 35
Smallcomb ³	§ 102	1–6, 8–14, 17–23, 25–32, 35
Smallcomb, Campanella	§ 103	1–15, 17–33, 35

II. ANALYSIS

A. Claim Construction

For purposes of this decision, we do not find it necessary to construe any claim terms to resolve a controversy. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (only terms that are in controversy need to be construed, and only to the extent necessary to resolve the controversy).

B. Asserted Obviousness over Chen and Campanella

Petitioner contends claims 1–15, 17–33, and 35 are unpatentable over Chen and Campanella. Pet. 24–72. The '289 patent has a filing date of December 3, 1998. Ex. 1001, code (22). Campanella has a Patent

¹ US Patent No. 6,347,122 B1 filed Jan. 13, 1998 (Ex. 1004) (“Chen”).

² US Patent No. 6,944,139 B1 filed July 10, 1998 (Ex. 1005) (“Campanella”).

³ US Patent No. 6,247,158 B1 filed Dec. 30, 1998 (Ex. 1003) (“Smallcomb”).

Cooperation Treaty (PCT) filing date of July 10, 1998, a § 371(c)(1), (2), (4) date of Sept. 26, 2000, and is related to provisional application No. 60/079,591, filed March 27, 1998. Ex. 1005, codes (22), (86), (60).

Petitioner contends that Campanella qualifies as prior art under § 102(e) because Campanella's international application was filed within the United States on July 10, 1998. Pet. 19; Pet. Reply 9–10. According to Petitioner, Campanella is a patent granted on an application for patent by another filed in the United States before the '289 patent. Pet. Reply 9 (citing Ex. 1028). According to Petitioner, this is a correct interpretation of 35 U.S.C. § 102(e) as read in light of the PCT because, upon ratification of the PCT, the United States' reservation under PCT Article 64(4)(a) only applied to international applications filed outside of the U.S. *Id.* at 10–11 (citing Ex. 1030). Petitioner further contends that Campanella qualifies as prior art because the filing date of the earliest U.S. application to which Campanella is entitled is the filing date of the Campanella provisional application. *Id.* at 12–13 (citing *In re Giacomini*, 612 F.3d 1380, 1383 (Fed. Cir. 2010)).

Patent Owner contends that Campanella is not prior art. PO Resp. 18. Patent Owner contends that Campanella's PCT filing date of July 10, 1998 is subject to the pre-AIPA⁴ version of 35 U.S.C. § 102(e), which states that a person shall be entitled to a patent unless

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of

⁴ American Inventors Protection Act of 1999, Pub. L. No. 106–113, §§ 4001–4808, 113 Stat. 1501, 1501A–552 to –591 (“AIPA”).

section 371(c) of this title before the invention thereof by the applicant for patent.

PO Resp. 19 (citing Ex. 2043, 1). Patent Owner contends that, from the plain language of the pre-AIPA Section 102(e) and from the front page of Campanella—which states that the “§ 371(c)(1), (2), and (4) Date” is “Sep. 26, 2000”—the earliest date on which Campanella might qualify as prior art is September 26, 2000. *Id.* at 19–21 (citing Ex. 1005; Ex. 2044; Ex. 2048).

Patent Owner contends the MPEP confirms that

[w]here a U.S. application filed under 35 U.S.C. 111(a) claims the benefit of the filing date of a copending PCT international application under 35 U.S.C. 120, its effective date as a reference under 35 U.S.C. 102(e) is the **>U.S. filing date of the 35 U.S.C. 111(a) application and not the international filing date. When< a U.S. national stage application filed under 35 U.S.C. 371 becomes a U.S. patent, the 35 U.S.C. 102(e) date of the U.S. Patent as a prior art reference is the date applicant fulfilled the requirement of 35 U.S.C. 371 (c)(1), (c)(2), and (c)(4).

Id. at 22–23 (citing Ex. 2046 (MPEP 2136.03.II); Ex. 2047).

Patent Owner also contends that the filing date of Campanella’s provisional application does not establish the critical reference date of Campanella. *Id.* at 23–24 (citing Ex. 2045, 2046). Patent Owner contends that the applicable version of the MPEP states that “[b]y the terms of 35 U.S.C. 102(e), the critical reference date of a U.S. patent granted on such a 35 U.S.C. 371 application is the date on which paragraphs (c)(1), (c)(2), and (c)(4) have been fulfilled, not the filing date of the provisional application.” PO Resp. 24 (citing Ex. 2046, 6; Ex. 2045, 11; Ex. 2047, 13). Patent Owner also contends that *Giacomini* was not subject to the pre-AIPA version of 102(e), because *Giacomini* claimed direct priority to a provisional

application with no intermediate international application, and in addition, was filed after November 28, 2000. PO Sur-Reply 7.

