

2020-1441

United States Court of Appeals
for the Federal Circuit

MOBILITY WORKX, LLC,
Appellant,

v.

UNIFIED PATENTS, LLC,
Appellees.

*Appeal from the United States Patent and Trademark Office,
Patent Trial and Appeal Board in Inter Partes Review No.
IPR2018-01150.*

APPELLANT'S OPENING BRIEF

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Certificate of Interest

Counsel for Appellant, MOBILITY WORKX, LLC certifies the following:

1. The full name of the party represented by me is: MOBILITY WORKX, LLC.
2. The name of the real party in interest is: MOBILITY WORKX, LLC.
3. All parent corporations and any publicly held companies that own 10 percent or more of the stock of the party represented by me are:
None.
4. The names of all law firms and the partners or associates that appeared for the party or amicus now represented by me in the trial court or agency or are expected to appear in this court (and who have not or will not enter an appearance in this case) are:
 - Tarek N. Fahmi, Ascenda Law Group, LLC;
 - Michael Machat, Machat & Associates, PC

5. The title and number of any case known to counsel to be pending in this or any other court or agency that will directly affect or be directly affected by this court's decision in the pending appeal (*see* Fed. Cir. R. 47.4(a)(5) and 47.5(b)):

- *Mobility Workx, LLC v. Cellco Partnership d/b/a/ Verizon Wireless*, 4:17-cv-00872-ALM (EDTX).

Dated: July 30, 2020

By: /s/ David A. Randall

David A. Randall

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Appellant's Opening Brief

I. INTRODUCTION

Prior to the Supreme Court's 1927 decision in *Tumey v. Ohio*, a mayor could convict someone for unlawful liquor possession in a mayor's court. 273 U.S. at 516–17. The mayor would receive more compensation when he convicted and fined the defendant, and the extra compensation came from the criminal fines. *Id.* at 520. The fines also supported the village's general treasury fund, which the mayor presided over as the village chief executive officer. *Id.* at 533. This was a due process violation for two reasons. First, the mayor had “a direct, personal, substantial, pecuniary interest” in fining the person because the mayor's bonus pay was tied to convictions. *Id.* at 523. Second, the mayor had a strong “official motive to convict and to graduate the fine to help the financial needs of the village.” *Id.* at 535.

The America's Invent Act was signed into law in 2011 with good intentions. But as implemented, it encourages behavior similar to that found unconstitutional almost a century ago in *Tumey*.

The procedural mechanisms in which the new *inter partes* review (“IPR”) proceedings work, violate the Due Process Clause of the Constitution for various reasons. First, the salaries of the Administrative Patent Judges (APJs) that decide to institute an IPR proceeding are derived from the filing fees paid by those challenging a

patent—approximately half of which gets refunded if there is no institution decision; thus, the more IPR proceedings instituted, the more money available for the PTAB to pay its body of APJs salaries and bonuses. Shockingly, the system works in such a way that bonuses are awarded for deciding against patent holders, and APJs are discouraged from writing dissenting opinions.

Second, in an apparent cost savings move, the same judges who decide to institute also preside over the IPR proceeding they instituted. Having an impartial set of new judges not familiar with the prior proceedings would prevent prejudging bias, but it would certainly cost more money. However, both the Fifth Amendment and APA are meant to prevent the Director (of the PTO) from delegating the decision of whether to institute an IPR proceeding to the same panel of judges that will ultimately decide whether the institution decision was correct in the first place.

IPR Proceedings also amount to an unlawful taking contrary to the Fifth Amendment when applied to pre-AIA patents as is the case here. The manner in which the IPR hearings are heard and determined is so different from prior procedures relating to post patent review petitions that it can only be described as a case of the government welching on its promises for which patent holders disclosed their inventions.

The manner in which the APJ's were appointed also violated the Appointments Clause of the Constitution, and the *Arthrex* fix didn't

actually cure the matter, but made it worse; now APJ's are terminable at will, making the compensation and inducement issues—contrary to *Tumey* and its progeny—an even greater concern.

There is no quick fix to the plethora of constitutional and APA violations before the Court. But should this Court not totally reverse the decision below, at a minimum, the Final Written Decision should be vacated, a new panel of properly appointed APJs should make the initial decision of whether to institute, and if the decision is to institute, then a different panel of properly appointed APJs need to hear the matter *ab initio*.

Lastly, the PTAB Final Written Decision simply got it wrong when it found claims 1, 2, 4, and 5 unpatentable, and should be reversed.

II. STATEMENT OF RELATED CASES

Pursuant to Federal Circuit Rule 47.5, there is no prior appeal in or from the PTAB proceedings in this case, in this or any other appellate court. The patent in dispute here is at issue in *Mobility Workx, LLC v. Cellco Partnership d/b/a/Verizon Wireless*, 4:17-cv-00872 - ALM (EDTX).

III. JURISDICTIONAL STATEMENT

This Court has jurisdiction pursuant to 28 U.S.C. § 1295(a)(4)(A), 35 U.S.C. §§ 141(c), 144 and 319 because this appeal arises from the Final

Written Decision (“FWD”) in IPR2018–01150. The PTAB had jurisdiction over the matters below under 35 U.S.C. §§ 6(c) and 318(c). The patent owner, Mobility Workx (“Mobility”), timely filed and served the notice of appeal on January 31, 2020, after the PTAB’s FWD on December 2, 2019.

IV. STATEMENT OF THE ISSUES

1. Whether the unusual structure for instituting and funding AIA post-grant reviews violates the Due Process Clause in view of *Tumey v. Ohio*, 273 U.S. 510 (1927), and its progeny, which establish “structural bias” as a violation of due process.

2. Whether the Director’s delegation of his responsibility to make final unreviewable institution decisions to the same APJ’s who make the Final Written Decision violates the Administrative Procedures Act and/or the Due Process Clause of the Constitution.

3. Whether subjecting the Pre-AIA ’417 Patent to an AIA Proceeding so fundamentally different from the post review proceedings that existed at the time Mobility’s inventors applied for and obtained their patent constitutes an unlawful taking of property.

4. Whether the PTAB’s decisions should be vacated and remanded because the PTAB panel that decided the cases was unconstitutional under the Appointments Clause.

5. Whether the PTAB's holding of claims 1, 2, 4, and 5 unpatentable over Liu or Liu and Gwon should be reversed because its finding that Liu or Liu and Gwon teach or suggest a ghost-mobile node "triggering signals" that are "required to allocate resources and initiate mobility on behalf of the mobile node" is not supported by substantial evidence.

V. STATEMENT OF THE CASE AND FACTUAL BACKGROUND

This appeal is from the PTAB's FWD in *Inter Partes* Review No. IPR2018-01150 finding claims 1, 2, 4, 5, and 7 of U.S. Patent No. 8,213,417 ("the '417 Patent") unpatentable.

The '417 Patent, entitled "System, Apparatus, and Methods for Proactive Allocation of Wireless Communication Resources," was filed March 5, 2010, by its inventors Drs. Edwin A. Hernandez-Mondragon and Abdelsalam A. Helal and issued July 3, 2012. Appx53. Thus, the '417 Patent was filed *prior to* the passage of the Americas Invent Act ("AIA") and issued over two months *prior to* Sections 311-319 of Title 35 becoming effective on September 16, 2012 under the AIA.

A. Procedural Background.

On August 14, 2017, Mobility filed a lawsuit for patent infringement against T-Mobile, in the Eastern District of Texas, *Mobility Workx, LLC v. T-Mobile et al.*, Case No. 4:17-cv-00567 - ALM. Then on December 18,

2017, Mobility filed a lawsuit against Verizon Wireless, *Mobility Workx, LLC v. Cellco Partnership d/b/a/Verizon Wireless*, 4:17-cv-00872 -ALM (EDTX). While those two lawsuits were pending, on June 1, 2018, Appellee, Unified Patents, LLC (“UPL”) filed its petition seeking *inter partes* review of claims 1–7 of Mobility’s ’417 Patent. Appx77–78, Appx137. On December 3, 2018,¹ the PTAB instituted *inter partes* review (“Institution Decision”) on all challenged claims under all asserted grounds. Appx2, Appx186.

Oral hearing was held September 6, 2019, Appx2, following which the PTAB issued its FWD on December 2, 2019, Appx1, Appx49. This appeal followed.

B. Factual Background.

1. The Description of the ’417 patent and how it works.

The ’417 Patent (Ex. 1001) is titled “System, Apparatus, and Methods for Proactive Allocation of Wireless Communication Resources” and is generally directed to allocation of communications resources in a communications network. Appx55, Appx63, 1:17–19. Mobile communication systems comprise mobile nodes (e.g., cell phones) that communicate with each other through a series of base stations that

¹ The T-Mobile suit settled in December, 2018. The Verizon lawsuit remains pending. Trial was set to begin December 6, 2019, but when the FWD came down on December 2, 2019 (Appx1), trial was suspended pending resolution of this Appeal.

serve distinct zones or cells. Appx63, 1:28–31, Appx64-65, 4:60–5:8 As the mobile node moves from one cell to another, it establishes a new connection with a new base station. Appx63, 1:31–35. The mobile node must be able to let other nodes know where it can be reached when it is moving. Appx63, 1:36–39.

Typically, the mobile node registers with a home agent so the home agent can remain a contact point for other nodes that want to exchange messages or otherwise communicate with the mobile node as it moves from one location to another. Appx63, 1:39–44; Appx65, 5:9–17.

Accordingly, a mobile node may use two IP addresses, one being a fixed home address and one being a care-of address, where the care-of address changes as the mobile node moves between networks. Appx63, 1:45–49. When the mobile node links to a network other than the one in which its home agent resides, the mobile node is said to have linked to a foreign network. Appx63, 1:49–52. The mobile node, therefore, receives an IP address from the home network, and when it moves to a foreign network and establishes a point of attachment by registering with a foreign agent, it receives a care-of address assigned by the foreign network. Appx63, 1:52–56; Appx65, 5:47–54.

Delays can occur when setting up a new communication link when the mobile node is handed off from one foreign agent to another because the new communication link cannot be set up until the mobile node arrives in the new foreign agent's physical region of coverage. Appx63,

2:20–36, Appx65, 6:3–10. In addition, data packets may be lost if they arrive during the time when set up is being established. Appx63, 2:36–38, Appx65, 6:10–13.

The invention described in the '417 patent reduces these problems by causing communication network resources to be allocated proactively rather than reactively. Appx63, 2:52–54. The '417 patent accomplishes this through the use of two different types of “ghost entities” that can act on behalf of a mobile node and a foreign agent, namely a ghost mobile node and a ghost foreign agent. Appx63 2:44–47. These ghost entities and how they operate are described in connection with FIG. 2A and 2B of the patent. Appx58–59. FIG. 2A is reproduced below.

