

SPECIALIZED JURIES FOR PATENT CASES: AN EMPIRICAL PROPOSAL

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INTRODUCTION	1176
I.THE PROBLEMS WITH LAY PATENT JURIES — AND HOW	
SPECIALIZED JURIES COULD ALLEVIATE THESE PROBLEMS.....	1178
A. The Problems with Lay Patent Juries	1178
B. How Specialized Patent Juries Could Improve the Adjudicatory Process.....	1185
II.SPECIALIZED PATENT JURIES WOULD BE CONSTITUTIONAL	1187
A. The Seventh Amendment	1187
B. The Fourteenth Amendment.....	1190
III.A CONCRETE PROPOSAL FOR IMPANELING SPECIALIZED JURIES IN PATENT CASES.....	1193
A. The Proposal: Offering Skilled Artisans One-Year Jury Terms for a Competitive Salary.....	1193
B. Survey Data Suggests That This Proposal Would Be Feasible.....	1197
C. Other Considerations	1201
CONCLUSION.....	1203
APPENDIX A: SURVEY METHODOLOGY	1204
APPENDIX B: SAMPLE SURVEY FORM	1205

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INTRODUCTION

A common criticism of Federal patent litigation¹ is that patent suits are tried before lay jurors who are ill-suited to understand the complex technologies that many patent suits entail. Like other juries, patent juries are currently drawn from the general population. Yet many patent suits involve cutting-edge technologies — in such areas as computer science, electrical engineering, and the life sciences — that are very difficult to explain to the average American, who lacks experience in those fields. Moreover, patents themselves are written for a person “of skill in the art,” which is a hypothetical person who has a significant level of skill and experience in the patent’s technological field. Lay jurors are unlikely to be persons of skill in the art, and they may find it utterly impossible to put themselves in such a person’s shoes. The result is that patent suits are tried before jurors who often have little ability to even understand the patent and the accused product themselves, let alone the ability to accurately compare the accused product to the patent claims in order to determine infringement.

Faced with these difficulties, several commentators have suggested that patent cases be tried before specialized juries comprised of individuals who have some level of expertise in the field of the patent.² At the same time, these commentators have expressed skepticism about whether it would be feasible to impanel such specialized juries. As one commentator stated, “it may be practically impossible to gather a jury of twelve experts for each complex, and often lengthy, trial.”³ Similarly, another commentator has acknowledged “the potential difficulty of finding highly educated specialists who would not suffer undue hardship from being compelled to sit through a lengthy patent litigation.”⁴ Indeed, “[m]ost of

1. Patent lawsuits are litigated solely in the Federal courts. State courts have no jurisdiction to hear such lawsuits. 28 U.S.C. § 1338(a) (2012).

2. See, e.g., Michael A. Fisher, *Going for the Blue Ribbon*, 2 COLUM. SCI. & TECH. L. REV. 1, 3 (2001) (considering whether litigants have the right to a jury equipped to understand the dispute, and exploring practical ways of selecting expert jurors); Gregory D. Leibold, *In Juries We Do Not Trust: Appellate Review of Patent-Infringement Litigation*, 67 U. COLO. L. REV. 623, 648-53 (1996) (discussing the legal and practical problems inherent in using expert juries); Beth Z. Shaw, *Judging Juries: Evaluating Renewed Proposals for Specialized Juries from A Public Choice Perspective*, 2006 UCLA J. L. & TECH. 3, 6 (2006) (suggesting that specialized juries can improve the group deliberation process in patent cases); D. Alan White, *The Doctrine of Equivalents: Fairness and Uncertainty in an Era of Biologic Pharmaceuticals*, 60 EMORY L.J. 751, 787 (2011) (exploring the historical roots of expert juries and why they could be used in challenging cases).

3. Leibold, *supra* note 2, at 650.

4. Fisher, *supra* note 2, at 78; accord Gregory J. Wallace, *Toward Certainty and Uniformity in Patent Infringement Cases After Festo and Markman: A Proposal for A Specialized Patent Trial Court with A Rule of Greater Deference*, 77 S. CAL. L. REV. 1383,

the current proposals acknowledge the potential difficulties in selection and retention of specialized juries”⁵

This Article seeks to address such skepticism by giving a concrete proposal for how to impanel specialized juries for patent cases, and by providing empirical survey data suggesting that this proposal *would* be feasible. Specifically, this Article proposes that the Federal government offer one-year jury commissions to technically skilled individuals for an annual salary of roughly \$100,000. Qualified individuals would have at least a bachelor’s degree in a scientific or technical field, and would be assigned to hear patent cases that fall within their area of technical expertise for the duration of their one-year term of service. The cost of their salaries would be offset by surcharges on patent litigants, leaving the system revenue-neutral from the government’s perspective. Assuming that a specialized juror could hear roughly 18 cases during a one-year term of service, and assuming a panel of nine jurors to hear each case, each patent litigant would need to pay only \$25,000 per lawsuit to fully offset the salaries of the specialized jurors. Given that patent cases typically cost millions of dollars to litigate through to verdict, these \$25,000 surcharges would be comparatively modest, and would seem a small price to pay for the benefit of having one’s case heard before skilled jurors who are likely to understand the technical issues in the case. Furthermore, such specialized juries would allow patent trials to be streamlined and shortened, thus bringing cost savings to litigants that would largely or entirely offset the cost of the surcharges.

To gauge whether technically skilled individuals would be willing to serve a one-year term as a specialized patent juror, I surveyed 389 undergraduate and graduate students at sixteen U.S. colleges and universities.⁶ Each student was either majoring in or pursuing graduate work in one of the two broad fields that spawn much complex patent litigation: (1) computer science and electrical engineering, or (2) the life sciences.⁷ The survey results were encouraging: out of the 389 total survey

1409 (2004) (“Another solution might be to require jurors to have a college degree or expertise in an area that is relevant to the disputed patent. It might be impossible, however, to obtain enough qualified jurors who meet such a requirement and who would not suffer undue hardship from service on a jury throughout the course of a lengthy patent trial.”).

5. Shaw, *supra* note 2, at 6.

6. These colleges and universities are: Bates College, the University of California-Berkeley, Claremont McKenna College, Colorado College, the University of Florida, Grinnell College, the University of Idaho, the University of Illinois, the University of Massachusetts, the University of Mississippi, the University of North Dakota, Penn State University, Stanford University, Trinity University (Texas), Wellesley College, and the University of Wyoming. A full description of my survey methodology is provided at Appendix A, and a sample survey form is provided at Appendix B.

7. From 1995-2014, five of the eight most common industries for patent litigation

respondents, over 73% indicated that they would “seriously consider” a one-year, post-graduation term of patent jury service for a salary of \$100,000 or less. The results were broadly consistent for undergraduate versus graduate students, and for computer science or electrical engineering students versus life science students. These data suggest that there is a large pool of skilled individuals who would be willing to serve on the specialized patent juries that this Article proposes. In other words, the data suggest that this proposal is a feasible way to impanel specialized juries that are competent to hear complex patent cases.

This Article proceeds in three main Parts. Part II discusses the difficulties that lay juries have in adjudicating complex patent cases and explains how specialized juries could greatly improve the adjudicatory process. Part III discusses possible constitutional issues surrounding specialized juries, but concludes that specialized juries would be consistent with both the Seventh Amendment right to jury trial and the Fourteenth Amendment guarantee of equal protection. Finally, Part IV outlines a concrete proposal to staff patent cases with jurors who have a bachelor’s or advanced degree in the field of the patent, and who would agree to serve a one-year jury term in exchange for a salary of roughly \$100,000. This final Part also draws upon survey results to demonstrate the feasibility of this proposal, and it provides suggestions for diversifying age and other demographics of the proposed specialized patent juries.

I. THE PROBLEMS WITH LAY PATENT JURIES — AND HOW SPECIALIZED JURIES COULD ALLEVIATE THESE PROBLEMS

A. *The Problems with Lay Patent Juries*

It should come as no surprise that lay jurors often find it difficult to decide patent suits, or even to understand the subject-matter of such suits.⁸ After all, patents may only be granted on “any new and useful process,

(Biotech/Pharma, Computer Hardware/Electronics, Medical Devices, Software, and Telecommunications) were industries that rely heavily on computer science, electrical engineering, and/or the life sciences. See Chris Barry et al., *2015 Patent Litigation Study*, PRICEWATERHOUSECOOPERS 10 (2015), <https://www.pwc.com/us/en/forensic-services/publications/assets/2015-pwc-patent-litigation-study.pdf> [https://perma.cc/86FF-P6Q6] (providing a graph comparing the top ten industries involved in patent cases). Moreover, the four industries that yielded the largest patent verdicts (Biotech/Pharma, Telecommunications, Medical Devices, and Computer Hardware/Electronics) were all industries that rely heavily on computer science, electrical engineering, and/or the life sciences. *Id.* at 11.

8. See Fisher, *supra* note 2, at 1 (“As patented technologies have become increasingly complex, there has been growing concern that ordinary jurors lack the ability to understand the scientific and technical issues in patent litigation.”).

machine, manufacture, or composition of matter, or any new and useful improvement thereof.”⁹ By definition, therefore, patents are supposed to cover *new* processes, machines, and compositions (i.e., advancements that have never been known before). So, when patents seek to advance such technical fields as biotechnology and computer science, the results can be dauntingly complex. Consider, for example, the patent claims¹⁰ at issue in just the first two decisions issued by the Federal Circuit¹¹ in 2016. The patent claim in the first decision, from the field of biotechnology, reads as follows:

A method for making an enzymatic hydrolysate of a soy fiber comprising:

- (a) mixing water and a soy fiber to form a substantially homogenous aqueous dispersion of hydrated unhydrolyzed soy fiber, wherein the unhydrolyzed soy fiber and water are present in a weight ratio of between about 1:1.5 and about 1:8;
- (b) adjusting the pH of the mixture to between about 4.5 and about 5.5;
- (c) heating to at least about 200°F for a time sufficient to substantially swell the unhydrolyzed soy fiber;
- (d) cooling the mixture to between about 115°F and about 135°F;
- (e) contacting the mixture with one or more endoglucanase enzymes in the absence of exohydrolytic enzymes, said one or more endoglucanase enzymes comprising an enzyme capable of catalyzing the hydrolysis of 1, 4-β-D-glycosidic linkages in cellulose, the one or more endoglucanase enzymes being present in a weight ratio to the unhydrolyzed soy fiber of about 1:1,000 to about 1:25;
- (f) mixing under high speed for about 60 minutes to about 120 minutes to hydrolyze between about 0.5% and about 5% of the glycosidic bonds present in the unhydrolyzed soy fiber;
- (g) inactivating the one or more endoglucanase enzymes; and
- (h) drying the resulting enzymatic hydrolysate by spray drying; to provide a hydrolysate of soy fiber having an average degree of hydrolysis of between about 0.5% and

9. 35 U.S.C. § 101.