Petitioner contends that the USPTO's interpretation of both the statute and the PCT, as expressed in the MPEP, would cause the pre-AIPA 102(e) statute to violate Article 64(4)(a) of the PCT, and therefore is incorrect. Pet. Reply 11–12. Patent Owner contends that Petitioner should not be permitted to belatedly advance a new and unconventional interpretation of 102(e) that contradicts the long-established interpretation of the USPTO's policy as set forth in the MPEP for the first time in Reply. PO Sur-Reply 1–2, 7.

We agree with Patent Owner. At the time of filing the Petition, Petitioner knew its interpretation of 102(e) was inconsistent with that of the USPTO as expressed in the MPEP, but did not address its inconsistent interpretation in the Petition. *See* Tr. 27:21–28:2 (“[W]hen you filed the petition, were you aware that the Patent Office said that the date for these PCT applications is the 371 date? . . . Mr. Baghdassarian: We were aware of what the MPEP stated on this.”); *see id.* at 25:19–29:8. Petitioner's new argument in the Reply is untimely. *See* Office Trial Practice Guide, 73 (“Petitioner may not submit new evidence or argument in reply that it could have submitted earlier, e.g. to make out a prima facie case.”).

Patent Owner contends that, even were we to consider Petitioner's late argument, the legislative history confirms that Congress contemplated that compliance with paragraphs (1), (2), and (4) of section 371(c) would be required for international applications filed in the USPTO. PO Sur-Reply 4–5 (citing H.R. Rep 94-592 § 5 (1975)). Patent Owner contends that the PCT Declaration of the U.S. under Article 64(4)(a) further supports the established interpretation of 102(e). *Id.* at 5–6 (citing Ex. 1030). Patent

Owner also contends that, in the event of ambiguity, the USPTO's interpretation of the statute is entitled to deference. *Id.* at 4 (citing *Chevron, U.S.A., Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837, 844 (1984); *Cooper Techs. Co. v. Dudas*, 536 F.3d 1330, 1337 (Fed. Cir. 2008)). Even were we to consider Petitioner's late arguments, we agree with Patent Owner that the unambiguous plain meaning of the statute is that the prior art date of an international application is the 371(c) date, and that this meaning is confirmed by the legislative history, the PCT Declaration of the U.S, and the relevant sections of the MPEP.

The Petition has not shown that Campanella is prior art to the '289 patent. Therefore, the Petition has not shown by a preponderance of the evidence that the combination of Chen and Campanella renders the challenged claims obvious.

Petitioner contends that the challenged claims are unpatentable over Chen alone. Pet. Reply 6–8. Patent Owner contends that the ground of Chen alone was not raised in the Petition and is therefore untimely. PO Sur-Reply 23. We agree with Patent Owner. The “statute envisions that a petitioner will seek an inter partes review of a particular kind—one guided by a petition describing ‘each claim challenged’ and ‘the grounds on which the challenge to each claim is based.’” *SAS Institute Inc. v. Iancu*, 138 S. Ct. 1348, 1355 (quoting 35 U.S.C. § 312(a)(3)). “[I]t is the Petition, not the Board’s ‘discretion,’ that defines the metes and bounds of an inter partes review.” *Koninklijke Philips v. Google*, 948 F3d 1330, 1336 (Fed. Cir. 2020) (citing *SAS*, 138 S.Ct. at 1355–56). “Unlike district court litigation—where parties have greater freedom to revise and develop their arguments over time and in response to newly discovered material—the expedited

nature of IPRs bring with it an obligation for petitioners to make their case in their petition to institute.” *Intelligent Bio-Systems v. Illumina Cambridge*, 821 F.3d 1359, 1369 (Fed. Cir. 2016).