A ghost mobile node acts on behalf of a mobile node and “can be a virtual node and need not reside at the same physical location as the mobile node.” Appx65, 6:20–22. “The ghost mobile node, for example, can be a set of software instructions running on a device that is remote from the mobile node and that contains a transceiver for communicating with the mobile node. Appx65, 6:22–26. The ghost mobile node operates by signaling the foreign agent before the mobile node arrives in the foreign agent’s physical region of coverage, based upon the predicted future state of the mobile node. *Id.* at 6:27–38. The predicted future state of the mobile node may be based upon, for example, an estimated location, trajectory, or speed of the mobile node. *Id.* at 6:39–46. Based upon this predicted future state, the ghost mobile node determines

which foreign agent is likely to serve as the mobile node's next communications link and signals that foreign agent. Appx66, 8:58– 62. This signal can be a registration request to cause an allocation of communications resources in the same way as would be performed if the mobile node were physically present in the foreign agent's region of coverage. Appx67, 9:7–17. Therefore, the signal results in preemptive setup that is performed before the mobile node arrives in the foreign agent's coverage area. Appx67, 9:54–57. This serves to increase the speed with which hand-offs occur, thereby reducing setup delays and avoiding information losses due to dropping of data packets. Appx67, 9:65–10:1.

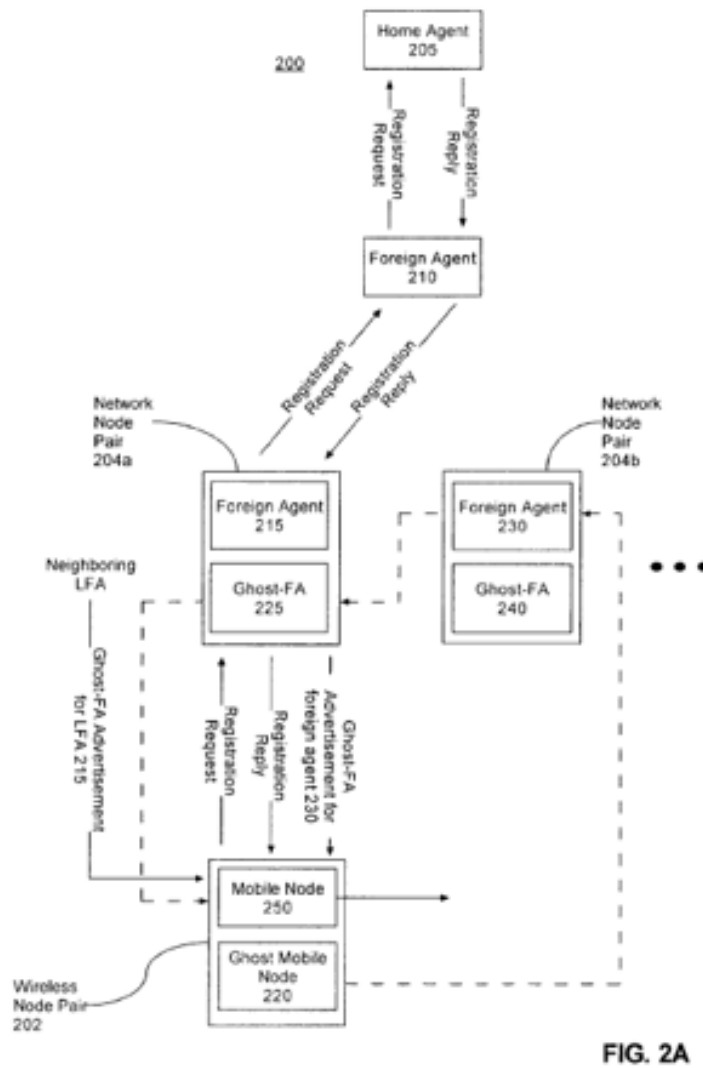


FIG. 2A

The second type of ghost entity described in the '417 patent is a ghost foreign agent. Appx64, 4:1–3. A ghost foreign agent acts on behalf of a foreign agent and notifies the mobile node of the existence of a next foreign agent by transmitting an “advertisement” from the currently connected foreign agent. Appx67, 10:17–21. Thus, for example, in FIG. 2A above, ghost foreign agent 225 sends mobile node 250 an advertisement for foreign agent 230 to alert the mobile node of the

presence of foreign agent 230 before foreign agent 230 can directly inform the mobile node. In this way, the ghost foreign agent makes the mobile node aware of the foreign agent before the mobile node arrives in the coverage region of the foreign agent. Appx67, 10:26–29. Moreover, the vector of care-of addresses may be included in the advertisement. Appx67, 10:30–34.

On December 2, 2019, one year after the date of the institution, the PTAB issued its FWD in which it erroneously found, by a preponderance of the evidence, that challenged claims 1, 2, 4, 5, and 7 of the '417 Patent are unpatentable, setting up this Appeal. Appx2. Claims 3 and 6 survived. *Id.* The FWD found claims 1, 5 of the '417 Patent were obvious over Liu² or Liu and Gwon³, claim 2 obvious over Liu, Gwon, and Lau⁴, claim 4 obvious over Liu, Gwon, and IETF RFC 2402⁵, and claim 7 obvious over Liu and Lau.

² U.S. 5,825,729 (issued Oct. 20, 1998) (Ex. 1003).

³ U.S. 2012/0131386 A1 (published Sept. 19, 2002) (Ex. 1004).

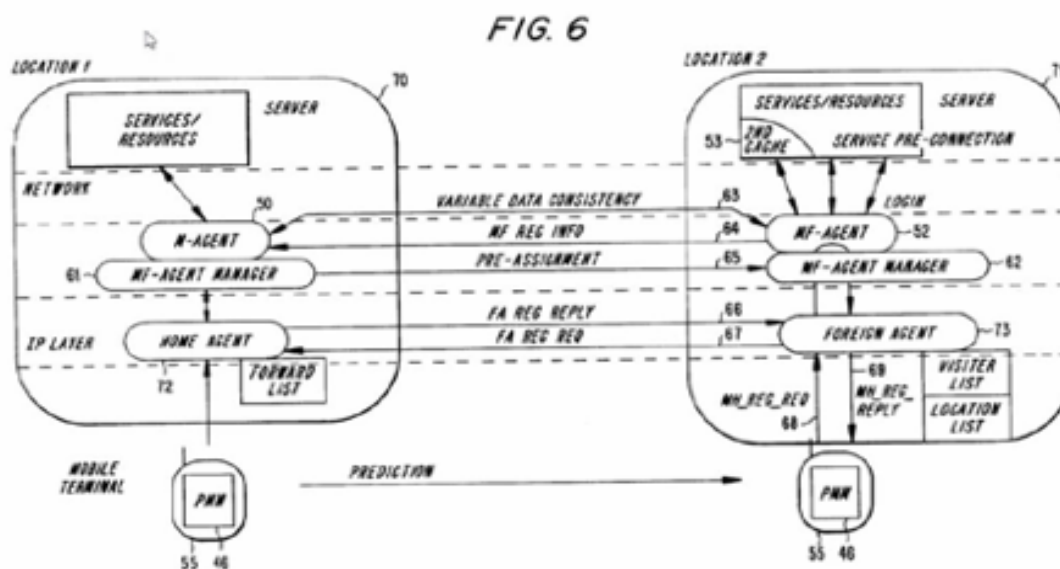
⁴ U.S. 7,536,482 B1 (issued May 19, 2009) (Ex. 1005).

⁵ Internet Engineering Task Force Request for Comments 2402, *IP Authentication Header* (November 1998) (Ex. 1008).

2. Scope and Content of the Prior Art

a. Liu (Ex. 1003)

Liu describes a mobile floating (MF)-agent protocol that is intended to accommodate the ambulatory nature of mobile users by providing service pre-connection, resource pre-allocation, and data-structure pre-arrangement in wireless local area networks and cellular networks. Ex. 1003 at Appx457, Appx480 1:50–64. The MF-agents are deployed to “decouple network services (such as user authentication data, registration data, etc.) and resources from the underlying network and mov[e] them to follow their mobile users.” Appx480, 1:65–2:1. Liu’s MF-agent pre-assignment protocol is illustrated in Figure 6:



Appx460, FIG. 6; Appx483, 7:19–20.

Figure 6 depicts an embodiment of the MF-agent pre-assignment protocol. Appx483, 7:19–20. Liu describes the use of mobility agents (M-agents) and mobile-Floating Agents (MF-agents). *See, e.g.*, Appx480, 2:12–34. M-agent 50 is representative of the user and “is preferably a software entity executing on a home fixed host or router, including a set of processes that communicates with and pre-assigns an MF-agent 52 to remote fixed hosts or routers on behalf of a mobile terminal 55.” Appx482, 6:57–61; Appx483, 7:23. MF-agent 52 “is preferably a software entity executing on a remote fixed host or mobile support router (MSR), including a set of processes that can communicate and connect with the local host or MSR resources.” Appx482, 6:61–65. Liu describes that the M-agent and MF-agent “are not bound to the underlying network,” and are, “therefore . . . free to follow the mobile users.” Appx483, 7:2–5. The MF-agent pre-connects services by using predictive mobility management (PMM) to predict where a user will be. Appx483, 7:5–9.

“[M]obile terminal 55 sends an MF-agent assignment request to its M-agent 50, with an address of a new location it is traveling to.” Appx483, 7:26–28. The new location may have been explicitly provided by the user or it may be predicted through PMM. Appx483, 7:29–31. The assignment request is a request to establish (i.e., pre-assign) an MF-agent 52 at the location mobile terminal 55 is traveling to, so that the necessary services and data are ready for the mobile terminal when it arrives at the new location. Appx483, 7:32–37. “M-agent 50 registers

the request and forwards [it] to remote MF-agent manager 62 at the new location.” Appx483, 7:37–38. Upon receiving the request, MF-agent manager 62 assigns or creates an MF-agent 52 for requesting M-agent 50. Appx483,7:38–50. MF-agent 52 registers itself with Foreign Agent 73 (F-agent) and sends an MF-assignment reply back to M agent 50 containing the registration information. Appx483, 7:50–56. “M-agent 50 then sends a reply back to [] mobile terminal 55 and maintains a data consistency link 63 with [] MF-agent 52.” Appx483, 7:54–56. When mobile terminal 55 reaches the new location, it registers with MF-agent 52 by sending an MF-agent registration request 68 to F-agent 73 to begin the registration process. Appx483, 8:7–12. F-agent 73 will then link mobile terminal 55 to MF-agent 52. Appx483, 8:15–16. MF-agent 52 may then perform as an acting M-agent (AM-agent) for mobile terminal 55, performing the same function as an M-agent at the new location. Appx483, 8:17–20.

b. Gwon (Ex. 1004)

Gwon describes methods for predicting the mobility of mobile nodes in IP-based data networks and wireless LANs. Ex. 1004 at Appx497, [0002]. Of relevance to this analysis, Gwon describes the use of a standards-based Neighbor Discovery methodology in which a mobile node receives unsolicited Router Advertisement messages from a local

router. Appx501, [0051]. These messages “indicate[] the presence of other local routers which could provide network connections for the mobile node.” *Id.*

C. The PTAB’s Adjudicatory Process, Fee Structure, and Compensation Structure

Before getting into the due process argument below, an overview of the PTAB and its decision making and revenue-generating procedures is necessary.