10. Patent “claims” are the numbered paragraphs at the end of the patent, each of which defines a separate invention that the patent-holder holds exclusive rights to make and use. 35 U.S.C. § 112(b).

11. The U.S. Court of Appeals for the Federal Circuit is the Federal court of appeals that has exclusive appellate jurisdiction over patent cases. 28 U.S.C. § 1295(a)(1).

about 5%; a water holding capacity which is reduced by about 10% to about 35% as compared to the water holding capacity of the unhydrolyzed soy fiber; a free simple sugar content of less than about 1%; and which is suitable for human consumption.¹²

The patent claim in the second case, from the field of computer science, reads as follows:

A transceiver for transmitting a first stream of data symbols, the transceiver comprising:

a converter for converting the first stream of data symbols into plural sets of N data symbols each;
 first computing means for operating on the plural sets of N data symbols to produce modulated data symbols corresponding to an invertible randomized spreading of the first stream of data symbols; and
 means to combine the modulated data symbols for transmission.¹³

The first (biotechnology) claim asks the reader to grapple with an eight-step method that includes such technical concepts as enzymatic hydrolysate, hydrated unhydrolyzed soy fiber, endoglucanase and exohydrolytic enzymes, and 1, 4-β-D-glycosidic linkages. The second (computer science) claim is almost simple by comparison, yet it still asks the reader to grapple with “modulated data symbols corresponding to an invertible randomized spreading of the first stream of data symbols.” Both claims include concepts that would be virtually impenetrable to readers who lack knowledge of life science or computer science, respectively.

Indeed, patents are designed for people who *do* have grounding in the technological field of the patent. These people are known as “persons skilled in the art,” “persons of ordinary skill in the art,” or simply “skilled artisans.”¹⁴ Their presence in patent law is nearly ubiquitous. For example, patent claims are preceded by a specification or “written description of the invention,” which must contain “such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains” to make or

12. *In re Urbanski*, 809 F.3d 1237, 1240 (Fed. Cir. 2016).

13. *Wi-Lan, Inc. v. Apple, Inc.*, 811 F.3d 455, 459 (Fed. Cir. 2016).

14. This Article will use these terms interchangeably, consistent with the case law. *See, e.g., In re Kahn*, 441 F.3d 977, 990 (Fed. Cir. 2006) (using “person having ordinary skill in the art” and “skilled artisan” interchangeably); *In re Cortright*, 165 F.3d 1353, 1358 (Fed. Cir. 1999) (using “those skilled in the art” and “one of ordinary skill in the art” interchangeably); *Janssen Pharm., Inc. v. Watson Labs., Inc.*, No. CIV.A. 08-5103 SRC, 2012 WL 3990221, at *1 (D.N.J. Sept. 11, 2012) (“‘skilled artisan’ is shorthand for ‘a person of ordinary skill in the pertinent art.’”).

use the invention.¹⁵ Likewise, “[t]he words used in the claims must be considered in context and are examined through the viewing glass of a person skilled in the art.”¹⁶ Moreover, in deciding whether a patent is invalid for being a merely obvious advance over prior inventions, the proper inquiry is whether “the claimed invention as a whole would have been obvious . . . to a person having ordinary skill in the art to which the claimed invention pertains.”¹⁷

Thus, patent jurors are often called upon to place themselves in the shoes of a person skilled in the art, and use that vantage point to decide various issues in patent cases. For example, jurors are often instructed that any claim terms that were not specifically construed by the court are to be given whatever ordinary and accustomed meaning they would have to a person of skill in the art.¹⁸ Jurors also may be called upon to decide whether the patent is invalid for lack of enablement, which turns on whether the specification would enable a person of ordinary skill in the art to make and use the invention.¹⁹ Also, as alluded to above, jurors decide whether a patent is invalid for obviousness by asking whether it would have been obvious to a person of ordinary skill in the art.²⁰

15. 35 U.S.C. § 112(a).

16. *Ferguson Beauregard/Logic Controls, Div. of Dover Res., Inc. v. Mega Sys., LLC*, 350 F.3d 1327, 1338 (Fed. Cir. 2003).

17. 35 U.S.C. § 103 (2012).

18. *See, e.g.*, *GPNE Corp. v. Apple Inc.*, 108 F. Supp. 3d 839, 861 n. 11 (N.D. Cal. 2015); *Internet Machines LLC v. Alienware Corp.*, No. 6:10-CV-23, 2013 WL 4056282, at *13 (E.D. Tex. June 19, 2013) (“the Court instructed the jury that it had interpreted the claim language and that any language not interpreted should be given its ordinary meaning as understood by one of ordinary skill in the art.”); *Saffran v. Johnson & Johnson*, No. 2:07-CV-451 TJW, 2011 WL 1299607, at *3 (E.D. Tex. Mar. 31, 2011) (“Because the phrase was not construed, the jury was charged to give the words their plain and ordinary meaning as understood by one with ordinary skill in the art.”)

19. *See, e.g.*, *Liquid Dynamics Corp. v. Vaughan Co.*, 449 F.3d 1209, 1224 (Fed. Cir. 2006) (“In order to enable the claims of a patent pursuant to § 112, the patent specification must teach those of ordinary skill in the art ‘how to make and use the full scope of the claimed invention without undue experimentation.’ . . . Here, because the underlying inquiry was inherently factual, we look to whether a reasonable jury could have made the underlying factual findings necessary to provide substantial evidence in support of its [enablement] conclusion.”); *Multimedia Patent Trust v. Apple Inc.*, No. 10-CV-2618-H KSC, 2012 WL 6863471, at *7 (S.D. Cal. Nov. 9, 2012) (“Summary judgment on the issue of enablement is inappropriate because there remains a genuine dispute of material fact for the jury as to whether the disclosures of the ’878 Patent teach a person of ordinary skill in the art how to decode a non-interlaced field.”).

20. 35 U.S.C. § 103. Technically, obviousness is a mixed question of law and fact, but jurors often decide factual questions bearing on obviousness, and these questions are often tied to the hypothetical person of skill in the art. For example, a jury may be asked to determine whether a person of skill in the art would have been motivated to modify the prior art to create the claimed invention. *See, e.g.*, *Duro-Last, Inc. v. Custom Seal, Inc.* 321 F.3d 1098, 1108-09 (Fed. Cir. 2003) (discussing whether it is obvious to use a butt weld instead

The list goes on. For example, juries may find that an accused product infringes a patent under the “doctrine of equivalents.”²¹ To decide doctrine-of-equivalents infringement, a jury must decide whether the differences between the accused product and the claim “are ‘insubstantial’ to one of ordinary skill in the art.”²² On the other side of the ledger, juries may find that a single prior art reference teaches every element of a patent claim and thus renders the claim invalid for “anticipation.” “Invalidation on this ground requires that every element and limitation of the claim was previously described in a single prior art reference, either expressly or inherently, so as to place a person of ordinary skill in possession of the invention.”²³

But there is no good reason to think that lay jurors are *able* to successfully place themselves in the shoes of a skilled artisan, or to view all the aforementioned issues through a skilled artisan’s eyes. In high-tech patent cases, a person of ordinary skill in the art is usually deemed to have a bachelor’s degree in the field of the patent, sometimes accompanied by one or more years of experience in that field.²⁴ A lay juror *without* those qualifications will naturally find it difficult, if not impossible, to place himself in the shoes of a hypothetical person *with* those qualifications.

of a lap weld in a certain context). In addition, juries are often asked to decide the “ultimate” obviousness question of whether a skilled artisan would have found the claims obvious. However, this ultimate question is deemed a question of law, so a jury’s resolution of it will be given no deference on appeal. *See* *Rothman v. Target Corp.*, 556 F.3d 1310, 1317 (Fed. Cir. 2009) (“[t]his court reviews [the] jury’s conclusions on obviousness, a question of law, without deference, and the underlying findings of fact, whether explicit or implicit within the verdict, for substantial evidence.”) (internal quotation marks omitted).

21. *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 40 (1997).

22. *Overhead Door Corp. v. Chamberlain Grp., Inc.*, 194 F.3d 1261, 1269 (Fed. Cir. 1999).

23. *Sanofi-Synthelabo v. Apotex, Inc.*, 550 F.3d 1075, 1082 (Fed. Cir. 2008).