Here, the “petition did not advance an argument that the challenged claims would have been obvious over” Chen alone. *See Koninklijke Philips*, 948 F.3d at 1336. Petitioner “chose which grounds of invalidity to assert in its petition, and it chose not to assert this new one.” *Intelligent Bio-Systems*, 821 F.3d at 1369. Petitioner’s contention that the challenged claims are unpatentable over Chen alone is untimely because it improperly raises a new ground and relies on a new rationale to explain why Chen alone renders the challenged claims obvious. We do not consider the new ground raised in the Reply, that the challenged claims are unpatentable over Chen alone.

C. Asserted Anticipation over Smallcomb and Obviousness over Smallcomb and Campanella

Petitioner contends that Smallcomb anticipates claims 1–6, 8–14, 17–23, 25–32, and 35. Pet. 72–83. Petitioner also contends that claims 1–15, 17–33, and 35 are unpatentable as obvious over Smallcomb and Campanella. Pet. 83–85.

The ’289 patent has a filing date of December 3, 1998. Ex. 1001, code (22). Smallcomb has a filing date of December 30, 1998. Ex. 1003, code (22). Petitioner contends that Smallcomb is prior art to the ’289 patent because Smallcomb is entitled to the benefit of the filing date of Smallcomb’s provisional application, November 30, 1998. Pet. 15 (citing *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1379 (Fed. Cir. 2015)). In our Decision to Institute, we determined that Petitioner did not submit the provisional application as an exhibit, and did not show that the provisional application provides support for the claims in the

Smallcomb patent in compliance with § 112, ¶ 1. Inst. Decision 26. We concluded that the Petition did not show that the Smallcomb patent is prior art to the '289 patent. *Id.*

In its Reply, Petitioner submits the Smallcomb provisional application into evidence, and presents additional arguments based on the new evidence. Pet. Reply 20–22. Petitioner contends that the additional arguments and the new evidence were not presented in the Petition because the burden of showing that Smallcomb is prior art was met by arguing that the filing date of the Smallcomb provisional application was earlier than the filing date of the '289 patent. *Id.* We disagree with Petitioner. As the Federal Circuit has held, Petitioner's "proffered approach would create a presumption that a patent is entitled to the benefit of the filing date of its provisional precursor, but that would be unsound because the PTO does not examine provisional applications as a matter of course; such a presumption is therefore not justified." *Dynamic Drinkware*, 800 F.3d at 1380.

Petitioner had the burden of production "to prove that, under § 119(e)(1), [Smallcomb] was entitled to the benefit of the filing date of its provisional application." *Id.*; *see id.* at 1378 ("We agree with [Patent Owner] that the Board did not err in placing the burden on . . . the petitioner in the *inter partes* review, to prove that the prior art . . . patent was entitled to the filing date of its provisional application."). To meet this burden, the Petitioner needed to show that "the disclosure of the provisional application provides support for the claims in the reference patent in compliance with § 112, ¶ 1." *Id.* at 1381. The Petition did not make this showing. Inst. Decision 26.

Petitioner was required to present and identify such evidence in the Petition with particularity. *See* 35 U.S.C. § 312(a). As the PTAB has recently held:

A petitioner is required to present evidence and arguments sufficient to show that it is reasonably likely that it will prevail in showing the unpatentability of the challenged claims. *See* 35 U.S.C. §§ 312(a)(3), 314(a). Additionally, the statute requires that the petition identify *with particularity* the grounds for institution and evidence supporting such grounds. 35 U.S.C. § 312(a). This includes the prior art relied upon and evidence that it qualifies as such. This standard is far more than is required in typical notice pleading, which only requires that a party make plausible claims. *See* F.R.Civ.P. 8(a)(2) (general rules of pleading in federal courts); *ABB Turbo Sys. AG v. Turbousa, Inc.*, 774 F.3d 979, 984 (Fed. Cir. 2014).

Hulu v. Sound View, IPR2018–01039, Paper 29 at 13 (PTAB Dec. 20, 2019) (precedential). Here, the Petition did not “identify, with particularity, . . . evidence that [Smallcomb] qualifies as [prior art],” as required by statute.

We disagree with Petitioner’s contention that Petitioner can introduce such evidence in Reply, as a response to Patent Owner’s argument that Petitioner did not meet the burden of production. *See* Pet. Reply 21–22. The Federal Circuit has held that “[r]ebuttal evidence is supposed to be limited to that which is responsive to the adversary’s evidence: the traditional principle [is] that evidence offered to rebut must accomplish the function of rebuttal; to explain, repel, counteract, or disprove the evidence of the adverse party.” *Belden Inc. v. Berk-Tek LLC*, 805 F3d 1064, 1081–82 (Fed. Cir. 2015). Here, Patent Owner’s Response simply pointed out the defect in the Petition, that the Petition did not show the provisional

application provides written description support for the claims of the issued patent.

