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August 09, 2023

The Honorable Katherine K. Vidal
Under Secretary of Commerce for Intellectual Property and
Director of the United States Patent and Trademark Office
600 Dulany Street
Alexandria, VA 22314

**RE: Comments in Response to 88 FR 22012 “Study of the Patent Pro Bono Programs,”
FR Doc. 2023-07699**

Dear Director Vidal:

Invent Together appreciates the opportunity to submit comments to inform the United States Patent and Trademark Office (USPTO) study of the patent pro bono programs.

Invent Together is an alliance of universities, nonprofits, companies, and other stakeholders dedicated to understanding the diversity gaps in invention and patenting and supporting public policy and private initiatives to close them.¹

The Inventor Diversity Gaps

The USPTO and leading researchers have found that women, people of color, and individuals with lower incomes patent inventions at significantly lower rates than their representation in the population:

- The gender gap: Less than 13% of all inventors who hold a U.S. patent are women.² Men-owned businesses are twice as likely as women-owned businesses to hold a patent.³ Women hold only 5.5% of commercialized patents.⁴
- The race gap: Black, Hispanic, multiracial, and American Indian and Alaska Native inventors make up less than 8% of U.S. inventors.⁵
- The income gap: Children in the top 1% of family income are 10 times more likely to patent in their lifetimes than children in the entire bottom half of family income.⁶

The U.S. inventor diversity gaps are stark not only on their own but also compared to our global competitors. Research has found that the United States ranked 13th in the share of patents that include women inventors from 2016 to 2020, and China's woman inventor growth rate is almost twice that of the United States.⁷ To remain the world leader in innovation, we need to ensure we are accessing all available talent by equipping historically underrepresented inventors with the knowledge and resources they need to invent and patent.

The Benefits of Inventor Diversity

Greater participation in patenting would create significant opportunities for individuals and families. Inventors tend to earn higher wages than the general population, with the majority of inventors (63%) in the top 10% of all earners.⁸ Patents also help businesses—especially small businesses and startups owned by women and people of color—access capital, attract customers and licensees, and create jobs. Startups that obtain patents increase their



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employment growth by 55% and grow their sales by an additional \$10.6 million compared to startups that fail to obtain a patent.⁹ Women-owned businesses with patents pending have average revenues more than sixteen times higher than women-owned businesses without any intellectual property (IP).¹⁰

Diversity in IP is also crucial to the strength of the U.S. economy. The USPTO has determined that IP-intensive industries account for more than 40% of U.S. economic activity and support 63 million jobs—44% of the U.S. workforce. Increasing participation in inventing and patenting by historically underrepresented groups would increase annual U.S. GDP by almost \$1 trillion,¹¹ quadruple the number of American inventors,¹² and result in new and different inventions.

The Barriers to Inventor Diversity

There are several obstacles to achieving this bright future for individual inventors and the broader economy. The barriers to equitable participation in inventing and patenting include a lack of exposure to inventing; insufficient access to education, resources, mentorship, and capital; entrenched bias and discrimination; and “gatekeepers” who may hinder access to patenting.¹³ This comment focuses on how the USPTO and other stakeholders can use the patent pro bono programs to address several of these barriers, including insufficient access to legal resources and financial capital.

The Relationship Between Inventor Diversity and Legal Assistance

The patenting process is incredibly complex. As the USPTO has acknowledged, applying for a patent and engaging in USPTO proceedings “requires knowledge of patent law and USPTO procedures” as well as scientific and technical knowledge.¹⁴ Although inventors can prepare and file their own applications, they “may encounter considerable difficulty” navigating the process, and it is advisable to work with a registered patent practitioner.¹⁵

The patenting process is also expensive. The cost of preparing and filing a utility patent application for even a relatively simple invention can be as much as \$10,000.¹⁶ This cost only continues to grow as an invention increases in complexity, reaching up to \$25,000 or more for certain biotechnology or software inventions.¹⁷ Further, in order to keep a patent enforceable throughout its full life, a patent owner must pay maintenance fees that can add up to more than \$13,000.¹⁸ Enforcing a patent against an infringer is even more expensive: A patent owner can expect to pay at least \$700,000 to take even a small patent lawsuit through trial, with that number ballooning to \$8 million or more for cases with more at stake or with more complicated technology.¹⁹ When a patent owner tries to enforce their patent, the accused infringer often challenges the patent’s validity at the USPTO’s Patent Trial and Appeal Board (PTAB), requiring the patent owner to defend their patent, which costs more than \$500,000 in the majority of cases.²⁰

Research has shown that patent costs can be disproportionately prohibitive to women and people of color.²¹ Lower earnings overall and less access to capital when they start businesses make it difficult for many women and people of color to afford the costs associated with filing a patent application, especially the expense of hiring a patent attorney.



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The patent pro bono programs play an important role in defraying the costs of patenting and helping under-resourced individuals navigate the patenting process. Since 2015, the programs have matched approximately 3,900 inventors with volunteer patent practitioners, under-resourced inventors have filed more than 2,000 applications, and practitioners have donated almost 96,000 hours and \$36 million of legal services.²²

The patent pro bono programs also play an outsized role in leveling the playing field and expanding participation in patenting by underrepresented groups. Less than 13% of all inventors who hold a U.S. patent are women, but a 2022 survey found that 43% of patent pro bono program participants were women.²³ The survey found that 35% of participants were African American or Black and 1.5% were Native American—higher percentages than the two groups' proportions among the U.S. inventor population *and* the overall U.S. population.²⁴ In addition, of those who selected an ethnicity on the survey, 13.8% were Hispanic, which is higher than the proportion of U.S. inventors who are Hispanic.²⁵ These statistics demonstrate that the patent pro bono programs effectively address barriers to participation in patenting and support a diverse and inclusive inventor population.