24. *See, e.g., Pfizer, Inc. v. Apotex, Inc.*, 480 F.3d 1348, 1356 (Fed. Cir. 2007) (“The district court first found that a person of ordinary skill in the art would have a bachelor’s degree in pharmaceutical science or analytical chemistry, and some experience in drugs and drug preparation.”); *Emerson Elec. Co. v. Suzhou Cleve Elec. Appliance Co.*, No. 4:13-CV-1043-SPM, 2015 WL 5768572, at *2 (E.D. Mo. Sept. 30, 2015) (“[T]he parties do not dispute that one of ordinary skill in the art is someone with a bachelor’s degree in mechanical engineering or equivalent technical experience.”); *Blue Spike, LLC v. Texas Instruments, Inc.*, No. 6:12-CV-499-MHS-CMC, 2014 WL 5299320, at *4 (E.D. Tex. Oct. 16, 2014) (“the Court finds that a person of ordinary skill in the art would have at least a Bachelor’s degree in electrical engineering, computer science, or equivalent degree, with a background and at least two years’ experience in signal processing, image processing, biometric identification, or a related field.”); *Nano-Second Tech. Co. v. Dynaflex Int’l*, 944 F. Supp. 2d 855, 861 (C.D. Cal. 2013) (“one of ordinary skill in the art would have a good understanding of electronics hardware and mechanical design. Such person will have a Bachelor’s degree from a four-year college in Electrical Engineering, Electronics, and Mechanical Engineering, and a year of relevant experience.”).

How could a lay juror with no computer science background be able to appreciate the knowledge and critical thinking skills that a computer science bachelor's degree would impart? How could this lay juror truly place himself in the shoes of a computer science degree-holder? Asking lay jurors to view patent-law issues through the eyes of a skilled artisan comes close to an impossible exercise in metaphysics.

The sources of proof in high-tech patent cases are similarly beyond the ken of most lay jurors. Computer science patent cases often involve parsing the source code of the accused product and matching the source code against the patent claims to determine infringement.²⁵ Biotechnology patent cases often involve using complex imaging techniques, such as X-ray diffraction or nuclear magnetic resonance, to compare the structure of the accused compound against the patent claims.²⁶ There is no reason to think that lay jurors are remotely competent to analyze source code, X-ray diffraction patterns, or other highly technical sources of proof.

To be sure, it is nearly universal for patent litigants to come to trial with paid technical experts, who are often professors or other academics in the field of the patent.²⁷ In theory, these experts are supposed to explain complex technologies to lay jurors and phrase these technologies in terms that the jurors can understand.²⁸ But this creates its own set of problems. Each expert will naturally say that the evidence supports his or her client's position, and a lay juror who has no way of independently evaluating the evidence may have no choice but to simply believe one expert over the other. This creates a likelihood that jurors might defer to whichever expert comes across as more likeable or learned, without regard to the technical merit of what the expert is saying (which the jurors are ill-equipped to evaluate in any event).

As former law professor and current Federal Circuit judge Kimberly Moore pointed out: "If juries are unable to understand the technology or

25. For this reason, source code is the first item in many districts' lists of items that must be produced at an early stage of a patent case. *See, e.g.*, E.D. Tex. Local Patent Rule 3-4(a); N.D. Cal. Local Patent Rule 3-4(a) (stating that party opposing a claim of patent infringement must produce source code or other documentation).

26. *See, e.g.*, *Zenith Labs., Inc. v. Bristol-Myers Squibb Co.*, 19 F.3d 1418, 1423 (Fed. Cir. 1994) ("In order to establish its case, Bristol had to show that the accused compound infringed the claim contained in the patent. This required Bristol to show that the diffraction pattern of cefadroxil DC following its conversion *in vivo* displayed the same diffraction pattern as that of the claimed compound.")

27. *See* Edward J. Poplawski, *Selection and Use of Experts in Patent Cases*, 9 FED. CIR. B.J. 145 (1999) ("It is axiomatic that technical experts are virtually a *sine qua non* for patent litigation").

28. *See id.* ("Technical experts generally perform one or more of the following functions: . . . (4) educate the court and the jury as to the underlying technology; and (5) testify as to a broad range of patent issues. . . .").

apply the law, their decisions will be based on less meritorious influences such as bias, likeability, or emotion.”²⁹ “In short, the less a jury understands about the technology, the more likely unrelated issues will influence decisionmaking.”³⁰ On that note, there is no shortage of tangential issues that skilled patent litigators can raise to try to sway juries towards their clients and against their adversaries. For example, small patentees suing large technology companies may raise the “David vs. Goliath” theme and cast themselves as a scrappy underdog heroically fighting against a giant corporation.³¹ Conversely, successful companies sued by small non-practicing patentees may characterize their adversaries as “trolls” who do not make products but use their patents merely to extort money from others.³² Furthermore, both patentees and defendants commonly begin their trial presentations with testimony from fresh-faced corporate representatives — individuals who might have nothing to say about the merits of the infringement case — who are put on the witness stand simply to humanize the company they serve in front of the jury.³³ All these tactics can be highly effective on lay jurors who cannot adequately evaluate the technical merits of the case and who may therefore seek alternative bases for their verdict.

In sum, lay jurors are ill-equipped to competently decide high-tech patent cases. They will likely find it impossible to put themselves in the shoes of a skilled artisan, though they are routinely called upon to do just that. They have little ability to independently evaluate the technical evidence in high-tech patent cases. And their failure to understand the technical issues in such cases leaves them acutely vulnerable to “less meritorious influences such as bias, likeability, or emotion.”³⁴

29. Kimberly A. Moore, *Jury Demands: Who’s Asking?*, 17 BERKELEY TECH. L.J. 847, 852 (2002).

30. *Id.* at 852 n. 15.

31. See Colleen V. Chien, *Of Trolls, Davids, Goliaths, and Kings: Narratives and Evidence in the Litigation of High-Tech Patents*, 87 N.C. L. REV. 1571, 1571 (2009) (“While each patent dispute is unique, most fit the profile of one of a limited number of patent litigation stories. A dispute between an independent inventor and a large company, for instance, is often cast in ‘David v. Goliath’ terms.”).

32. See *id.* (“Patent licensing and enforcement entities who sue have been labeled ‘trolls.’”).

33. Indeed, courts often deny motions in limine brought to exclude such background information about the parties. See, e.g., *Finjan, Inc. v. Blue Coat Sys., Inc.*, No. 13-CV-03999-BLF, 2015 WL 4129193, at *2 (N.D. Cal. June 8, 2015) (ruling that “both parties have a right to introduce their respective companies to the jury and to provide factual background information concerning the companies.”); *Personalized Media Commc’ns, LLC v. Zynga, Inc.*, No. 2:12-CV-00068-JRG, 2013 WL 10253110, at *1 (E.D. Tex. Oct. 30, 2013) (denying motion in limine “as to the parties’ ability to provide general background information on their business.”).

34. Moore, *supra* note 29.

B. *How Specialized Patent Juries Could Improve the Adjudicatory Process*

Based on the foregoing points, it seems self-evident that patent trials could be greatly improved by impaneling *specialized* juries, comprised of individuals whose knowledge and experience roughly tracks that of the hypothetical skilled artisan. Members of such specialized juries would be far better suited to put themselves in the shoes of a skilled artisan than lay jurors because they would (more or less) *be* skilled artisans. For example, if a skilled artisan for a given patent case were deemed to have a bachelor's degree in computer science, then who better to decide the case than specialized jurors with that very credential? Such specialized jurors could read the patent the way a skilled artisan would, apply the knowledge of a skilled artisan when deciding whether the patent is obvious, and likewise apply the knowledge of a skilled artisan in deciding whether features of the accused product are equivalent to features in the patent claims.

By the same token, such specialized jurors would be far better suited than lay jurors to comprehend the sources of proof that are commonly used in high-tech patent cases. Someone with a bachelor's degree in computer science, for example, would likely be able to read and understand the source code that may be introduced in a computer science patent trial. Someone with a bachelor's degree in biology or biochemistry would likely have familiarity with X-ray diffraction, nuclear magnetic resonance, and other common techniques for showing the structure of organic molecules. In sum, specialized jurors would be far less likely than lay jurors to be "lost at sea" when complex scientific evidence is introduced at trial.

In addition, because specialized jurors would better understand the subject matter of a high-tech patent suit, they would be relatively resistant to persuasion by "less meritorious influences such as bias, likeability, or emotion."³⁵ Indeed, patent litigators might be less likely to even employ emotional themes — such as the "troll" or the "David vs. Goliath" themes discussed above — if their audiences were a group of technical specialists instead of a group of lay jurors. Consider how patent litigation currently plays out in the International Trade Commission, or ITC. The ITC is a Federal administrative body that can block the importation of goods that are found to infringe a U.S. patent.³⁶ Unlike district court patent trials, ITC trials contain no juries. Instead, ITC trials are decided by Administrative Law Judges (ALJs) who frequently have technical (i.e., scientific)

35. *Id.*

36. *See* 19 U.S.C. § 1337(a)(1)(B), (d)(1) (granting the ITC authority to investigate unfair practices in import trade and exclude illegal articles from entry into the United States).

backgrounds.³⁷ In this author's experience, ITC trials are far less likely than jury trials to feature emotionally charged arguments or themes. Indeed, many ITC judges choose not to hear closing arguments at all,³⁸ which is the most common point of the proceeding where trial lawyers deploy their most heated emotional rhetoric.³⁹ If specialized juries replaced lay juries in patent trials, one might expect the tenor of these trials to move closer to dry, technical ITC proceedings and move further away from theatrical, emotional proceedings. This would be a decidedly good thing, as jurors *should* decide patent cases on the technical merits rather than their gut judgments about which party, witness, or lawyer is more emotionally appealing.

Specialized juries could also provide other, less-obvious benefits, and offer intriguing new possibilities to improve patent litigation. Consider, for example, jury verdict forms. Currently, verdict forms in patent cases are "black box" forms where the jury checks off whether it found the patent infringed or invalid, but provides no written explanation for *why* it reached its decision or what evidence it used to support that decision.⁴⁰ The Supreme Court, Federal Circuit, and legal commentators have all noted the concern that these "black box" verdicts impede appellate review by preventing the reviewing court from understanding the reasoning behind the jury's decision.⁴¹

37. See Jacqueline Lee, *Is the U.S. International Trade Commission Protectionist? A Comparative Study of Border Enforcement Measures*, 40 AIPLA Q.J. 593, 617 (2012) ("The ITC is known for its expertise in regard to patent infringement actions for two general reasons: one, the vast majority of cases heard by the ALJs at the ITC involve the infringement of patent rights; and two, many ALJs and Commissioners have technical backgrounds."); Note, *Recasting the U.S. International Trade Commission's Role in the Patent System*, 126 HARV. L. REV. 2337, 2352 (2013) ("The ITC is much faster than either the district courts or the PTO; in addition, its expert ALJs are both technical experts on par with PTO administrative patent judges (and much better than lay district judges or juries) . . .").