1. The Two Step Process for AIA Reviews

The AIA fundamentally altered the process for challenging patents. Pub. L. No. 112–29, 125 Stat. 284 (2011). The PTAB adjudicates the new post-grant AIA challenges. 35 U.S.C. § 6(a), (b)(4). The PTAB comprises the “Director, the Deputy Director, the Commissioner for Patents, the Commissioner for Trademarks, and the administrative patent judges.” *Id.* § 6. Under the AIA, a petitioner files a petition, and the PTAB first decides whether to grant the petition and institute review. 35 U.S.C. §§ 311, 321. Although the Director has the statutory authority to decide institution, the Director has delegated that authority to the PTAB. *See generally Ethicon Endo-Surgery, Inc. v. Covidien LP*, 812 F.3d 1023 (Fed. Cir. 2016). If institution is granted,

the review continues to “trial phase,” and the PTAB (not the Director) makes the final decision on patentability. 35 U.S.C. §§ 318, 328.

As of April 2020, over 11,401 AIA petitions were filed—an average of more than 1,300 per year since September 2012. Appx4604. Overall, 62% of completed post-grant challenges have cancelled all patent claims, and 80% have invalidated one or more claims. Appx4611.

2. The Substantial Financial Revenue Generated by AIA Reviews

The specific funding scheme for AIA post-grant proceedings is unlike most adjudicatory processes in other federal agencies. The PTO requires the payment of two fees upon filing. One fee covers the PTAB’s costs for the institution phase to decide the petition; the second fee covers costs for the trial phase, if the PTAB grants the petition. 37 C.F.R. § 42.15(a)-(c). If the petition is denied, the trial phase fee can be returned. Setting and Adjusting Patent Fees, Final Rule, 78 Fed. Reg. 4212, 4233–34 (Jan. 18, 2013). Under this structure, the PTAB generates more revenue when it grants AIA petitions.

The PTO also has substantial autonomy over its budget and revenue. The PTO is a fee-funded agency that “operates like a business.” Setting and Adjusting Patent Fees During Fiscal Year 2017, 82 Fed. Reg. 52,780, 52,780 (Nov. 14, 2017). It is generally appropriated the full amount of revenue generated from AIA proceedings. Plus, AIA § 22

established a Patent and Trademark Fee Reserve Fund (“Reserve Fund”) in the Treasury. *See* 35 U.S.C. § 42. The Reserve Fund is for fees “collected in excess of the appropriated amount.” § 42(c)(2). While the PTO is funded by the congressional appropriations process, the fees in the Reserve Fund are available only to the PTO. § 42(c)(2)⁶

Unlike many other agencies, the PTO sets its own fees, without congressional approval. *See* 35 U.S.C. §§ 311(a), 321(a). The PTO sets AIA post-grant proceeding fees at whatever it deems a “reasonable” amount, taking into account “aggregate costs.” 35 U.S.C. §§ 311(a), 321(a). The PTO’s current authority to set its fees is another significant departure from other agencies and even from past practice, when the PTO generally needed congressional approval for most fee increases. *See, e.g.,* Pub. L. No. 108–477, § 801, 118 Stat. 2809, 2997 (2004). The PTO sets the AIA fees for cost recovery. 35 U.S.C. § 321(a); Appx4128. The institution and trial phase fees are set to cover the estimated costs of those phases. Appx4259; Appx4127–4128. This permits the PTAB to operate within its budget and to fund APJ salaries, bonuses, and the other operating expenses. For example, for 2021, the PTO proposes to

⁶ *See generally* Glenn J. McLoughlin, U.S. Patent and Trademark Office Appropriations Process: A Brief Explanation, CRS Report RS20906 (Aug. 28, 2014). Appx4387-4393.

charge \$19,500 plus \$375 per claim over 20 claims for an IPR request fee. Appx4127, 4128. For the post-Institution phase, the proposed fee is an additional \$18,750 plus \$750 per claim over 20. Appx4128.

The PTO also estimates future PTAB workflow in connection with fee and budget setting. Appx4315–4318; Appx4319–4350.⁷ For fiscal year 2021, the PTAB’s total projected fee collections (*ex parte* appeals and AIA proceedings) are about \$94 million. Appx4338 (cell R326). Of that total, about \$57 million will be fees for AIA post-grant proceedings. Appx4335- 4338.⁸ Projected institution-phase fees are about \$34 million, and projected trial-phase fees are about \$23 million. Appx4335–4336. Thus, of all AIA-related fees, about 60% are for the institution phase, and 40% are for the post-institution trial phase. *See* Appx4335–4336. In other words, about 40% of the AIA-related fees are collected only if the

⁷ Appx4319-4350 is the PTO’s spreadsheet that provides, among other information, estimated fee collections, broken down by PTO business units. *See* Aggregate Revenue Tables, https://www.uspto.gov/sites/default/files/documents/Agg_Rev_Tables_July2019.xlsx. Using the second-row column labels, the sum of cells R291:R326 provide estimated fee collections for 2021 for all PTAB collections. Appx4335-4338. AIA-related total fee collections for FY2021 are provided by summing cells R296:R307, R309, and R310. Estimates for AIA-related fees for other years are calculated accordingly. For instance, FY2020 estimated AIA-related collections are the sum of cells O296:O307, O309, and O310 (FY2020), and FY2022 estimates are the sum of cells S296:S307, S309, and S310. *Id.*

⁸ Estimated FY2021 AIA petition request fees (institution phase) are calculated by summing R296, R299, R302, R305, and R310. Estimated FY2021 post-institution fees (trial phase) are the sum of R297, R298, R300, R301, R303, R304, R306, and R307.

PTAB grants institution of AIA petitions. This amounts to about 24% of the PTAB's collections being dependent on instituting post-grant trial proceedings.

3. PTAB Organization, Financing, and Compensation

From 2011 to 2020, the PTAB grew from about 60 APJs to about 260 to handle the new AIA reviews. Appx3881–3887. The APJs are organized hierarchically, all supervised by the Chief APJ. Appx4614-4616. The Chief APJ and the Deputy Chief APJ are the PTAB's "senior level executive management" and make up the Office of the Chief Judge. Appx4614. Below them are the Vice Chief APJs, who manage PTAB divisions consisting of judges and patent attorneys. Appx4615. Each division has six sections of APJs, and a "Lead APJ" manages each section of "line APJs." Appx4615.⁹

The Chief APJ, the Deputy Chief APJ, and the Vice Chief APJs have executive/administrative responsibilities, on the one hand, and judicial responsibilities, on the other. *See* Appx4004–4027 (Chief APJ); Appx4028–4033 (Deputy Chief APJ); Appx4106–4113 (Vice Chief APJ). The Chief APJ "perform[s] Business Unit Head functions" of the PTAB, which includes "execut[ing] the operating budget; prepar[ing] budget requests with justifications; and manag[ing] resources."

⁹ For clarity, we use the term "line APJ" to distinguish the base APJ from other titles for APJs.

Appx4004–4005; Appx3995–3996.¹⁰ The Deputy Chief APJ and the Vice Chief APJs are similarly involved in the financial management of the PTAB business unit. Appx4030–4031; Appx4108–4109.

While overseeing the PTAB’s finances, PTAB leadership also makes decisions on the merits of AIA proceedings. *See* Appx3903. The Chief APJ and others will issue directives, such as the standard operating procedures (“SOPs”). Appx4351–4386.

APJs operate under employment rules, which PTAB leadership uses to incentivize the APJs. *See* Appx3818–3838; Appx3888- 3901. An APJ is rated by supervisors. *See, e.g.*, Appx4036–4063. Lead and line APJs receive an overall “Performance Rating” as part of the “Classification and Performance Management Record.” Appx3818–3859; Appx4036–4063; Appx4074–4102. The APJ is rated on a scale of 100 to 500. *See, e.g.*, Appx4099 (“Total Score”). The numerical rating is the sum of four “Performance Elements,” each of which is a numerical rating. *Id.* One Performance Element is “Production,” which is based on the number of “decisional units” an APJ produces. Appx3822–3823¹¹ Each Performance Element independently and generally limits the APJ’s final “Performance Rating” because all four Performance

¹⁰ The USPTO is organized as “business units,” and the PTAB is a separate “business unit.” *See* Appx4406; Appx4484.

¹¹ A “decisional unit” equates to an action such as writing a decision or order in an AIA proceeding. *See* Appx3823; Appx4043-4046; Appx4081-4084.

Elements are “critical.” *See, e.g.*, Appx3835 (noting that “if any critical element is less than fully successful[,] the rating can be no higher than the lowest critical element rating”).

For example, line and Lead APJs must earn 84 and 59 decisional units, respectively, to be eligible for the “Fully Successful” rating. Appx3823; Appx3935. If a line APJ produces only 83 decisional units, he/she cannot, according to PTO documents, be rated as “Fully Successful.” *See* Appx3823; Appx3945; Appx3971; Appx3975; Appx4060; Appx4063; Appx4066; Appx4099; Appx4102. Indeed, APJs are instructed to “normally seek efficiency gains and utilize available resources to enhance annual production.” Appx3814.

Unlike a district court judge, an APJ can receive higher compensation based on his or her rating. Appx3881–3887. The APJ can receive a bonus of \$4,000 to \$10,000. Appx3881. The APJ’s salary can be increased, up to five percent, depending on the APJ’s numerical rating and final Performance Rating, Appx3881, which necessarily turns on the APJ’s production of “decisional units.”

Also unlike a federal judge, an APJ is discouraged from writing a concurrence or dissent. *See* Appx3813. Rather than automatically receiving credit for a concurrence or dissent, the APJ must ask permission from a Vice Chief APJ to receive any credit for that work. *Id.* (“Concurrences, dissents, and remands are not normally efficient mechanisms for securing the ‘just, speedy, and inexpensive’ resolution

of an appeal before the Board.”). *See also* Appx3621. This unusual policy may explain the “surprisingly” few concurrences and dissents. *See* Scott McKeown, *Judicial Independence & The PTAB* (Dec. 12, 2017) (noting the “it is somewhat surprising that 98% of PTAB merit-based decisions are unanimous”).¹²

Importantly, APJs are not administrative law judges (“ALJs”). The APJ-versus-ALJ distinction has meaningful consequences because, as explained below, APJs are not afforded the legal protections that ensure that ALJs are not unduly influenced by political or other non-merit-based factors, including structural pecuniary incentives. The AIA has thus created one of the largest bodies of non-ALJ agency employees who were intended to supplant decisionmaking by Article III judges.

VI. SUMMARY OF THE ARGUMENT

Due process requires an impartial and disinterested tribunal. The inherent tie between the PTAB’s decisions to institute and the substantial revenue generated by those decisions—which account for about 40% of the PTAB’s trial proceedings budget—has created a structural bias unlike any other in the federal executive branch. PTAB

¹² <https://www.patentspostgrant.com/judicial-independence-ptab/#more-12559>. *See also* Gene Quinn, *Structural Bias at the PTAB: No Dissent Desired*, IP Watchdog (June 6, 2018), <https://www.ipwatchdog.com/2018/06/06/structural-bias-ptab-nodissent-desired/id=94507/>.

executives and APJs impermissibly mix administrative and judicial functions that create, at a minimum, an appearance of bias. Post-institution fees pay for APJ salary increases, and the same APJs make the decisions to grant institution and thus generate revenue for the PTAB. Without continual institutions to cancel patents, the PTAB's budget will diminish, with likely adverse employment consequences on the APJs.