Petitioner may not now remedy its defective Petition by submitting new evidence and argument that it could have presented earlier. *See* Office Trial Practice Guide 73 (“Petitioner may not submit new evidence or argument in reply that it could have presented earlier, e.g. to make out a prima facie case of unpatentability.”); *see id.* at 74–75. To allow Petitioner to present its case in chief in a Reply would force Patent Owner to present its case in response for the first time in a Sur-Reply, and would “fail to provide Patent Owner ‘notice of and a fair opportunity to meet the grounds of rejection.’” *See Comcast Cable Communications, LLC v. Promptu Systems Corporation*, IPR2018-00343, Paper 56 at 76 (PTAB July 18, 2019) (quoting *Belden, Inc.*, 805 F.3d at 1080); *Ariosa Diagnostics v. Verinata Health, Inc.*, 805 F.3d 1359, 1368 (Fed. Cir. 2015).

“[A] reply . . . that raises a new issue or belatedly presents evidence may not be considered.” Patent Trial and Appeal Board Consolidated Trial Practice Guide 74 (Nov. 2019), *available at* <https://www.uspto.gov/sites/default/files/documents/tpgnov.pdf?MURL=>. “Once the Board identifies new issues presented for the first time in reply,” the Board “will not attempt to sort proper from improper portions of the reply.” *Intelligent Bio-Systems*, 821 F.3d at 1369. We do not attempt to sort proper from improper portions of the Reply. We do not consider the Reply.

The Petition has not shown that Smallcomb is prior art to the ’289 patent. Therefore, the Petition has not shown by a preponderance of the evidence that Smallcomb anticipates the challenged claims. The Petition

also has not shown by a preponderance of the evidence that the combination of Smallcomb and Campanella renders the challenged claims obvious.

III. OTHER ISSUES

A. Motions to Exclude

Both Petitioner and Patent Owner have filed motions to exclude various exhibits and portions of the Reply and Sur-Reply. Papers 31, 32, 40, 43, 46, 47, 52, 53, 56, 59, 61. Because our Final Written Decision does not rely on any of the challenged exhibits or challenged portions of the briefs, we dismiss the motions to exclude as moot.

B. Challenges to the Institution Decision

Under 35 U.S.C. § 312(a), a petition “may be considered only if” it includes: (1) payment of fees; (2) identification of all real parties in interest; (3) identification “with particularity” of each claim challenged, the grounds of each challenge, and the supporting evidence; (4) other information the Director requires by regulation; and (5) copies of these documents for the patent owner. Patent Owner contends that the Petition is improper because Petitioner failed to name all real parties in interest, and also failed to timely pay the filing fee, as required by § 312(a). PO Resp. 49–62. Patent Owner’s contention that the Petition fails under § 312(a) is “a contention that the agency should have refused ‘to institute an inter partes review,’” which “raises ‘an ordinary dispute about the application of’ an institution-related statute.” *ESIP Series 2, LLC v. Puzhen Life USA, LLC*, 958 F.3d 1378, 1386 (Fed. Cir. 2020) (citing *Thryv, Inc v. Click-To-Call Techs., LP*, 140 S. Ct. 1367, 1373–74 (2020)).

We do not reach Patent Owner's arguments that the Petition was deficient under § 312(a), because we find above that Petitioner has failed to demonstrate unpatentability of any of the Challenged Claims.

IV. CONCLUSION

For the foregoing reasons, we determine that the Petition fails to show by a preponderance of the evidence that the challenged claims are unpatentable.

In summary:

Claims	35 U.S.C. §	Reference(s)/Basis	Claims Shown Unpatentable	Claims Not shown Unpatentable
1-15, 17-33, 35	103	Chen, Campanella		1-15, 17-33, 35
1-6, 8-14, 17-23, 25- 32, 35	102	Smallcomb		1-6, 8-14, 17-23, 25-32, 35
1-15, 17-33, 35	103	Smallcomb, Campanella		1-15, 17-33, 35
Overall Outcome				1-15, 17-33, 35

V. ORDER

Accordingly, it is
ORDERED that claims 1-15, 17-33, and 35 are not unpatentable; 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.

IPR2018-00690
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