38. See, e.g., Inv. No. 337-TA-800, Order No. 2, at § 10.2 (Aug. 31, 2011) (setting forth ALJ Theodore Essex's usual practice of not hearing closing arguments); Inv. No. 337-TA-666, Order No. 2, at § 10.2 (Jan. 14, 2009) (same with ALJ James Gildea).

39. See James H. Roberts, Jr., *The SEC of Closing Arguments*, 23 AM. J. TRIAL ADVOC. 203, 206 (1999) ("Emotion is a powerful element in effective closing arguments. . . . [O]ne can conclude that jurors make the critical decisions charged to them by the court on an emotional basis. Therefore, when lawyers plan their closing arguments, lawyers must consider emotion, especially in developing the story of the case and in delivering the story.").

40. See, e.g., *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1356 (Fed. Cir. 2001) ("Due to the 'black box' nature of the jury's verdict, it is impossible to determine which of the above pieces of evidence, alone or in combination, carried the day in the jury room, and how much weight was assigned to each piece.").

41. See, e.g., *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 39 n.8 (1997) (noting "the concern over unreviewability due to black-box jury verdicts");

But if lay jurors were replaced with specialized jurors who hold at least a bachelor's degree in the field of the patent, it might become feasible to ask the jury to provide written explanations for its decision, somewhat akin to the written finding of fact that district judges provide in bench trials⁴² or the written findings of fact that ALJ's provide in ITC proceedings.⁴³ The jury might be provided with a laptop computer in the jury room, and asked to collectively draft a short statement explaining the basis for their verdict. Even a two-to-three page statement — the kind of thing a group of college graduates might be able to draft in a few hours or less — would be much more illuminating than the impenetrable “black box” verdict forms that reviewing courts currently face. These specialized jurors should be competent to give a written explanation of why they reached their verdict, since persons with at least a bachelor's degree in the field of the patent surely have experience writing in that field.⁴⁴

II. SPECIALIZED PATENT JURIES WOULD BE CONSTITUTIONAL

Of course, no matter how much specialized juries might improve the adjudication of patent cases, they could not be seriously promoted if their existence would be unconstitutional. There are at least two constitutional objections that one might plausibly raise against specialized patent juries. First, one might argue that specialized juries would violate patent litigants' Seventh Amendment right to a jury trial. Second, one might argue that the exclusion of laypersons from specialized juries would violate those laypersons' Fourteenth Amendment right to equal protection. However, as discussed in subparts (A) and (B) below, specialized juries are actually consistent with both of these constitutional guarantees.

A. *The Seventh Amendment*

The Seventh Amendment provides that, “[i]n suits at common law,

Structural Rubber Products Co. v. Park Rubber Co., 749 F.2d 707, 718 (Fed. Cir. 1984) (“Concerns have been expressed by the patent bar that a jury trial creates a black box into which patents are thrown and emerge intact or invalid by an unknown and unknowable process”); Kimberly A. Moore, *Judges, Juries, and Patent Cases—an Empirical Peek Inside the Black Box*, 99 MICH. L. REV. 365, 368 (2000) (“The ‘black box’ nature of jury verdicts leaves the Federal Circuit unable to correct inaccuracy or bias on the part of jurors.”).

42. See Fed. R. Civ. P. 52(a)(1) (providing that the court must find and state the facts in actions tried without a jury).

43. See 19 CFR § 207.114(b)(1) (providing that the ITC must include findings of fact in its initial determination).

44. Indeed, under this Article's proposal to offer jury commissions to specially-selected individuals who have a technical degree (see Part IV, *infra*), the government might also select for individuals who have demonstrated proficiency in clear expository writing.

where the value in controversy shall exceed twenty dollars, the right of trial by jury shall be preserved”⁴⁵ The Supreme Court has held that the “[t]he right of trial by jury thus preserved [by the Seventh Amendment] is the right which existed under the English common law when the amendment was adopted.”⁴⁶ Thus, in determining whether a given practice or procedure violates the Seventh Amendment, the Supreme Court looks first and foremost to the established English practices that existed as of 1791, when the Seventh Amendment was adopted.⁴⁷

Under this historical analysis, there are strong grounds to conclude that the Seventh Amendment allows civil suits to be tried before specialized jurors who have familiarity with the general subject matter of the suit. In fact, specialized juries were well established in English practice, from the Middle Ages up through the time of the Seventh Amendment’s adoption.⁴⁸

Some early English examples show the specialized jury concept being carried out to almost parodic lengths. For example, a jury of “cooks and fishmongers” presided over the trial of a defendant accused of selling bad food, a jury of matrons was impaneled to decide a pregnancy-related claim, and a jury of booksellers and printers was impaneled to decide a libel trial.⁴⁹ Moreover, the English practice of using specialized juries became only more established in the decades leading up to the enactment of the Seventh Amendment. In 1730, for example, Parliament formally codified the specialized jury by passing a law that allowed any litigant to request

45. U.S. CONST., AMENDMENT VII.

46. *Balt. & Carolina Line v. Redman*, 295 U.S. 654, 657 (1935).

47. *See, e.g., Feltner v. Columbia Pictures Television, Inc.*, 523 U.S. 340, 348-49 (1998) (applying historical English practice to determine whether statutory copyright damages claim must be tried to a jury under the Seventh Amendment); *Granfinanciera, S.A. v. Nordberg*, 492 U.S. 33, 43 (1989) (applying historical English practice to determine whether fraudulent conveyance claim brought by bankruptcy trustee carries Seventh Amendment right to jury trial); *Dimick v. Schiedt*, 293 U.S. 474, 476 & 482 (1935) (applying historical English practice to determine whether additur by trial judge violated Seventh Amendment).

48. *See, e.g., Shaw, supra* note 2, at 7 (“In the second half of the seventeenth century, it was not uncommon for a jury to include only property owners or experts in the subject matter of the litigation”); *White, supra* note 2, at 787 (“The use of expert juries is rooted in English common law. Originally, juries in England were often selected for their special knowledge of the issues at trial.”); *see also The Case for Special Juries in Complex Civil Litigation*, 89 *YALE L.J.* 1155, 1163 (1980) (“Special juries are in fact part of a long historical tradition in England. Juries of particularly qualified persons have been in use since the middle ages to decide cases that might be outside the experience of ordinary jurors.”).

49. Kristy Lee Bertelsen, *From Specialized Courts to Specialized Juries: Calling for Professional Juries in Complex Civil Litigation*, 3 *SUFFOLK J. TRIAL & APP. ADVOC.* 1, 10-11 (1998).

such a jury.⁵⁰ The specialized jury then reached its apotheosis after 1756, when the famous British jurist Lord Mansfield ascended to Chief Justice of the King's Bench and began to routinely impanel specialized juries of merchants to decide important mercantile cases.⁵¹ Given the transformative effect that Lord Mansfield's cases had on mercantile law — he is often called “the father of modern mercantile law”⁵² — his special merchant juries would have been well known on both sides of the Atlantic. If the Seventh Amendment right to jury trial was truly meant to track 18th-century English practice, then there could be no better or more prominent example of that English practice than Lord Mansfield's merchant juries. Thus, the relevant English practice strongly supports the argument that specialized juries are consistent with the Seventh Amendment.

Furthermore, many American state court systems have historically provided for specialized juries,⁵³ and a few continue to this day.⁵⁴ Although

50. An Act for the Better Regulation of Juries, 3 Geo. 2, c. 25 (1730) (Eng.). See also William V. Luneburg & Mark A. Nordenberg, *Specially Qualified Juries and Expert Nonjury Tribunals: Alternatives for Coping with the Complexities of Modern Civil Litigation*, 67 VA. L. REV. 887, 903 (1981) (“In 1730, Parliament underscored the legitimacy of the special jury when it passed a statute that declared the right of any litigant, in either a civil or criminal case, to move for a special jury.”).

51. See Luneburg & Nordenberg, *supra* note 50, at 903 (“The most extensive use of special juries came in the second half of the century, however, when Lord Mansfield began to use a trained corps of merchants regularly as jurors in commercial cases. This practice developed during his term as Chief Justice of the King's Bench from 1756 until 1788, and apparently was continued for some time thereafter.”); James C. Oldham, *The Origins of the Special Jury*, 50 U. CHI. L. REV. 137, 164 (1983) (“During the late eighteenth century, for example, special juries of merchants well-versed in mercantile customs helped Lord Mansfield articulate and order principles of commercial law.”); Lochlan F. Shelfer, *Special Juries in the Supreme Court*, 123 YALE L.J. 208, 214 (2013) (“Although the practice of special juries in general, and special juries of merchants in particular, originated in the medieval period, Lord Mansfield brought special juries of merchants into widespread use upon his appointment as Chief Justice of King's Bench in 1756. Under Mansfield, special juries of merchants became prevalent throughout England and the colonies in the late eighteenth century.”).

52. John Morey Maurice, *A New Personal Limited Liability Shield for General Partners: But Not All Partners Are Treated the Same*, 43 GONZ. L. REV. 369, 376 (2008) (“During his thirty-two year career as a judge, Lord Mansfield became known in England as the ‘father of modern mercantile law.’”).

53. See Laura G. Dooley, *National Juries for National Cases: Preserving Citizen Participation in Large-Scale Litigation*, 83 N.Y.U. L. REV. 411, 438-39 (2008) (“More than half of American states had statutes authorizing the use of special juries during the first half of the twentieth century”); Shaw, *supra* note 2, at 26 (“Seventeen states have used some form of a specialized jury, basing their authority primarily on state statutes.”); White, *supra* note 2, at 787-88 (“In the United States, expert juries were provided for by statute in many states by the first part of the twentieth century.”).