The structural bias is magnified by an APJ's lack of judicial independence. APJs are subject to performance reviews by superiors, including other APJs, as well as other PTO officials. Those performance reviews, which depend in part on productivity, help determine the salaries and possible bonuses earned by an APJ. This situation is completely unlike an Article III judge or an ALJ, who cannot receive bonuses, and the situation further contributes to the impermissible structural bias inherent in the AIA institution decisionmaking process.

The strong institutional bias for generating revenue for the PTAB, along with the financial incentive biases imposed on APJs from bonuses and salary raises, creates a perceived structural bias that exceeds any permissible arrangement under the Due Process Clause. Indeed, these unique features of the AIA post-grant review process—a bipartite payment scheme, in which APJs are incentivized by production and

bonus schemes, and an essentially self-funded adjudicatory board—are features that combine to create the structural bias the Supreme Court and appellate courts have repeatedly warned against.

The Supreme Court’s recent decision in *Thryv, Inc. v. Click-to-Call Techs., LP*, 140 S.Ct. 1367 (2020), magnifies the structural appearance of bias. *Thryv* insulates many, if not most, institution decisions from any meaningful review by this Court.

Second, the Director’s delegation of his responsibility to make final unreviewable institution decisions to the same APJ’s who make the Final Written Decision violates the Administrative Procedures Act in addition to the Due Process Clause of the Constitution. Having the same judges who decide to institute the proceedings be the judges that decide the final outcome subjects them to prejudging bias. The natural inclination for anyone is to reaffirm what they previously found, as the PTAB post-institution statistics confirm. The language of the APA prohibits this as well as Due Process.

Third, subjecting Mobility’s Pre-AIA ’417 Patent to an AIA proceeding so different from the post review proceedings existing at the time the Patent was granted altered the bargain entered between the Government and Mobility’s inventors that it constitutes a Taking of Property contrary to the Fifth Amendment’s Takings Clause. Mobility’s retroactive loss of the right to freely amend its claims is perhaps the most consequential distinction between IPR and reexamination. The

evidentiary standard was drastically different than it is in district court invalidity litigation. Instead of UPL having to prove unpatentability under a clear-and convincing standard, it only has to convince the APJs of its position using a preponderance of evidence standard. The retroactive imposition of the IPR scheme applied to Mobility was a taking because it had a significant negative economic impact on Mobility and severely diminished the value of the '417 patent, thereby upsetting its investment backed expectations.

Fourth, the taking was done by APJs that were unconstitutionally appointed at the time of the institution of the IPR and at the time of the oral argument. The Arthrex remedy to make APJs terminable at will did not change the fact that the APJs were unconstitutional at the time of the institution of the proceedings, during oral argument and during deliberations. In fact, the Arthrex remedy only heightened the Structural problems discussed above.

Fifth, claim 1 of the '417 Patent requires “a ghost-mobile node that creates replica IP messages on behalf of a mobile node, the ghost-mobile node handling signaling required to allocate resources and initiate mobility on behalf of the mobile node, the ghost-mobile node **triggering signals** based on a predicted physical location of such mobile node or distance with relation to the at least one foreign agent.” UPL relies on Liu’s “M-agent” to satisfy the ghost-mobile node limitation. But, UPL’s Petition, Liu, and UPL’s supporting expert all make clear that

according to the teachings of Liu, the mobile node itself (and not the M-agent) triggers the signals that allocate resources and initiate mobility on behalf of the mobile node. Thus, no reasonable mind could conclude Liu's M-agent is the entity in the Liu communication network that "triggers" signaling to allocate resources and initiate mobility. The Board's finding of unpatentability of claims 1, 2, 4, and 5 are not supported by substantial evidence and should be reversed.

VII. ARGUMENT

A. Standard of Review.

A due process challenge contending a structural bias, requires a party to show the decisionmaking process creates "a possible temptation to the average man as judge" such that the adjudicator would "not hold the balance nice, clear and true." *Tumey v. Ohio*, 273 U.S. at 532; *Ward v. Vill. of Monroeville*, 409 U.S. 57, 60 (1972).

This Court "review[s] Board decisions in accordance with the Administrative Procedure Act, 5 U.S.C. § 706(2)." *HTC Corp. v. Cellular Commc'ns Equip., LLC*, 877 F.3d 1361, 1367 (Fed. Cir. 2017) (citing *Dickinson v. Zurko*, 527 U.S. 150, 152 (1999)). Under the APA, this Court reviews the PTAB's legal conclusions de novo and its factual findings for substantial evidence. *ACCO Brands Corp. v. Fellowes, Inc.*, 813 F.3d 1361, 1365 (Fed. Cir. 2016).

A reviewing court must set aside any agency action that is arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law. 5 U.S.C. § 706(2)(A). An agency must also “cogently explain why it has exercised its discretion in a given manner.” *Motor Vehicle Mfrs. Ass’n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 48 (1983).

A finding is supported by substantial evidence only if a reasonable mind might accept the evidence to support the finding. *Consol. Edison Co. v. NLRB*, 305 U.S. 197, 229 (1938). Obviousness is a question of law based on factual findings, including what a reference teaches. *In re Baxter Int’l, Inc.*, 678 F.3d 1357, 1361 (Fed. Cir. 2012); *In re Mettke*, 570 F.3d 1356, 1358 (Fed. Cir. 2009). The Board’s ultimate determination of obviousness is, therefore, reviewed *de novo*. *In re Kotzab*, 217 F.3d 1365, 1369 (Fed. Cir. 2000).

B. The Implementation of the America Invents Act Violates Due Process Clause of the Constitution and the APA

1. The PTAB's Organization, Decision making Process, Fee Structure, and APJ Compensation Scheme Create a Structural Bias that Violates Due Process

a. The Due Process Clause Entitles a Party to an Impartial and Disinterested Tribunal

The Due Process Clause prohibits procedures that “offer a possible temptation to the average man as a judge.” *Tumey v. Ohio*, 273 U.S. at 532. “The Supreme Court has jealously protected the due process requirement of impartiality when the decisionmakers stood to gain substantial, personal pecuniary benefits from their adjudicative decisions.” *Doolin Sec. Sav. Bank, F.S.B. v. FDIC*, 53 F.3d 1395, 1406 (4th Cir. 1995). A procedure creates this unconstitutional temptation if the decisionmaker has a “direct, personal, substantial pecuniary interest” in the proceeding’s outcome. *Tumey v. Ohio*, at 523. Unconstitutional bias also exists where a decisionmaker with administrative or executive responsibilities has a sufficiently “strong” “motive” to rule in a way that would aid the institution. *Id.* at 533; see also *Ward v. Vill. of Monroeville*, 409 U.S. at 60.

Unconstitutional bias exists in at least two forms. First, a decisionmaker’s direct pecuniary or other personal interest in a proceeding’s outcome can violate due process. See, e.g., *Gibson v.*

Berryhill, 411 U.S. 564, 578 (1973) (revocation of licenses by the optometry board would “possibly redound to the personal benefit of members” of the board); *Tumey v. Ohio*, 273 U.S. at 520. Second, an institutional bias in procedures can create an impermissibly strong motive—or appearance of motive—to rule in favor of the organization or its members. *See, e.g., id.* at 533–34; *Ward v. Vill. of Monroeville*, 409 U.S. at 60–61; *United Church of the Med. Ctr. v. Med. Ctr. Comm’n*, 689 F.2d 693, 700 (7th Cir. 1982).

Three Supreme Court cases form the general basis for “structural bias” due process claims. In *Tumey*, the Supreme Court found the mayor had “a direct, personal, substantial, pecuniary interest” in fining the person, because the mayor’s bonus pay was tied to convictions. *Tumey v. Ohio*, 273 U.S. at 523. Also, the mayor had a strong “official motive to convict and to graduate the fine to help the financial needs of the village.” *Id.* at 535.

A year later, in *Dugan v. Ohio*, 277 U.S. 61 (1928), official motivations did not create an unconstitutional bias when the mayor, acting as a judge, was paid from a general fund into which the criminal fines he imposed were deposited. *Id.* at 65. This connection between the general fund and his pay was too “remote,” the Court held, to create an unconstitutional temptation. *Id.* The mayor was one of five on the city

commission and had an insufficient connection to the general fund or the city's financial policy to produce too strong a motivation to favor a particular outcome in a case. *See id.*

In 1972, another Ohio mayor's court was challenged in *Ward v. Vill. of Monroeville*, 409 U.S. 57 (1972). The mayor exercised judicial and executive responsibilities and was responsible for the village's finances. 409 U.S. at 58. The mayor reported to the village council on budgetary matters, but a "major part of village income" came from the fines and fees imposed by the mayor. *Id.* This arrangement was unconstitutional as a "possible temptation" because "the mayor's executive responsibilities for village finances may make him partisan to maintain the high level of contribution from the mayor's court." *Id.* at 60.

b. "Structural Bias" is Enough to Violate the Due Process Clause

With structural bias, the constitutional deficiency lies not with a decisionmaker shown to be biased but with an overall process that creates too strong a motive and unfair temptation for "the average man as a judge." *Ward v. Vill. of Monroeville*, 409 U.S. at 60. Indeed, "[t]he administrative process 'requires the appearance of fairness and the absence of a probability of outside influences on the adjudicator; it does not require proof of actual partiality.'" *Hammond v. Baldwin*, 866 F.2d 172, 176 (6th Cir. 1989) (quoting *Utica Packing Co. v. Block*, 781 F.2d

71, 77 (6th Cir. 1986)). Due process “may sometimes bar trial by judges who have no actual bias and who would do their very best to weigh the scales of justice equally between contending parties.” *Aetna Life Ins. Co. v. Lavoie*, 475 U.S. 813, 825 (1986).

A major contributing factor to unconstitutional structural bias is the existence of “substantial” institutional funding that is reliant on a particular outcome. *See Ward*, 409 U.S. at 58 (unconstitutional where fines imposed by judge accounted for between 35% to 50% of the village income); *Rose v. Vill. of Peninsula*, 875 F.Supp. 442, 450 (N.D. Ohio 1995) (*Rose*) (O’Malley, J.) (unconstitutional where fines accounted for over 10% of village’s revenue).

Indeed, in both *Tumey* and *Ward*, “the Court put great emphasis on the fact that the revenues generated by the Mayor’s Court were very substantial and vitally important to the village’s fiscal well being.” *Wolkenstein v. Reville*, 694 F.2d 35, 43 (2d Cir. 1982). As Judge Wisdom explained, the Supreme Court in those two cases was “not as interested in the probity of the individual judge or perhaps even, of the great majority of judges,” but was instead concerned with “the inherent defect in the legislative framework arising from the vulnerability of the average man—as the system works in practice and as it appears to defendants and the public.” *Brown v. Vance*, 637 F.2d 272, 282 (5th Cir. 1981).