54. See, e.g., 10 Del. C. § 4506 (allowing for special juries in “complex civil case[s]”); Colo. Rev. Stat. Ann. § 37-23-104 (providing that certain water drainage cases be heard before individuals “who have some knowledge of the costs and benefits of farm drainage

states are not bound by the Seventh Amendment,⁵⁵ many of the states that provided specialized juries also have state constitutional provisions comparable to the Seventh Amendment — provisions that “preserved inviolate the right of trial by jury.”⁵⁶ The fact that these states enacted specialized juries alongside their constitutional jury-trial protections strongly suggests that the traditional American understanding of “trial by jury” does not preclude specialized juries.

In sum, the historical English practice — the lodestar for Seventh Amendment jurisprudence — indicates that specialized juries are consistent with the Seventh Amendment, and state practice further suggests that specialized juries are consistent with American jury trial rights. Thus, impaneling specialized juries of skilled artisans for patent cases appears not to violate the Seventh Amendment right to a jury trial.

B. *The Fourteenth Amendment*

The Fourteenth Amendment provides, in relevant part, that “[n]o state shall . . . deny to any person within its jurisdiction the equal protection of the laws.”⁵⁷ While the Fourteenth Amendment does not directly apply against the Federal government (and therefore could not be directly invoked to invalidate a Federal specialized jury system), the Fourteenth Amendment’s equal protection guarantee is incorporated against the Federal government through the Fifth Amendment’s due process clause.⁵⁸ Thus, “the Fifth Amendment imposes on the Federal Government the same standard required of state legislation by the Equal Protection Clause of the Fourteenth Amendment.”⁵⁹

That being the case, would it violate equal protection for the Federal government to impanel specialized patent juries consisting of individuals who are skilled in the field of the patent? Would this violate the equal protection rights of all *other* individuals, who would not be eligible to serve on these specialized juries?

and shall be sworn as a special jury to try the case . . .”).

55. Before the 20th century, the Bill of Rights (including, of course, the Seventh Amendment) was deemed wholly inapplicable to the states. *Barron v. Balt.*, 32 U.S. (7 Pet.) 243 (1833). In the 20th century, the Supreme Court “incorporated” most Bill of Rights protections to apply to the states, but the Seventh Amendment has never been so incorporated. *See, e.g.*, *GTFM, LLC v. TKN Sales, Inc.*, 257 F.3d 235, 245 (2d Cir. 2001) (“[T]he Seventh Amendment, though guaranteeing the right to a jury trial for legal issues in cases tried in federal courts, does not apply to the States.”).

56. *Luneburg & Nordenberg*, *supra* note 50, at 903.

57. U.S. CONST., AMENDMENT XIV, § 1.

58. *See Bolling v. Sharpe*, 347 U.S. 497 (1954) (noting that equal protection and due process are not mutually exclusive, and that discrimination may violate both clauses).

59. *Schweiker v. Wilson*, 450 U.S. 221, 226 n.6 (1981).

The answer is most likely “no.” As an initial matter, “the Supreme Court has not recognized a Constitutional mandate that jury pools in civil cases reflect a fair cross-section of the community.”⁶⁰ And even in the criminal context where the lion’s share of jury-representation cases has arisen, successful equal protection challenges have generally been limited to the exclusion of discrete racial, gender, or ethnic groups. As the Supreme Court explained in *Lockhart v. McCree*:

Our prior jury-representativeness cases, whether based on the fair-cross-section component of the Sixth Amendment⁶¹ or the Equal Protection Clause of the Fourteenth Amendment, have involved such groups as blacks, women, and Mexican-Americans Because these groups were excluded for reasons completely unrelated to the ability of members of the group to serve as jurors in a particular case, the exclusion raised at least the possibility that the composition of juries would be arbitrarily skewed In addition, the exclusion from jury service of large groups of individuals not on the basis of their inability to serve as jurors, but on the basis of some immutable characteristic such as race, gender, or ethnic background, undeniably gave rise to an “appearance of unfairness.”⁶²

Limiting patent juries to those skilled in the relevant art would not raise any of those concerns. While laypersons would be excluded from specialized juries, their exclusion would *not* be “unrelated to the ability of members of the group to serve as jurors in a particular case.”⁶³ To the contrary, their exclusion would be closely related to their ability to serve, as it would be based on the logical point that those skilled in the field of a given patent are best suited to decide a lawsuit over such a patent.⁶⁴ By analogy, *Lockhart* held that limiting a capital-case jury pool to those who were philosophically willing to apply the death penalty was constitutional, because this limitation “is carefully designed to serve the State’s concededly legitimate interest in obtaining a single jury that can properly and impartially apply the law to the facts of the case at both the guilt and sentencing phases of a capital trial.”⁶⁵ The same could be said about limiting patent juries to those skilled in the art: this limitation would be “carefully designed to serve the [government’s] concededly legitimate interest in obtaining a single jury that can properly and impartially apply

60. *Fleming v. Chi. Transit Auth.*, 397 F. App’x 249, 249 (7th Cir. 2010).

61. The Sixth Amendment is what grants the constitutional right to jury trial in criminal cases. U.S. CONST., AMENDMENT VI.

62. *Lockhart v. McCree*, 476 U.S. 162, 175 (1986) (internal citations omitted).

63. *Id.*

64. *See supra* Part II(B).

65. *Lockhart*, 476 U.S. at 175-176.

the law to the facts of the case.”

One might draw another analogy to governmental licensing laws that restrict who may enter a given profession. When these laws are challenged under the Fourteenth Amendment’s equal protection clause, they will be upheld as long as they are rationally related to the demands of the profession.⁶⁶ This is a highly deferential test; courts “need only determine whether the licensing scheme has a ‘conceivable basis’ on which it might survive rational basis scrutiny.”⁶⁷

Limiting patent juries to skilled artisans would essentially impose a licensing requirement, as only skilled artisans would be “licensed” to serve on such juries. Yet it is hard to imagine that this limitation would fail rational basis review. As discussed in Part I(B) above, there are numerous rational reasons why skilled artisans would be more competent to decide patent cases than lay jurors. Thus, applying the licensing analogy, limiting patent juries to skilled artisans would seem to pass constitutional muster under the equal protection clause.

One might nonetheless object that some groups of skilled artisans are heavily skewed against certain racial and gender groups — groups that are at or near the core of Fourteenth Amendment protections.⁶⁸ For example, in 2013 only 5% of professional scientists and engineers were African-American and only 30% were women⁶⁹ — far below these groups’ overall representation in the population. In some fields the disparities are even starker; for example, only 2.9% of life scientists were African-American in 2013, and only 25.4% of computer and math scientists were women.⁷⁰ Thus, establishing specialized patent juries of skilled artisans might result in jury pools that are heavily skewed against certain racial or gender

66. See Stephen A. Meli, *Do You Have A License to Say That? Occupational Licensing and Internet Speech*, 21 GEO. MASON L. REV. 753, 757 (2014) (“The Supreme Court scrutinizes challenges to government licensing schemes under the rational basis test. The Supreme Court has held that occupational licensing laws are constitutional so long as the qualifications ‘have a rational connection with the applicant’s fitness or capacity to practice’ his profession.”) (quoting *Schwartz v. Bd. of Bar Exam’rs of State of N.M.*, 353 U.S. 232, 239 (1957)).

67. *Nat’l Ass’n for Advancement of Psychoanalysis v. Cal. Bd. of Psychology*, 228 F.3d 1043, 1051 (9th Cir. 2000).

68. See, e.g., *City of Cleburne, Tex. v. Cleburne Living Ctr.*, 473 U.S. 432, 440 (1985) (“Legislative classifications based on gender also call for a heightened standard of review” under the Fourteenth Amendment’s equal protection clause); *Hunter v. Erickson*, 393 U.S. 385, 391 (1969) (“the core of the Fourteenth Amendment is the prevention of meaningful and unjustified official distinctions based on race . . .”).

69. National Center for Science Engineering Statistics, *Women, Minorities, and Persons with Disabilities in Science and Engineering: Overall Trends*, NAT’L SCI. FOUND. (2013), <http://www.nsf.gov/statistics/2015/nsf15311/digest/theme5.cfm#trends> [https://perma.cc/GB7Z-PER2].

70. *Id.* (“Blacks” and “Women” tabs).

groups. Would this be unconstitutional under the equal protection clause?

It might at least be *unsettling*. All else being equal, one would not want any classes of lawsuits to be decided by jury pools that are skewed against certain races or genders. And Part III(C) of this Article offers concrete suggestions for ways to reduce racial and gender disparities in specialized patent jury pools. But even if it were impossible to completely eliminate such disparities, this would not mean that specialized patent juries would violate the equal protection clause. To the contrary, a facially neutral law that is not intended to discriminate against a protected class does not violate equal protection just because it has a disparate *impact* on a protected class.⁷¹ A law establishing specialized patent juries would be just that sort of law. While potential racial or gender disparities among specialized patent juries would be something to recognize and address wherever possible, such disparities would not render these juries unconstitutional under the equal protection clause.

III. A CONCRETE PROPOSAL FOR IMPANELING SPECIALIZED JURIES IN PATENT CASES

Having established that specialized patent juries would be both beneficial and constitutional, the next step is to decide whether they are logistically feasible. As noted above, several commentators have expressed skepticism about whether it would be feasible to impanel specialized juries of skilled artisans for patent cases.⁷² To address such concerns, this Article gives a concrete proposal for how to impanel such juries and then presents survey data suggesting that this proposal *would* be feasible.