Another recurring feature of unconstitutional decision making structures is when monetary fines imposed by a decisionmaker flow back to the decisionmaker's benefit, even if somewhat indirectly. *See, e.g., Esso Standard Oil Co. v. Lopez-Freytes*, 522 F.3d 136 (1st Cir. 2008) (holding as unconstitutional an account funded by environmental fines over which the environmental agency has spending discretion because, in part, "any fine imposed will flow directly to the [agency's] budget"). Another contributing factor to unconstitutional structural bias is the mixing of executive and adjudicatory responsibilities in a single agency decisionmaker. *Alpha Epsilon Tau Chapter Hous. Ass'n v. City of Berkeley*, 114 F.3d 840, 847 (9th Cir. 1997) (*Alpha Epsilon Tau*) (Justice White, by designation) ("That the Board is both adjudicator of coverage and executor of its finances may be a less than optimal design for due process purposes.").

c. The PTAB's Organization, Decisionmaking Process, Fee Structure, and APJ Compensation Scheme Create a Structural Bias that Violates Due Process

The AIA review process operates under a set of conditions that very well may be unique in the federal government: (1) 40% of the PTAB's AIA trial budget comes from fees generated by institution grants; (2) the PTAB leadership APJs have dual roles, as executive to manage PTAB finances and as adjudicator of AIA proceedings; (3) the line and Lead

APJs who make most institution decisions are subject to performance reviews by PTAB leadership; (4) an APJ's salary and bonus plan incentivizes higher "production," which leads to more institutions; (5) APJs lack the judicial independence of Article III judges and ALJs; (6) the PTO is user-fee funded, sets its own fees, and receives appropriations generally based on its fee collections; and (7) the PTAB operates as a "business unit" with its own budget responsibilities.

d. PTAB Leadership APJs Mix Administrative and Judicial Functions, Creating an Impermissible Appearance of Bias

The mixing of executive and judicial functions in a single agency position is consistently identified as a significant contributor to unconstitutional structural bias. *See Ward*, 409 U.S. at 60; *Rose*, 875 F.Supp. at 453 (identifying the "the combination and level of his or her executive and judicial powers" as an important factor). Here, the PTO impermissibly combines significant executive and judicial responsibilities in PTAB leadership positions that oversee a PTAB budget heavily dependent on institution-generated revenue. The Chief APJ, Deputy Chief APJ, and Vice Chief APJs each have some responsibility for institution decisions. They provide policy direction and ensure the quality and consistency of AIA decisions. *See* Appx4004–4006 (Chief APJ); Appx4030–32 (Deputy Chief APJ);

Appx4108–4110 (Vice Chief APJ). Their oversight of AIA decisions is necessarily intended to maximize conformity in the institution and final written decisions. Those PTAB leaders are also authorized to participate on PTAB institution panels, and in fact do so on occasion. *See* Appx4351- 4374.

At the same time, the leadership APJs have significant responsibilities managing the PTAB’s finances as a distinct “business unit” within the PTO. *E.g.*, Appx4005 (Chief APJ: “Manage allocation of budget resources to accommodate business unit needs.”). They oversee fiscal planning and expenditures. They make business unit decisions based on the availability of funds. All of these are high-level executive job duties granting the PTAB leadership significant authority over a budget of \$94 million. The combination of adjudicatory and executive decisionmaking authority is a major red flag under the *Tumey* line of cases. *See Ward*, 409 U.S. at 60; *Esso Standard Oil Co. v. Lopez-Freytes*, 522 F.3d at 146–47; *Rose*, 875 F.Supp. at 453. It puts PTAB leadership in an untenable dual role of managing the PTAB’s finances in a “business-like sense” and deciding AIA petitions solely on the merits.

The internally conflicted judicial/administrative roles of leadership APJs are even more troubling given the institution decision’s criticality to such a substantial percentage of the PTAB’s finances. Post-

institution fees (trial-phase fees) amount to about \$23 million (FY2021). Appx4335- 4336. This is about 24% of the PTAB's total budget and about 40% of the PTAB's AIA trial proceedings budget. Appx4335–4338.

With 24%-40% of its budget dependent solely on granting petitions, the PTAB is in the same or worse situation compared to those cases finding an unconstitutional violation. *See Ward*, 409 U.S. at 58 (fines accounted for between 35% to 50% of village income); *Rose*, 875 F.Supp. at 450 (10%); *see also DePiero v. City of Macedonia*, 180 F.3d 770, 780 (6th Cir. 1999) (adopting 10% from *Rose* as “articulate and persuasive”).

Conversely, the percentage of the PTAB budget dependent on post institution fees is much higher than in those cases where due process challenges have fallen short. *See Hirsh v. Justices of Supreme Court of Cal.*, 67 F.3d 708, 713–14 (9th Cir. 1995) (no violation because attorney disciplinary fines amounted to 1% of state bar funds); *Commonwealth of N. Mariana Islands v. Kaipat*, 94 F.3d 574, 581–82 (9th Cir. 1996) (fines used to build courthouse only 5% of budget); *Alpha Epsilon Tau*, 114 F.3d at 847 (no violation where financial gain tied to board's decisions was only “two to five percent of the entire budget”).

PTAB leadership APJs also understand that the PTAB is intended to be self-funded by user fees. *See Appx4127–4128*. This self-funded fiscal approach is consistent with the PTAB's “business unit” designation with respect to the PTO finances and personnel policies. *See Appx4064–4073; Appx4004*. Under the current funding structure, any decrease in

institution grants very likely leads to a decrease in revenue for the PTAB as a business unit. *See* Appx4127–4128; Appx4335–4336. The imperative that the PTAB be fee-funded to cover costs further solidifies the direct connection between post-institution fees and PTAB overall budget.

The impermissible mixing of judicial and administrative/executive roles is perhaps at its extreme with the Precedential Opinion Panel. Appx4375–4386. The Precedential Opinion Panel purports to have the authority to designate PTAB decisions as “precedential,” thus effectively binding all future PTAB panels. Appx4377; *see also Hulu, LLC v. Sound View Innovations, LLC, Case IPR2018–01039, Paper 29*, 2019 WL 7000067 (PTAB Dec. 20, 2019) (precedential) (Boalick, Chief APJ).

The Chief APJ is a default member of the Precedential Opinion Panel. Appx4378. The Chief APJ has the ability to participate in substantive policy decision making that binds all PTAB panels, all while managing the PTAB’s entire budget. This scenario creates similar problems as in the mayor’s courts struck down in *Tumey, Ward*, and *Rose*.

Other aspects of the impermissible combination of financial management authority and petition-phase decisionmaking responsibility in PTAB leadership positions confirm the structural bias.

Ultimately, the PTAB leadership is placed in situations analogous to those struck down as unconstitutional. This alone is enough to vacate the PTAB's decision in the present case.

e. The APJs Make Institution Decisions in the Face of Revenue Consequences, Performance Reviews, Production Requirements, and Bonus Incentives

The line and Lead APJs, who make most institution decisions, also operate under a system that generates incentives to grant institution, regardless of the merits of the petition. In this system, the “average man as judge”—or more aptly “the average person as patent judge”—is exposed to temptations that undermine the appearance of fairness. The APJs decide petitions knowing that denying a petition will adversely affect the PTAB “business unit” revenue and will likely affect their own financial and employment situation. This situation falls squarely within the ambit of *Tumey* and *Ward*.

Looming over the APJs are performance reviews and associated bonus incentives. *See, e.g.*, Appx3881. Every time an APJ decides to institute, that patent judge understands that his or her production scores will likely improve. *See* Appx4042–4045; Appx3881. The APJ also continues to work on the case through final written decision, which

leads to more opportunities to create “decisional units.” That in turn increases the likelihood that the APJ will receive a positive review, possible salary increase, and possible bonus. *See, e.g.*, Appx3881.

The institution decision has an immediate impact on an APJ’s work for the next 12 months. When an APJ votes to grant institution, that APJ is voting to grant himself or herself work on that post-grant proceeding over the next 12 months. *See* Appx4356–4360. When an AIA proceeding is instituted, the APJ also knows that the PTO and PTAB earn the post-institution fee, thus increasing the revenue for the PTAB business unit as a whole.

Although a decision to institute does not absolutely guarantee an economic benefit for the APJ, a guarantee is not necessary. To violate due process, all that is necessary is a reasonable connection between the decision and the pecuniary benefit. *See Gibson v. Berryhill*, 411 U.S. at 578. The *Gibson* Court found unconstitutional a review process whereby an optometry board revoked licenses of other licensed optometrists. The Court understood that the board’s revocations would “possibly redound to the personal benefit of members of the Board.” *Id.* (emphasis added).

These incentives are also very similar to the impermissible incentives in *Turney*. There, the mayor’s financial compensation increased as he fined more people for alcohol possession. *Turney*, 273

U.S. at 523. Here, the APJs increase their likelihood of bonuses and salary increases through additional “decisional units.” *See* Appx3823; Appx3881.

More so, overall PTAB fee collections and funding are linked to the workload via AIA institution grants. Appx4127–4128. An average APJ is exposed to unfair influences due to this known connection between the PTAB’s fee collection/budget and the need to generate revenue to cover costs, as the PTO “operates as a business” and the PTAB is a “business unit.” If the PTAB’s overall workload decreases—through decreased institutions—then the PTAB may very well decrease the PTAB budget and be left with a need for fewer line and Lead APJs.

The institution decision’s possible effect on the individual APJ’s financial situation cannot be overstated. For example, if the institution rate were reduced by 25%, that would equate to a reduction in trial phase work by about 25%. This reduction in APJ workload could very well cause many line APJs to fall short of the 84 decisional units required for the “Fully Successful” rating. *See* Appx4043; *see also* Appx4080–4084. That in turn would diminish the possibility of salary raises and monetary bonuses. *See* Appx3881 (tying pay adjustments to numerical performance ratings, which in turn depends on productivity).

This direct connection between granting institution and securing employment and bonuses is barely distinguishable from other situations

where decision makers had a direct pecuniary benefit flowing from a particular decision. *Cf. Cain v. White*, 937 F.3d 446, 448–49 (5th Cir. 2019), with Appx3823; Appx3881.

Ultimately, when viewed as a whole, the temptation on the average APJ is significant, imposing, and omnipresent throughout the institution decision making. It is unlike that in any other federal agency decision making process, and it does not comport with any court-approved process.

f. The APJ's Lack of Judicial Independence Exacerbates the Structural Bias

The APJ's lack of judicial independence amplifies the pecuniary and institutional bias. APJs lack significant independence compared to an Article III judge, or even an ALJ.¹³ Without any reasonable independence from the agency, the APJs appear beholden to the PTAB business unit to maintain or increase PTAB revenues. The APJ's lack of independence also creates the appearance that the APJ will be too easily influenced to ensure the workflow for continued employment.