A. *The Proposal: Offering Skilled Artisans One-Year Jury Terms for a Competitive Salary*

The essence of this Article's proposal is for the Federal government to offer one-year jury commissions to individuals who hold at least a bachelor's degree in the fields that spawn the most technically complex patent cases, such as computer science, electrical engineering, and the life sciences.⁷³ These jurors would be paid a significant salary, on the order of

71. See *Washington v. Davis*, 426 U.S. 229, 242 (1976) ("we have not held that a law, neutral on its face and serving ends otherwise within the power of government to pursue, is invalid under the Equal Protection Clause simply because it may affect a greater proportion of one race than of another.").

72. See *supra* notes 3-5 and accompanying text (explaining certain commentators' skepticism over the ability to find enough qualified jurors).

73. See *supra* note 7 (explaining how many if not most complex patent cases implicate computer science, electrical engineering, and/or the life sciences).

\$100,000 for their one-year term of service. To aid in recruiting a critical mass of jurors, the specialized jury pools would be established in the 10-12 judicial districts that have the highest concentration of technology jobs and/or research institutions. These districts most likely include the places such specialized jurors are already living or would be most willing to live. The patent venue statute⁷⁴ could be amended to require that patent lawsuits be brought in one of those districts (a proposal that would have a similar effect as the venue-reform bills that are currently pending in Congress).⁷⁵ Alternatively, district judges handling patent cases could make a preliminary assessment of whether the patent-in-suit implicates complex technology, and they could transfer the case to one of the aforementioned judicial districts if the judge determined that the patented technology is complex enough to warrant a specialized jury.⁷⁶

Each complex patent case would be tried before a panel of jurors who hold a bachelor's degree, at least, in the broad technological field of the patent. Computer science patent cases would be tried before individuals who hold a degree in computer science; biotech patent cases would be tried before individuals who hold a degree in the life sciences; etc. As noted above, a bachelor's degree in the field of the patent — sometimes accompanied by one or more years' experience — generally equals the level of ordinary skill in the art for most high-tech patent cases.⁷⁷ Thus, by

74. 28 U.S.C. § 1400(b).

75. For example, the proposed Innovation Act would generally restrict patent venue to judicial districts where either: (1) the patent's named inventor conducted research and development; (2) the patent-owner developed a product practicing the patent; or (3) the defendant has a regular and established physical facility giving rise to the infringement. As a practical matter, this Act would funnel most patent suits into the districts with a large number of research institutions and/or technology companies — the same districts that would be attractive places for specialized patent jurors to live. Innovation Act, H.R. 9, 114th Cong. § 3(281B)(b) (2015).

76. Judges already have broad discretionary power to transfer civil cases to other districts “for the convenience of parties and witnesses, in the interests of justice.” 28 U.S.C. § 1404(a). Transferring a complex patent case to a district that could better decide the case through a specialized jury would seem to satisfy at least the “interests of justice” prong of Section 1404(a). This would likely be enough to warrant transfer under Section 1404(a), unless the transferee district was markedly inconvenient for the parties and witnesses. *See Moses v. Bus. Card Exp., Inc.*, 929 F.2d 1131, 1137 (6th Cir. 1991) (“in ruling on a motion to transfer under § 1404(a), a district court should consider the private interests of the parties, including their convenience and the convenience of potential witnesses, *as well as other public-interest concerns, such as systemic integrity and fairness, which come under the rubric of ‘interests of justice.’*”) (emphasis added). Moreover, given this Article's proposal to establish specialized jury pools in 10-12 districts nationwide, it is likely that at least one of these 10-12 districts would be reasonably convenient for the parties and witnesses in any given patent case.

77. *See supra* note 24 and accompanying text (providing cases suggesting that a person of ordinary skill within a technical field is one with a bachelor's degree in that field or

having high-tech patent cases heard before specialized jurors who possess at least a bachelor's degree in the relevant field, this Article's proposal would allow these cases to be heard before jurors who possess roughly the same level of ordinary skill in the art alluded to throughout patent law. Likewise, by assembling a large pool of specialized jurors and retaining them for a one-year term of service, this proposal strives to ensure that there would be an adequate supply of skilled artisans ready and available to hear any high-tech patent cases that come up for trial.

Under this proposal, the cost of the jurors' salaries would be offset by surcharges on patent litigants. The surcharges could be relatively modest; perhaps \$25,000 per party. While this sum may seem significant at first blush, high-stakes patent cases typically cost each party \$3-\$5 million to litigate through to verdict.⁷⁸ Even low-stakes patent cases, where less than \$1 million is at stake, cost each party an average of \$600,000 to litigate.⁷⁹ Viewed in this light, requiring litigants to pay an extra \$25,000 in exchange for having their case heard before a specialized jury that is more likely to issue an informed verdict seems quite reasonable. Indeed, many patent litigants with strong cases would welcome this development.⁸⁰

The \$25,000 surcharge figure was derived as follows: patent trials average two weeks in length,⁸¹ so a specialized juror could easily be expected to hear 18 trials during a one-year term of service (even with a healthy margin of error for unusually-lengthy trials or deliberation periods). At a \$100,000 annual salary, this means that each juror would cost roughly \$5,500 per trial. For panels of nine jurors (halfway between the minimum number of six, and the maximum number of twelve jurors contemplated by

equivalent technical experience).

78. See American Intellectual Property Law Association (AIPLA) Report of the Economic Survey (2015) at 37 (finding that the average per-party cost of patent litigation is \$3.1 million when \$10-\$25 million in potential damages is at stake, and that the average cost rises to \$5 million when more than \$25 million is at stake.)

79. *Id.*

80. See Fisher, *supra* note 2, at 55 ("A litigant with a strong, but complex case, and many millions of dollars riding on the outcome, would be ill-advised to simply roll the dice rather than spending a comparatively small sum of money to dramatically increase his chances of achieving his rightful victory.")

81. See, e.g., John E. Kidd & Keeto H. Sabharwal, *The District of Delaware: An Ideal Venue for Patent Litigators*, DEL. LAW., Winter 2000, 16, 17 ("[T]he Delaware District Court generally limits patent trials to two weeks . . ."); Stephen D. Susman & Thomas M. Melsheimer, *Trial by Agreement: How Trial Lawyers Hold the Key to Improving Jury Trials in Civil Cases*, 32 REV. LITIG. 431, 445 (2013) ("In the Eastern District of Texas, for example, long known as one of the most active patent venues in the country, cases involving complex technology and billions of dollars in alleged damages are routinely tried in two weeks or less, and less complex patent trials are often concluded with five or six total days of trial time."). In this author's experience as well, two-week patent trials are the norm.

the Federal Rules of Civil Procedure⁸²), the total per-trial jury cost would be roughly \$50,000. Split evenly between the plaintiff and defendant, each party could be charged \$25,000 to make up for the cost of the specialized jurors' salaries.

In actuality, the effective cost to the parties would be significantly less than that, since specialized juries would impart cost savings to the parties in the form of shortened trials. As discussed above, specialized juries would be less susceptible to tangential, emotional arguments,⁸³ and might even view such arguments as an unwelcome distraction from the technical merits of the case. As a result, savvy lawyers might omit these arguments (and the witnesses used to support these arguments) if their patent cases were tried before specialized juries, just as those arguments are commonly omitted from ITC proceedings. In addition, the parties' expert witnesses would likewise eliminate (or greatly shorten) background tutorials on the scientific field of the patent, since they would be speaking to an audience with a significant level of skill and training in this field.

Furthermore, trials could be shortened even further by taking advantage of the fact that specialized jurors under this Article's proposal would be repeat players in patent litigation. At the start of their terms of service, such jurors could also be given a one-to-two day primer on patent law. This would obviate the need for some of the more tedious features of patent trials, such as playing the Federal Judicial Center's introductory video on patent litigation⁸⁴ or having the trial judge orally recite lengthy boilerplate jury instructions on infringement, invalidity, and other basic patent law concepts.⁸⁵ The patent video and boilerplate jury instructions are designed to give lay jurors some minimal familiarity with the law that governs their factual decision-making, but such instruction would be superfluous if a case were tried before repeat player specialized jurors who have already been tutored on the basics of patent law.

If these changes (i.e., minimizing tangential arguments, technical tutorials, and patent-law tutorials) shorten patent trials by just one day, each

82. See Fed. R. Civ. P. 48(a) ("Number of Jurors: A jury must begin with at least 6 and no more than 12 members . . .").

83. See *supra* note 35 and accompanying text.

84. Federal Judicial Center, *The Patent Process: An Overview for Jurors*, YOUTUBE (Nov. 22, 2013), <https://www.youtube.com/watch?v=ax7QHQTbKQE> [<https://perma.cc/JN7X-6HDH>].

85. For example, the Northern District of California's Model Patent Jury Instructions are 54 pages long, including lengthy boilerplate instructions on what a patent is, how it is obtained, and the meaning of such ubiquitous patent-law concepts as infringement and invalidity. *Model Patent Jury Instructions*, N.D. CAL (July 16, 2015), <http://www.cand.uscourts.gov/juryinstructions> [<https://perma.cc/ZSM2-CHZ7>].

party could save \$10,000 or more in attorneys' fees⁸⁶ Notably, that figure counts only the *direct* costs of a trial day; if one considers indirect costs (such as the costs of preparing trial outlines and rehearsing trial testimony), then the cost savings of eliminating a trial day would be even greater. Thus, while the nominal cost of this Article's proposal would be \$25,000 per patent litigant, the actual effective cost would be far less, and it might even approach zero.

B. *Survey Data Suggests That This Proposal Would Be Feasible*

Of course, the feasibility of this proposal ultimately hinges on whether the government would be able to attract a critical mass of specialized jurors who would be willing to serve one-year jury terms in exchange for \$100,000 salaries. As a general rule, individuals with at least a bachelor's degree in a scientific field have relatively bright career prospects, and might not be willing to delay or interrupt their careers to serve a year as a patent juror.