In contrast, ALJs have significant independence through statutory and regulatory protections. Agencies have limited ability to discipline or remove ALJs, except for cause. 5 U.S.C. §§ 7513, 7521. ALJs are

¹³ See generally Kent Barnett & Russell Wheeler, Non-ALJ Adjudicators in Federal Agencies: Status, Selection, Oversight, and Removal, 53 Ga. L. Rev. 1 (2018).

protected against reduction in force with rights to reassignment, reemployment priority, and to be referred back into OPM's pool of ALJs to be reassigned to other agencies. 5 C.F.R. § 930.210; *see also* 5 C.F.R. Part 351. ALJs do not serve for a set period of time in office. They instead receive “a career appointment . . . exempt from . . . probationary period requirements.” 5 C.F.R. § 930.204(a). An agency may not rate job performance or provide any award or incentive to ALJs. 5 C.F.R. § 930.206(a)-(b).

The APJ works in a different environment, lacking the above ALJ protections. *See Arthrex, Inc. v. Smith & Nephew, Inc.*, 941 F.3d 1320, 1336 (Fed Cir. 2019) (*Arthrex*) (severing 5 U.S.C. § 7513(a)). The stark contrast is perhaps most succinctly captured by the fact that an APJ's yearly performance is reduced to a single number. *See, e.g.,* Appx4060. Furthermore, unlike an ALJ, the APJ is not exempt from probationary period requirements. Appx4043. APJs have to “demonstrate ramped up productivity” during their first year at the PTAB. Appx4043.

In the end, all the above illustrates the significant temptation—and importantly the appearance of temptation—for the APJs to rule in favor of institution for non-merits-based reasons. The perceived temptation may be to earn decisional units or satisfy the APJ's supervisor. The perceived temptation may instead be concerns over reduced employment due to decreased PTAB revenues. These structural biases

unfairly influence—or create the appearance of influence—on the “average person as patent judge,” particularly after *Arthrex* and the lack of employment protections under Title 5.

g. The Structural Bias of the AIA should be declared Unconstitutional

The AIA structural bias is similar to, if not worse than, what was at issue in *Esso Standard Oil*, 522 F.3d at 145–48. There, the First Circuit held as unconstitutional an environmental quality review board (“EQB”) that assessed environmental fines. *Id.* at 146–48. The court “concluded that the bias stems from the potential financial benefit to the EQBs budget as a result of an imposed fine.” *Id.* at 146. The EQB’s three board members enforced Puerto Rico’s environmental statutes and regulations. *Id.* at 146. These salaried board members had no personal pecuniary interest in the fines imposed and collected, but the board exercised control over funds “which are supplied, at least in part, by fines which it imposes.” *Id.* at 147. The court recognized that, “[a]lthough members of the [Board] may not stand to gain personally . . . a pecuniary interest need not be personal to compromise an adjudicator’s neutrality.” *Id.*

The EQB’s unconstitutional structure is analogous to the PTAB’s structure. The PTAB leadership manages the finances and also participates in substantive decisions. The PTAB leadership APJs’

review process creates a similar scenario for post-institution fees. The AIA fees generated are used to fund the operations of the PTAB, including salaries and bonuses for APJs. *See* § II.C., *supra*. The First Circuit also struck down the compensation scheme for the hearing examiners, who could be motivated to levy fines “because of the particularities within the pay structure.” *Esso Standard Oil*, 522 F.3d at 147. A similar problem exists with APJs, where performance evaluations and bonuses depend, in significant part, on the number of their “decisional units.” Appx3823; Appx3835 (noting that 35 percent of an APJ’s performance rating depends on “production,” which is measured by “decisional units”). And if an APJ grants a petition, benefits inure based on continued workflow, the increased opportunity for “decisional units,” and more PTAB revenue. This conforms to the PTAB’s instruction to APJs to “utilize available resources to enhance annual production.” Appx3814.

Also similar to the bias in the AIA review structure is *Rose v. Village of Peninsula*. There, the district court focused on the substantial percentage (about 11–13%) of the village’s revenue tied directly to fines imposed by the mayor, concluding that it fell within “the ambit of *Ward*.” *Rose*, 875 F.Supp. at 451. The PTAB situation is even more substantial, with 40% of its AIA trial-related fees, and 24% of its overall fees, wholly dependent on granting petitions to institute. *See* Appx4335–4338.

The Fifth Circuit’s decisions in *Cain v. White*, 937 F.3d 446, and *Caliste v. Cantrell*, 937 F.3d 525 (5th Cir. 2019), are equally instructive. In *Cain*, criminal fines were deposited into a judicial expense fund. *Cain v. White*, at 448–49. The judges had control over the fund and were given \$250,000 per year from the fund to support the salaries for each judge’s staff. *Id.* at 449, 454. The Fifth Circuit “agree[d] with the district court that the situation here falls within the ambit of *Ward*,” *id.* at 454, noting that, when the collection of the fines and fees decreases, the court would have difficulty with its budgetary needs, *id.* at 449.

In *Caliste*, 20–25% of the court’s judicial expense fund depended on the bail decisions. *Caliste v. Cantrell*, 937 F.3d at 526. As explained, “the more often the magistrate requires a secured money bond as a condition of release, the more money the court has to cover expenses. And the magistrate is a member of the committee that allocates those funds.” *Id.*

Again, this is not unlike the AIA review structure, where the PTAB leadership APJs have the simultaneous roles of manager of the PTAB’s budget and finances as “business unit” and of adjudicator on the merits of AIA petitions. In the words of *Caliste*, this “dual role . . . creates a direct, personal, and substantial interest in the outcome of decisions that would make the average judge vulnerable to the ‘temptation . . . not to hold the balance nice, clear, and true.’” *Caliste v. Cantrell*, 937 F.3d at 532 (quoting *Turney*, 273 U.S. at 532). The AIA structure is also

analogous because the post-institution fees make their way to the PTAB through the user-fee funded PTO funding structure, the existence of the Reserve Fund of excess fees (for use only by the PTO), and the internal budgeting of the PTAB as a “business unit.” The fees from granting AIA petitions will fund PTAB operations, salaries, and even bonuses, just as in *Cain* and *Caliste*.

In short, the unusual organizational and fee-generating structure of AIA reviews creates a temptation at least as strong in *Esso*, *Rose*, *Cain*, and *Caliste*. Because the budget of the PTAB depends so heavily and so disproportionately on the continued granting of initial petitions—particularly when those petitions are decided by agency employees who will benefit from granting petitions, and by the board management who are responsible for budgeting, hiring, and other executive functions, Mobility were deprived of their Due Process Rights and the decision invalidating Claims 1, 2, 4, 5, and 7 of the ’417 Patent must be reversed.

2. The Method in which the Director has Delegated his Authority to Unconstitutionally Appointed APJ’s to make Final, Unreviewable Institution Decisions Violates the Administrative Procedures Act

The AIA clearly tasks the Director with making the decision to implement an IPR proceeding. 35 U.S.C. § 311. Rather than making each individual initial determination himself, the Director, routinely

delegates that decision to the PTAB (*see generally Ethicon Endo-Surgery, Inc. v. Covidien LP*, 812 F.3d 1023. If institution is granted, the review continues to “trial phase,” and the PTAB (not the Director) makes the final decision on patentability. 35 U.S.C. § 318. The practice has been to have the same PTAB Judges who make the initial determination make the final determination too.

Given that the recent decision in *Thryv, Inc. v. Click-to-Call Techs., LP*, 140 S.Ct. 1367 seemingly insulates the Director from any impropriety in instituting proceedings, including perhaps even by the roll of a die (and in this case a loaded die it is, with institution rates ranging from 55% to 87%¹⁴), the Director should be extra careful to avoid the appearance of impartiality for the sake of public confidence in an independent judiciary. Unfortunately, the practice of delegating the initial decision of whether or not to implement an IPR proceeding to the exact same panel of Judges that ultimately hears the case is simply another Due Process violation as well as a violation of the APA.

The historical US process of separate functions has been embedded into the Administrative Procedures Act (“APA”). Specifically, the APA prohibits an “employee or agent engaged in the performance of investigative or prosecuting functions for an agency in a case” from “participat[ing] or advis[ing] in the decision”. 5 U.S.C. § 554(d) (“[U]nder the Administrative Procedure Act (APA) [an agency] generally

¹⁴ Appx4607.

must divide enforcement and adjudication between separate personnel[.]”). *Martin v. Occupational Safety & Health Review Comm’n*, 499 U.S. 144, 151 (1991). Congress enacted this provision to “ameliorate the evils from the commingling of functions” by separating the “discretionary work of the administrator,” like “initiat[ing] action,” from the work “of the [administrative] judge.” *Wong Yang Sung v. McGrath*, 339 U.S. 33, 42 (1950).

Although this Court said that the APA imposes no separation obligation as to those involved in preliminary and final decisions, *Ethicon Endo-Surgery, Inc. v. Covidien LP*, 812 F.3d at 1030 n 3, at the same time it must not be forgotten, as noted by the dissenting Judge, “The bifurcated design of post-grant review is clear not only from the language of §§ 314(a) and 316(c), but pervades the structure of these post-grant proceedings. Congress unambiguously placed these separate determinations in different decisionmakers, applying different criteria.”

If the Director simply assigned the decision of whether to conduct the initial review to an examiner, the due process and violation of the APA issues will simply go away. Problem solved. The Director signs all patents when they issue. He delegates the decisions to issue patents to examiners before signing the patents that issue. Likewise, he could just as easily delegate the decisions whether to institute IPR proceedings to examiners and then sign the institution of proceedings order. His failure to do so violates due process and the APA statute.

As the Supreme Court has stated:

This Court has also held that the “appropriate” remedy for an adjudication tainted with an appointments violation is a new “hearing before a properly appointed” official. And we add today one thing more. That official cannot be Judge Elliot, even if he has by now received (or receives sometime in the future) a constitutional appointment. Judge Elliot has already both heard Lucia’s case and issued an initial decision on the merits. He cannot be expected to consider the matter as though he had not adjudicated it before. To cure the constitutional error, another ALJ (or the Commission itself) must hold the new hearing to which Lucia is entitled.

Lucia v. S.E.C., 138 S.Ct. 2044, 2055 (2018) (citations and footnotes omitted).

In footnote 5 of the majority opinion, the Court writes, “That is especially so because (as Justice BREYER points out) the old judge would have no reason to think he did anything wrong on the merits, *see post*, at 2064—and so could be expected to reach all the same judgments.” *Id.*

The same logic applies to having the same judges who decide to institute the proceedings be the judges that decide the final outcome. Logically it seems they would be inclined to find at least most of the reasons they decided to institute the proceedings in the first place as being proper and would therefore reach almost all the same conclusions as before. *Cf. Lucia v. S.E.C.*, 138 S.Ct. at 2055.