To test the feasibility of this Article's proposal, I surveyed 389 undergraduate and graduate students at sixteen U.S. colleges and universities.⁸⁷ Each student was either majoring in or pursuing graduate degrees in one of the two broad fields that spawn much complex patent litigation: (1) computer science and electrical engineering, or (2) the life sciences. After ascertaining their field of study, each student was asked the following two questions:

86. In 2014, for example, the average "blended" rate for law firm partners and associates in patent cases was roughly \$300 per hour. *Enterprise Legal Management Trends Report*, LEXISNEXIS COUNSELLINK 18 (2014). Assuming that a party's trial team consisted of five attorneys, each hour of trial would cost that party roughly \$1,500. Thus, shaving just one day from the length of patent trials could save each party \$10,000 or more.

87. As stated in note 6, these colleges and universities are: Bates College, the University of California-Berkeley, Claremont McKenna College, Colorado College, the University of Florida, Grinnell College, the University of Idaho, the University of Illinois, the University of Massachusetts, the University of Mississippi, the University of North Dakota, Penn State University, Stanford University, Trinity University (Texas), Wellesley College, and the University of Wyoming. A full description of my survey methodology is provided at Appendix A, and a sample survey form is provided at Appendix B.

For a competitive salary, would you consider a 1-year post-graduation job as a specialist Federal juror hearing patent cases? Assume you could choose one of 10-12 cities in which to serve, with the cities tracking the major U.S. science/technology hubs.

- Yes
- No

If you answered "yes" to the question above, what is the minimum annual salary that would cause you to seriously consider this job?

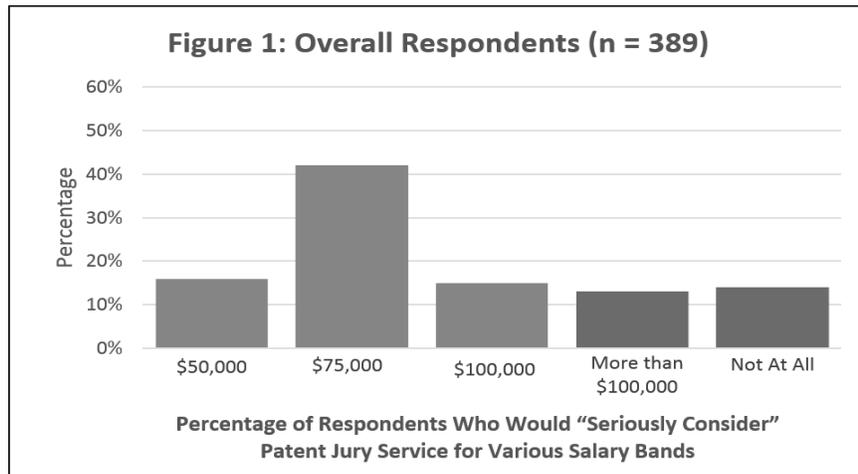
- \$50,000
- \$75,000
- \$100,000
- More than \$100,000

The decision to survey both undergraduate and graduate students was deliberate. As noted above, the level of ordinary skill in the art for most high-tech patent cases is a bachelor's degree in the field of the patent, sometimes accompanied by one or more years' experience.⁸⁸ This means that newly minted college graduates and newly minted master's or Ph.D. degree holders would bring complementary strengths to a specialized patent jury. The college graduates would more precisely track the educational attainment of a skilled artisan, yet they might fall short on work experience even if summer internships and work during college were considered. Masters or Ph.D. graduates would more likely possess the requisite work experience due to their greater age, yet they might have some difficulty going "back in time" to remember what skills and knowledge they possessed at the time of their bachelor's degree. Thus, a jury consisting of both bachelor's degree and advanced degree holders would be desirable, as each group of jurors would complement the other in terms of the skills and experience that a hypothetical skilled artisan would have.

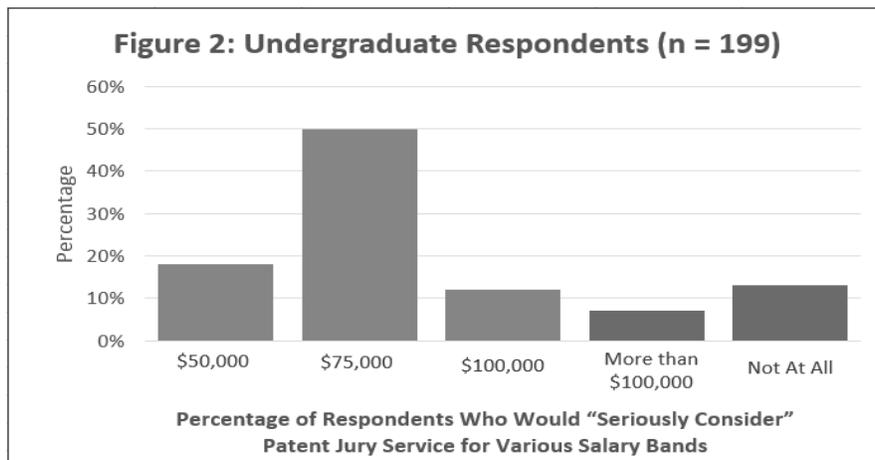
The survey results were highly encouraging for this Article's proposal. Of the overall survey respondents, 73.3% stated that they would "seriously consider" a one-year term of post-graduation patent jury service for \$100,000 or less.⁸⁹ The precise breakdown of survey responses can be seen in the following bar graph, which shows the percentage of respondents who would seriously consider a one-year term of patent jury service for \$50,000, \$75,000, \$100,000, more than \$100,000, and not at all.

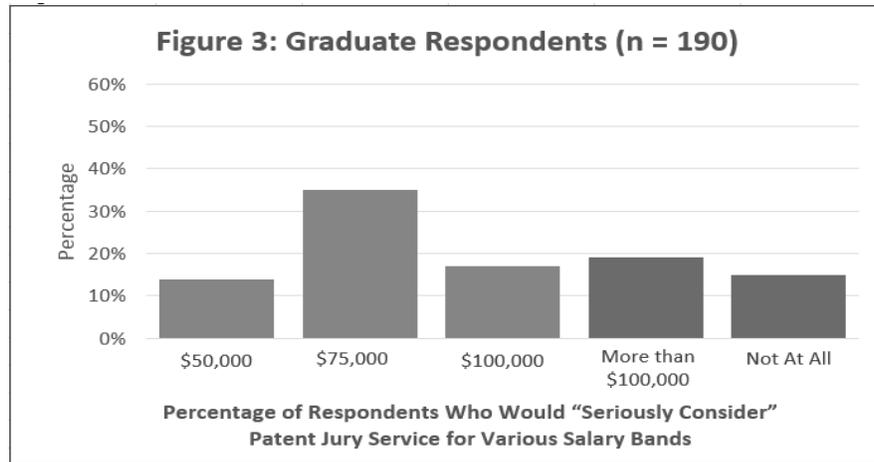
88. See *supra* note 24 and accompanying text (providing cases suggesting that a person of ordinary skill within a technical field is one with a bachelor's degree in that field or equivalent technical experience).

89. This percentage was derived by taking the number of survey respondents who would "seriously consider" patent jury service for \$100,000, \$75,000, or \$50,000, and dividing this number by the overall number of survey respondents.



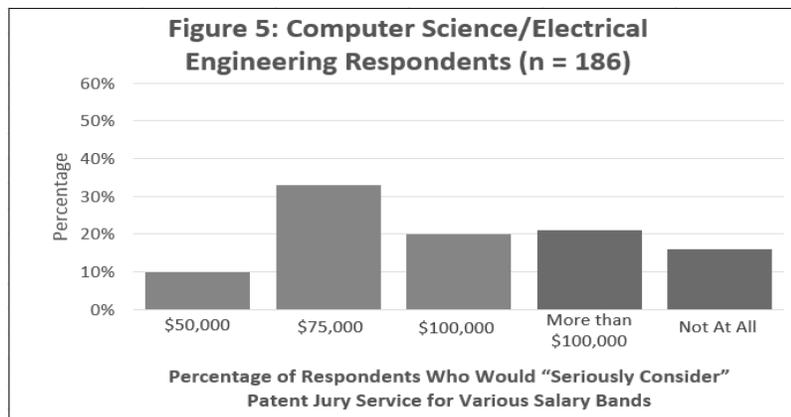
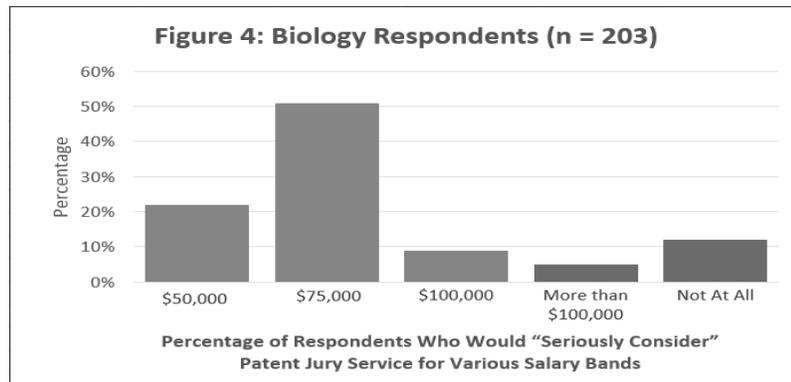
When one breaks down the survey responses by education level, 79.9% of undergraduate respondents would seriously consider post-graduation patent jury service for \$100,000 or less, while 66.3% of graduate respondents would do so. This disparity is not surprising; advanced degree holders command a greater salary than bachelor's degree holders in the marketplace, and would therefore be expected to demand a higher salary in exchange for delaying their careers by a year. Advanced degree holders are also more likely to be supporting families, due to their greater age, which also might cause them to demand a higher salary. Nonetheless, the fact that over 66% of graduate students would seriously consider post-graduation jury service under this proposal (together with nearly 80% of undergraduates) suggests that it would be feasible to staff patent juries with a mixture of bachelor's degree and advanced degree holders.