C. Subjecting the Pre-AIA '417 Patent to an AIA IPR Proceeding So Fundamentally Altered the Bargain Entered Between the Government and Mobility that it Constitutes an Unlawful Taking of Property

The Fifth Amendment ensures that no private property shall be taken for public use without just compensation. In the words of Judge Friendly:

Revocation of a license is far more serious than denial of an application for one; in the former instance capital has been expended, investor expectations have been aroused, and people have been employed.¹⁵

This distinction seems to have been conveniently misplaced by some. But, some distinguished jurists think otherwise. As recently put by Justice Gorsuch in his stinging dissent in *Thryv*:

Like federal court litigation, *inter partes* review holds the advantage of allowing a private party attacking a patent's validity to participate in adversarial proceedings, rather than rely on the agency to direct its own investigation as it does in *ex parte* reexamination. Compare 35 U.S.C. § 316 with §§ 302, 304, 305. *Inter partes* review also allows a party challenging a patent all manner of discovery, including depositions and the presentation of expert testimony. § 316; 37 CFR §§ 42.51–42.65 (2019). At the same time, the burden of proof is lower—requiring challengers like Thryv to prove unpatentability only by a preponderance of the evidence, § 316(e), rather than under the clear and convincing standard that usually applies in court. *Microsoft Corp. v. i4i L. P.*, 564

¹⁵ Judge Henry Friendly, “Some Kind of Hearing,” *University of Pennsylvania Law Review*; Vol 123, 1267, 1296 (April 1975).

U.S. 91, 131 S.Ct. 2238, 180 L.Ed.2d 131 (2011). Perhaps most appealing, proceedings take place before the Patent Trial and Appeal Board, rather than in an Article III court, so there is no jury trial before a tenure-protected judge, only a hearing before a panel of agency employees.

Thryv, Inc. v. Click-to-Call Techs., LP, 140 S.Ct. at 1378.

Some say the new regime represents a particularly efficient new way to “kill” patents. Certainly, the numbers tell an inviting story for petitioners like *Thryv*. In approximately 80% of cases reaching a final decision, the Board cancels some or all of the challenged claims. Patent Trial and Appeal Board, Trial Statistics 10 (Feb. 2020),

<https://www.uspto.gov/sites/default/files/documents/>

[Trial_Statistics_2020_02_29.pdf](https://www.uspto.gov/sites/default/files/documents/Trial_Statistics_2020_02_29.pdf). The Board has been busy, too, instituting more than 800 of these new proceedings every year. *Id*

The rules changed for all patents, including for all patents issued *before* the AIA went into effect. For those patents, the government breached its contract.

1. Key Differences Between the Rules Then and Now

Mobility’s IPR proceeding differed significantly from the two types of reexamination proceedings that pre-existed the AIA: *ex parte* reexamination and *inter partes* reexamination. The PTAB has recognized this difference. “An *inter partes* review is neither a patent examination nor a patent reexamination” but is “a trial, adjudicatory in

nature [which] constitutes litigation.” *Google Inc. v. Jongerius Panoramic Techs., LLC*, IPR2013–00191, Paper No. 50, at 4 (P.T.A.B. Feb. 13, 2014).

In reexamination, Mobility would have been free to amend its claims an unlimited number of times. In contrast, “[d]uring IPRs, there is no back-and-forth between the patentee and examiner seeking to resolve claim scope ambiguity; there is no robust right to amend.” *In re Cuozzo Speed Techs., LLC*, 793 F.3d 1297, 1301 (Fed. Cir. 2015) (Prost, C.J., Newman, Moore, O’Malley, Reyna, JJ., dissenting from the denial of the petition for rehearing en banc). Crucially, during reexamination, patentees can liberally amend their claims to narrow their scope—much like in the initial examination. *See id.* §§ 305, 314(a) (1999).

The IPR regulations permitted only one opportunity to amend and it would have had to have obtained the permission of the PTAB to do so. *See* 35 U.S.C. § 316(d). And unlike the pre-existing reexamination proceedings the risk of adverse consequences while making an amendment was too great.

The one-bite-at-the-amendment-apple regime was a momentous change over prior reexamination proceedings.

As this Court noted, “[d]espite repeated recognition of the importance of the patent owner’s right to amend during IPR proceedings—by Congress, courts, and the PTO alike—patent owners largely have been prevented from amending claims in the context of IPRs.” *Aqua Prods.*,

Inc. v. Matal, 872 F.3d 1290, 1299–1300 (Fed. Cir. 2017). Moreover, the evidentiary standard that applied in Mobility’s IPR proceeding was drastically different than it is in district court invalidity litigation where Mobility has been simultaneously fending off an attack on its patent. Instead of UPL having to prove the claims unpatentable under the clear-and-convincing standard, it only had to convince the APJs of its position under the preponderance of evidence standard.

Changing the rules of evidence after the inventors behind Mobility sacrificed their time and money undermined and outright vitiated Mobility’s investment-backed expectations. Mobility’s retroactive loss of the right to freely amend its claims is perhaps the most consequential distinction between IPR and reexamination. *See Aqua Prods., Inc. v. Matal*, 872 F.3d at 1298 (noting “amendments are a key feature of post-grant proceedings”).

2. Subjecting the ’417 Patent to IPR Was a Regulatory Taking

As Justice Holmes stated in *Pennsylvania Coal Co. v. Mahon*, “while property may be regulated to a certain extent, if regulation goes too far it will be recognized as a taking.” 260 U.S. at 415; *accord Murr v. Wisconsin*, 137 S.Ct. 1933, 1942 (2017); *Lingle v. Chevron U. S. A.*, 544 U.S. 528, 537 (2005). In other words, “[a] regulation . . . can be so burdensome as to become a taking. . . .” *Murr v. Wisconsin*, at at 1942.

The primary factors to be considered in a regulatory takings analysis are: “(1) the economic impact of the regulation on the claimant; (2) the extent to which the regulation has interfered with distinct investment backed expectations; and (3) the character of the governmental action.” *Id.* at 1943 (citing *Palazzolo v. Rhode Island*, 533 U.S. 606, 617 (2001)); *see also Lingle v. Chevron U. S. A.*, at 538–39; *Kaiser Aetna v. United States*, 444 U.S. 164, 175 (1979); *Penn Cent. Transp. Co. v. City of New York*, 438 U.S. 104, 124 (1978). The economic impact of the change of regulations and the character of the government’s action is clear. Mobility has had to spend way more money defending its patent rights and may end up losing them in a proceeding it could have never foreseen.

3. Retrospective Application of IPR Undermines Reasonable Investment-Backed Expectations

The decision to seek a patent is fundamentally a decision to invest. To conceive of a new invention and reduce it to practice often requires a massive dedication of time, capital, and human effort. *See Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 480 (1974) (“The patent laws promote this progress by offering a right of exclusion for a limited period as an incentive to inventors to risk the often enormous costs in terms of time, research, and development.”). In addition, to obtain a patent, inventors are required to disclose the invention, sacrificing their right to keep it

confidential and claim it as a trade secret. *See id.* at 480–81; *see also Ruckelshaus v. Monsanto Co.*, 467 U.S. 986, 1012 (1984) (noting that “disclosure or use by others” of a trade secret destroys its “economic value”). In this sense, the decision to seek a patent is a calculated tradeoff, in which the only consideration the patentee receives is a predictable set of legal rules governing their exclusive right of use.

In *Monsanto*, the Court held that the Environmental Protection Agency’s public disclosure of data voluntarily submitted to the Agency may, in some circumstances, constitute a taking. Noting that the disclosure of data constituting a trade secret destroys the holder’s property interest in the data, *see* 467 U.S. at 1011, the Court’s analysis centered on the legal rules governing the use and disclosure of such data and the “nature of the expectations of the submitter at the time the data were submitted.” *Id.* Where, at the time of submission, the relevant statutory scheme allowed the submitter to designate its data as trade secrets not subject to public disclosure, “[t]his explicit governmental guarantee formed the basis of a reasonable investment-backed expectation.” *Id.* Accordingly, the Supreme Court held that the Agency could not disclose such data, consistent with the Takings Clause, even though a subsequent act of Congress permitted disclosure of such data. *See id.* at 1013–14.

This case is no different. The inventors (who are now Mobility) disclosed data and information to the public in exchange for exclusive

right to practice the disclosed invention and under an understanding that this right could be abrogated only upon clear and convincing evidence that it was improperly granted or concomitant with an unlimited right to amend the claims of an issued patent. These “explicit governmental guarantee[s] formed the basis of a reasonable investment-backed expectation.” *Id.* The AIA abrogated these guarantees and allowed cancellation of claims under a preponderance of evidence standard and absent an opportunity to amend the claims. Under *Monsanto* this “bait-and-switch” constitutes a compensable taking. Thus, the retroactive imposition of the IPR scheme applied to Mobility was a taking because it had a significant negative economic impact on Mobility and severely diminished the value of the ’417 patent, thereby upsetting its investment backed expectations.

D. The Appointment of the Judges was Unconstitutional

On October 31, 2019, after Mobility presented its opposition to the IPR case and before the FWD issued, this Court ruled in *Arthrex I*, 941 F.3d 1320 all APJs who had been conducting IPR hearings held office in violation of the Appointments Clause.

The natural logical implication of this decision is that the APJs who decided to institute the IPR against Mobility and who rendered the FWD were unconstitutionally appointed at the time of Institution and at the time of conducting the hearing. This Court sought to remedy the

issue by making the APJs terminable at will. *Arthrex I*, 941 F.3d at 1338. That fix, however, did not alter the history of what had happened, *i.e.*, that unconstitutionally appointed judges took Mobility's property rights away.

An en banc panel of this Circuit in a separate ruling involving the same two parties ruled that since a Constitutional challenge to the APJs was not made by Arthrex in its Opening Brief on Appeal, it upheld a prior determination in that case that Arthrex waived its rights to a new hearing in that case. *Arthrex, Inc. v. Smith & Nephew, Inc.*, 953 F.3d 760 (Fed Cir. 2020) (*Arthrex II*). It also ruled that only patent holders for cases that were decided before the October 31, 2019 Arthrex decision that did not file an appeal or raise the Appointment issue in their appeal were eligible for a new trial. *Id.* at 764 n4.

However, Mobility respectfully points out that the logic of that opinion is faulty. If the APJ judges were unconstitutionally appointed at the relevant time in the past, there was nothing the Appellate Court could do to change the past. No one has figured out how to time travel and alter history. Instead by making the judges suddenly terminable at will, all that has happened is a change in words going forward. The words written before simply cannot be made to disappear like an illusionist can make objects disappear by engineering a change of

perception. Crossing out words will prevent future readers from seeing what was before. But doing so does not change the reality of what occurred before.

The past cannot be changed, and the APJs were unconstitutionally appointed when they instituted proceedings against Mobility and when they had a hearing in which they decided to take away Mobility's property.

So since the APJs that instituted and presided over Mobility's IPR hearing were unconstitutional appointed at the time of appointment, at the time of institution of the IPR and at the time of Oral Argument and all the way up to Halloween eve of 2019, the decision below must be invalidated. The result is dictated by the logic of *Arthrex I*.

To remedy the situation, a new determination of whether to institute an IPR proceeding should be made by a completely different panel of APJs who are Constitutionally appointed and not subject to the subliminal due process issues discussed above.

E. *Arthrex's* Remedy of Making the APJs Terminable at Only Heightens the Structural Bias Discussed Above.

A new hearing before the suddenly constitutionally appointed judges does not fix the time travel problem. But assuming arguendo that it did solve the appointment problem, the remedy makes the APJs subject to even more scrutiny than when they were not terminable at will. The

PTAB is a business and all APJs, regardless of how brilliant they are, and regardless of how dedicated they may be to the job, have to make sure their quotas are met—like a meter maid who has to write so many tickets to help fund a city’s budget, or risk getting fired for not properly doing her job. The current system is denigrating to the judiciary and must be abolished. The APJs need to be made independent and free from the appearance of impropriety. The Arthrex remedy of making the APJs terminable at will only further heightens the structural bias discussed herein.