Finally, breaking down the survey responses by area of study, 82.3% of those studying life science would seriously consider patent jury service for \$100,000 or less, while 63.4% of those studying computer science or electrical engineering would do so. Again, this disparity is not surprising, given that computer scientists and electrical engineers generally earn more in the marketplace than do life scientists.⁹⁰ Nonetheless, the fact that a strong majority of respondents in both categories would seriously consider patent jury service under this proposal suggests that it would be feasible to employ specialized patent juries across a broad range of scientific fields.

90. According to the Bureau of Labor Statistics, the average salary for computer scientists in the United States was \$113,190 as of May 2014, the average salary for electrical engineers was \$95,780, and the average salary for biological scientists was \$79,200. BUREAU OF LABOR STATISTICS, MAY 2014 NATIONAL OCCUPATIONAL EMPLOYMENT AND WAGE ESTIMATES (2014), http://www.bls.gov/oes/2014/may/oes_nat.htm [<https://perma.cc/JFY5-S5QQ>].



C. Other Considerations

The foregoing sections suggest that it would be feasible to assemble specialized patent juries consisting of newly minted bachelor's and advanced degree-holders in technical fields, as a large percentage of such individuals would be willing to serve on a specialized jury for an annual salary (\$100,000) that could be covered by modest surcharges on patent litigants. Nonetheless, there are some other considerations that should be taken into account to improve these proposed patent juries.

The first consideration is age. Staffing patent juries with newly minted bachelor's and advanced degree holders would yield a rather young jury pool. Even newly minted Ph.D.s. are, on average, only 33 years old.⁹¹

91. Lynn O'Shaughnessy, *12 Reasons Not to Get a Ph.D.*, CBS MONEYWATCH (July 10, 2012), <http://www.cbsnews.com/news/12-reasons-not-to-get-a-phd/> [<https://perma.cc/XD64-LQ6K>].

Newly minted college graduates are obviously even younger. While there is nothing intrinsically *wrong* with relatively young patent juries — particularly if the level of ordinary skill in the art would be attained at a relatively young age — a jury pool with virtually no middle-aged or older individuals might present bad optics. To address this issue, it might be desirable for the government to recruit older patent jurors from the ranks of technology companies, in addition to younger patent jurors straight out of college or university. While I have not surveyed technology workers to see whether they would be willing to serve on specialized patent juries, it stands to reason that at least some would be. Indeed, technology companies whose products and services are heavily patented (or who frequently face patent lawsuits) might even encourage their skilled employees to take one-year sabbaticals as patent jurors, so that these workers could learn about the patent system first-hand. It is quite possible that a one-year stint as a specialized patent juror would become a valuable credential in industries that revolve heavily around patents.

Another consideration, alluded to in Part III(B) above, is the racial and gender composition of the proposed patent juries. Several scientific fields have stark racial or gender disparities,⁹² and one might expect these disparities to be reflected in specialized patent juries for those fields. To combat these disparities, the government might aggressively recruit patent jurors from under-represented groups. For example, since only 2.9% of life scientists are African-American,⁹³ the government might aggressively recruit patent jurors from the life science programs at Historically Black Colleges and Universities (HBCU's). As another example, since only 25.4% of computer and math scientists are women,⁹⁴ the government might aggressively recruit patent jurors from the computer science and mathematics programs at all-female colleges. Likewise, the government could target volunteer organizations — such as the National Society of Black Engineers⁹⁵ and the Association for Women in Science⁹⁶ — in an

92. See *supra* notes 70-71 and accompanying text (providing statistics regarding racial and gender composition of those in technical fields).

93. See *supra* note 71 and accompanying text (providing statistics).

94. See *supra* note 71 and accompanying text (providing statistics).

95. The National Society of Black Engineers is an organization with roughly 30,000 members whose mission is “to increase the number of culturally responsible Black engineers who excel academically, succeed professionally and positively impact the community.” See *About NSBE*, NAT'L SOC'Y OF BLACK ENG'RS, <http://www.nsbe.org/About-Us.aspx#.VqgDwGr2Zdg> [https://perma.cc/PPB2-TURF] (last visited Mar. 22, 2016) (providing information about the National Society of Black Engineers).

96. The Association for Women in Science is an organization with roughly 20,000 members that “champions the interests of women in science, technology, engineering, and mathematics across all disciplines and employment sectors.” See *About AWIS*, ASS'N FOR

effort to assemble patent jury pools that are more representative of the general population.

It is even possible that specialized patent juries could help *ameliorate* some of the racial and gender disparities that plague certain scientific industries. Currently, there is evidence that hiring managers in STEM (science, technology, math, and engineering) fields are consciously or unconsciously biased against female job applicants.⁹⁷ However, if the government successfully recruited a large cohort of female patent jurors, and if a one-year stint as a patent juror became a valuable credential in patent-heavy industries, then female patent jurors might use this credential to improve their job prospects in these industries. A similar logic applies to under-represented racial groups, who may similarly face bias when applying for industry jobs in STEM fields.⁹⁸

CONCLUSION

The current patent jury system is, if not broken, at least far from optimal. Lay jurors are simply ill-suited to perform many of the complex tasks that are required in deciding high-tech patent cases. But this state of affairs is not inevitable. As this Article demonstrates, it would be feasible (and constitutional) for the government to assemble specialized patent juries comprised of individuals who are skilled in technical fields. These specialized juries would bring much-needed scientific and technical expertise to the field of complex patent litigation.

WOMEN IN SCI., <http://www.awis.org/?page=AboutAWIS> [https://perma.cc/42X5-VCL7] (last visited Mar. 22, 2016) (providing information about the Association for Women in Science).

97. See generally Ernest Reuben et al., *How Stereotypes Impair Women's Careers in Science*, 111 PROC. OF THE NAT'L ACAD. OF SCI. 4403 (2014) (reporting results of experiment suggesting that hiring managers are biased toward hiring males).

98. See Bonnie Marcus, *The Lack of Diversity in Tech Is a Cultural Issue*, FORBES (Aug. 12, 2015) <http://www.forbes.com/sites/bonniemarcus/2015/08/12/the-lack-of-diversity-in-tech-is-a-cultural-issue/#160331523577> [https://perma.cc/42BU-C3X8] (noting that “top universities graduate black and Hispanic computer science and computer engineering students at twice the rate that leading technology companies hire them.”).

APPENDIX A: SURVEY METHODOLOGY

To conduct the survey discussed in this Article, I created an online survey form using Google Forms. (See Appendix B). I then emailed the department chairs (or other professors) in the computer science, electrical engineering, and biology departments at numerous U.S. colleges and universities, asking them to distribute the survey to undergraduate and graduate students in their departments. Professors from sixteen colleges and universities agreed to distribute my survey.

As shown in the sample survey form below (see Appendix B), the survey respondents were first asked to provide their undergraduate or graduate field of study. Any respondents who did not affirmatively state that they were pursuing a degree in computer science, electrical engineering, or a life science were discarded. Any respondents who gave internally contradictory answers (e.g., stating that they would not consider patent jury service in the second question but stating that they would consider patent jury service for \$75,000 in the third question) were also discarded. These discarded responses amounted to roughly 3% of total responses and are not included in my reported tally of responses.

There was one exception to this rule. Namely, if a respondent stated that they would not consider patent jury service in the second question, but also stated that they would consider patent jury service for more than \$100,000 in the third question, I retained those responses. Roughly 1% of respondents (5 out of 389) fell into this category. Their responses are included in the “more than \$100,000” bar of my bar graphs, though it would have been equally accurate to include them in the “not at all” bar. Including them in *both* bars, by contrast, would have resulted in double-counting.

My rationale for retaining these responses was as follows: for purposes of my proposal, respondents who would not consider patent jury service at all *and* respondents who would only consider patent jury service for more than \$100,000 are functionally equivalent. Both groups would be unwilling to serve as patent jurors under the terms of my proposal, given that my proposal entails a \$100,000 salary for patent jurors. Thus, for purposes of my proposal, answering “no” to the second question and “more than \$100,000” to the third question is not actually contradictory since *both* responses qualify the individual as someone who would be unwilling to serve as a juror under my proposal. It follows that retaining these survey responses (and including them in either the “more than \$100,000” category or the “not at all” category) does not skew my overall survey results. In fact, *discarding* these responses would misleadingly skew my survey results by eliminating certain negative data that rightfully should be included.

APPENDIX B: SAMPLE SURVEY FORM

Patent Jury Survey

This brief, three-question survey is for a forthcoming law review article evaluating the feasibility of using "specialist" juries in Federal patent lawsuits. These hypothetical specialist juries would consist of individuals who have at least a bachelor's degree in a scientific field, and who would agree to serve a 1-year jury term in exchange for a competitive salary. This survey is specifically geared towards individuals who are currently pursuing a bachelor's or graduate degree in computer science, electrical engineering, or the life sciences, as these are the areas that spawn the most complex patent litigation.

All information about individual survey participants will be kept strictly confidential. After completing the survey, you may enter your email address to be eligible for a random drawing to win a \$100 Visa Gift Card. Thank you in advance for your participation.

Please note that by completing this survey, you are affirming that you are at least 18 years of age.

Which of the following best describes the degree you are currently pursuing?

- Bachelor's degree in computer science or electrical engineering
- Bachelor's degree in biology or another life science
- Graduate degree in computer science or electrical engineering
- Graduate degree in biology or another life science
- Other

For a competitive salary, would you consider a 1-year post-graduation job as a specialist Federal juror hearing patent cases? Assume you could choose one of 10-12 cities in which to serve, with the cities tracking the major U.S. science/technology hubs.

- Yes
- No

If you answered "yes" to the question above, what is the minimum annual salary that would cause you to seriously consider this job?

- \$50,000
- \$75,000
- \$100,000
- More than \$100,000

Thank you for completing this survey. If you would like to be eligible to win a \$100 Visa Gift Card, please enter your email address below.

Never submit passwords through Google Forms.