F. The Evidence Shows that the Mobile Node Rather than Liu’s M-Agent “Triggers” the Signals Required to Allocate Resources and Initiate Mobility of the Mobile Node and thus the Board’s Finding that Liu or Liu and Gwon Teach or Suggest the Last Limitation of Claim 1 is Not Supported by Substantial Evidence.

Although Mobility did not present arguments relative to this limitation below, the burden of proving unpatentability by a preponderance of the evidence remains with UPL. 35 U.S.C. § 316. The evidence cited in the FWD makes clear that substantial evidence does not exist to establish the existence of the last limitation of claim 1. That limitation reads:

a ghost-mobile node that creates replica IP messages on behalf of a mobile node, the ghost-mobile node handling signaling required to allocate resources and initiate mobility on behalf of the mobile node, the ghost-mobile node

triggering signals based on a predicted physical location of such mobile node or distance with relation to the at least one foreign agent.

Appx68.

In the '417 Patent, the ghost-mobile node is responsible for handling signaling required to allocate network resources and initiate mobility on behalf of the mobile node. It is also responsible for triggering those signals based on a predicted physical location of the mobile node or distance with relation to at least one foreign agent. Appx63, 2:55-67; Appx64, 3:60-66; Appx65-66, 6:27-7:9; Appx67, 9:3-17, 9:54-10-13.

UPL identifies Liu's M-agent as allegedly corresponding to the claimed ghost-mobile node of claim 1. Appx106-109. UPL's arguments and cited evidence, however, establish that Liu's mobile phone/PMM "triggers" the required signals, not the M-Agent. The FWD provides:

Petitioner asserts Liu, or alternatively, Liu and Gwon, teaches or suggests this limitation. Pet. 30-34. Petitioner, relying on testimony from Dr. Haas, contends a person of ordinary skill in the art would have understood "handling signaling required to allocate resources and initiate mobility" to include "preemptive setup and initiation of the mobility process." *Id.* at 30 (citing Ex. 1006 ¶ 84). Petitioner relies on Liu's M-agent's (ghost-mobile node) pre-assignment signaling that allows for "services and/or data [to] be pre-connected/pre-arranged at the mobile user's destination." *Id.* at 31 (citing Ex. 1003, 2:29-35, Fig. 5). Petitioner further refers to the M-agent sending **the pre-assignment signaling based on the use of predictive mobility management (PMM)**, including the predicted physical

location of the terminal, ***to trigger service and resource pre-arrangement***. *Id.* at 31–33 (citing Ex. 1003, 7:22–38, 19:4–14).

Appx106 (emphasis added).

In fact, Liu, the Petition, and Dr. Haas’s supporting declaration all confirm that it is the mobile phone and its PMM functions that perform the required “triggering” of the claimed signals, not the Liu’s M-Agent. Page 32 of the Petition, for example, quotes Liu (Ex. 1003) at 7:22–38. Appx108. That portion of Liu—which was repeatedly relied upon by all parties and their experts—provides:

The M-agent 50 is a representative of the user 21 in the network and is responsible in part for creating, deleting and managing the MF-agents on behalf of mobile users. An M-agent 50 requests creation or assignment of MF-agents 52. As shown in FIG. 7 **a mobile terminal 55 sends an MF-agent assignment request to its M-agent 50, in the local network, with an address of a new location it is travelling to (701).** The new location may be one that has been explicitly provided by the user 21, or it may be one predicted by the PMM functions 46. The assignment request is a request to establish (i.e., alternatively create or pre-assign) an MF-agent 52 at the location that the mobile terminal 55 will be travelling to and thus have any necessary services and data ready for the mobile terminal, when it arrives at the new location. **The M-agent 50 then registers the request and forwards the request 65 to the remote MF-agent manager at the new location (702).**

Appx483 at 7:22–38 (emphasis added). Thus, Liu expressly discloses that **the mobile terminal generates and sends the pre-assignment request**, along with the address of the new location of where it is traveling to, **and the M-Agent merely forwards the request to the MF-agent manager(s) at the new location(s) specified by mobile node.**

Forwarding is not triggering. The Petition acknowledges this:

Liu discloses that the use of Predictive Mobility Management triggers service and resource pre-arrangement for the mobile terminal before it reaches its next destination:

“An aggressive mobility management scheme, called predictive mobility management has been developed. **A Predictive Mobility Management (PMM), as described previously, is used to predict the future location of a mobile user according to the user's movement history patterns. The combination of the mobile floating agent concepts with the predictive mobility management allow for service and resource pre-arrangement. The data or services are preconnected and assigned at the new location before the user moves into the new location.**”

Appx32–33 (quoting Ex. 1003 (Appx489) at 19:4–14 (bold italics added, other emphasis in original)).

Liu describes the PMM as being part of the Mobile Application Interface (API) 31 included in the mobile terminal software 39 shown in

FIGS 3 and 4 of Liu. *See* Appx482, 5:36–45, 5:62–6:51. FIGs. 5 and 6 of Liu show the PMM 46 in the mobile node 55. Appx460-61. In addition, Liu describes the PMM functions as follows:

[T]he most likely destination of a user is determined through the use of Predictive Mobility Management Functions (PMM) 46, which are also located in the MDSP 45. **The PMM 46 has two parts:** location prediction functions and virtual-distributed floating agent assignment functions (FAA). **The FAA functions assign the MF-agent to different locations according to a location prediction. In addition, the PMM 46 aids the Mobile API 31 in establishing service pre-connection and service/resource mobility.**

Appx482, 6:35–46. Thus, Liu’s mobile node, with the assistance of its mobile API, generates the MF-agent assignment request that triggers the signaling required to initiate mobility and allocate resources and then sends that request to its M-agent. *Id.* “The M-agent 50 then registers the request and forwards the request 65 to remote MF-agent manager at the new location.” Appx483, 7:37–39. The Petition and Dr. Haas’s declaration are in accord. *See*; Appx108–09 (Petition, citing Ex. 1003 at (Appx483) 7:22–38; (Appx489) 19:4–14); Appx578–579 (Ex. 1006) (citing Ex. 1003 at (Appx483) 7:28–39).

By contrast, the ’417 Patent discloses and claims that the ghost-mobile node decides when handover is appropriate and then triggers the signaling required to allocate resources and initiate mobility on behalf

of the mobile node: Appx63 (Ex. 1001) at 3:61–65 (“The ghost-mobile node can serve as a virtual repeater capable of registering and allocating communication resources by predicting where the mobile node’s next handoff will occur as the mobile node moves relative to the communication network’s nodes, including those edge nodes that define foreign agents.”); Appx65, 6:27–46; Appx65, 6:55–56 (“The ghost-mobile node can perform the function of determining the closest foreign agent.”); Appx66, 8:58–9:17.

On this record, no reasonable mind could conclude that the Liu’s M-agent is the entity in the Liu communication network that “triggers” signaling to allocate resources and initiate mobility. Accordingly, the Board’s finding that the Liu teaches or suggests this limitation is not supported by substantial evidence. *See Consol. Edison Co. v. NLRB*, 305 U.S. at 229.

The Petition also argued that Liu in combination with Gwon rendered this limitation obvious. Appx109–10. According to the Petition:

Gwon discloses a “mobility prediction analysis [that] results in the determination of a threshold value” that is selected to indicate when a mobile node has sufficiently moved relative to a network node. **Ex. 1004** [Appx502] at [0057]. The mobility prediction analysis “may be used to **trigger pre-hand-off processing of authentication and security measures**” or to “**trigger selection of a new network connection to optimize the quality of the mobile node’s connection and/or communications.**” *Id.*

(emphasis added). Gwon discloses three different methods of mobility prediction, including a deterministic, stochastic, and adaptive approach. *Id.* at [0060]. Each approach is “generally sufficient by itself to accurately provide a threshold value to trigger desired actions by the mobile node. *Id.*; see generally *id.* at [0059]-[00104].

Appx109 (emphasis in original). The Petition then relies on testimony from Dr. Haas to argue that a “POSITA would have been motivated to substitute Liu’s PMM mobility prediction functions with the alternative mobility prediction methods disclosed in Gwon to trigger signaling since this is substituting one known element for another to obtain predictable results. Appx110 (citing Ex. 1006 at (Appx579–80) 7.)

Substituting Gwon’s prediction methods for Liu’s PMM mobility prediction functions, however, suffers from the same problem that Liu alone does. Namely, as discussed above with respect to Liu, the FAA function in the PMM of the Mobile API would still assign the MF-agent to different locations according to a location prediction, just that that prediction would now be based on one of the Gwon prediction methods carried out in the phone. As a result, Gwon’s prediction method and FAA would now aid the Mobile API 31 in establishing service pre-connection and service/resource mobility. See Appx482, 6:35–46. As taught in Liu, Liu’s mobile node, with the assistance of its Mobile API, will generate the MF-agent assignment request that triggers the signaling required to initiate mobility and allocate resources and then

send that request to its M-agent. *See* Appx482, 6:35–46; Appx483, 26-36; Appx460-62, FIGs. 5-7. The M-agent 50 will then register the request and forward the request 65 to remote MF-agent manager at the new location. *See* Appx483, 7:37–39.

Thus, the combination of Liu and Gwon suffers from the same underlying issue raised above with respect to Liu. Therefore, no reasonable mind could conclude that the Liu’s M-agent is the entity in the Liu communication network as modified by Gwon that “triggers” signaling to allocate resources and initiate mobility. Accordingly, the Board’s finding that the Liu and Gwon teaches or suggests this limitation is not supported by substantial evidence. *See Consol. Edison Co. v. NLRB*, 305 U.S. at 229.

G. Dependent Claims 2, 4, and 5 are Patentable for the Same Reasons Claim 1 is Patentable

Claim 2, 4, and 5 depend from claim 1 and is therefore patentable over Liu and over Liu and Gwon for at least the same reasons as claim 1. *Hartness Int’l. Inc. v. Simplimatic Eng’g Co.*, 819 F.2d 1100, 1108 (Fed. Cir. 1987). Although the Petition raises additional Grounds with respect to claims 2 and 4, *see* Appx78, the Petition only relies on its claim 1 analysis based on Liu and Gwon to establish the limitations of underlying claim 1, *see* Appx114-13, Appx121-22 **13,992**. Thus, the claims depending from claim 1 remain patentable over the combined

teachings of Liu, Gwon, and Lau and Liu, Gwon, and IETF RFC 2402 for at least the reasons presented above and in Section VII.F. *Hartness Int'l. Inc. v. Simplimatic Eng'g Co.*, at 1108.

VIII. CONCLUSION

For at least the forgoing reasons, the Board's patentability determinations should be reversed, or at least vacated and the case remanded for further determinations consistent with the standards identified herein.

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Respectfully submitted,

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