However, there is more the USPTO can do to ensure the patent pro bono programs are adequately supporting under-resourced inventors. In addition to our general comments above, please see below for responses to select questions from the request for comments.

1. What is your experience with the patent pro bono programs, e.g., as an administrator, volunteer attorney, participant, or other status?

Invent Together is an alliance of universities, nonprofits, companies, and other stakeholders dedicated to understanding the diversity gaps in invention and patenting and supporting public policy and private initiatives to close them. We support the patent pro bono programs and have partners who have participated in them. We regularly promote the patent pro bono programs to our network, including through The Inventor's Patent Academy—a free patent education tool available on our website.²⁶ We also raise awareness of the patent pro bono programs and other USPTO assistance programs through congressional testimony, research publications, and other means.

4. Are there additional services that existing participants would like to see the patent pro bono programs provide?

Yes—representation in patent validity and enforcement proceedings. As discussed above, enforcing a patent against an infringer is very expensive: anywhere from \$700,000 to \$8 million, depending on the technology.²⁷ In addition, defending a patent before the PTAB typically costs more than \$500,000.²⁸ This is far more than many small businesses and independent inventors—particularly inventors with household incomes three or four times the federal poverty level—can afford. All inventors deserve access to justice, regardless of their personal financial means.

Free legal assistance should be available for inventors who are looking to enforce and defend their patent rights. We applaud the USPTO for establishing the PTAB Pro Bono Program for ex parte appeals and its promise to expand the program to include inter partes



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review and post-grant review.²⁹ Pro bono assistance should also be available to inventors who wish to enforce their patent rights in a federal district court.

3./6. What barriers may exist that prevent the programs from sufficiently serving existing and prospective participants? What opportunities exist for the patent pro bono programs to better serve existing and prospective participants?

The most significant barrier to the programs' success is, fundamentally, the structure of the programs. The Leahy-Smith America Invents Act directed the USPTO to "work with and support intellectual property law associations across the country in the establishment of pro bono programs designed to assist financially under-resourced independent inventors and small businesses."³⁰ As a result, the USPTO does not itself administer the legal assistance, leaving that up to intellectual property law associations, nonprofits, and universities across the country, which may have varying levels of support and success. This structure could create disparate experiences with the programs in different regions. For example, regional programs are allowed to define their own eligibility criteria to an extent. There should be one set of criteria nationwide. The decentralized nature of the programs also makes it more difficult for stakeholders to monitor the programs' success. In addition, the USPTO's statutory mandate ("to work with and support") is vague and ill-defined. The USPTO should strongly consider whether and how it could take a more active role in supporting or centralizing the programs without congressional action, as well as whether to recommend to Congress that it modify the program structure.

7. Are the patent pro bono programs sufficiently funded to serve prospective and existing participants? If not, how much additional funding would be appropriate to serve prospective and existing participants and how would that funding be utilized?

Invent Together has heard from stakeholders that the patent pro bono programs are not sufficiently funded. We also understand that there is uncertainty about the level of USPTO funding for the regional programs and Pro Bono Advisory Council year to year, and that this uncertainty stems in part from ambiguity in the law that established the programs. The Leahy-Smith America Invents Act directed the USPTO to "work with *and support* intellectual property law associations across the country in the establishment of pro bono programs designed to assist financially under-resourced independent inventors and small businesses" (emphasis added).³¹ The law does not define the kind or level of support to be provided by the USPTO. Advance assurance about the annual level of financial support to be provided would help program administrators budget for outreach and other efforts to ensure that they are adequately serving existing and prospective participants.

In addition, it is crucial that USPTO provide additional financial assistance so that the regional programs can support applicants with incomes with up to 400% of the federal poverty level, as required by the Unleashing American Innovators Act. Regional programs set their own participation criteria, and most regional programs previously required that applicants' gross household income be less than three times the federal poverty level guidelines. Increasing the income limit by 33% across the board is an important step forward for expanding participation in the program but regional programs will need additional financial assistance to serve newly eligible participants.



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9. Are prospective participants aware of the patent pro bono programs? What more can be done to improve awareness of the pro bono programs for these participants?

Invent Together recommends that the USPTO launch a national media campaign to raise awareness of the patent pro bono programs. The campaign should feature videos and testimonials of past participants with compelling stories who can advocate effectively for the program. It should also involve influencers within the inventing, patenting, and entrepreneurship communities. Campaign material should be broadcast on a variety of media platforms (including the internet and social media) to reach under-resourced inventors and patent practitioners in multiple ways.

Invent Together also recommends that the USPTO change the name of and vernacular around the programs to make it easier for inventors to find and access the programs. Instead of using the Latin term “pro bono,” the USPTO could use terminology that is easier to understand like “free legal assistance” or “free legal services.”

These recommendations are consistent with suggestions made by a number of stakeholders at the USPTO’s listening session for inventors.

* * * * *

Thank you for the opportunity to share our views on the value of the patent pro bono programs and our recommendations for improving them. Invent Together looks forward to continuing to work with the USPTO to promote diversity and inclusion in inventing and patenting, including by providing under-resourced inventors with the assistance they need to successfully patent their inventions.

Sincerely,



Holly Fechner
Executive Director
Invent Together

¹ A list of Invent Together’s partners can be found here: <https://inventtogether.org/about/>.

² USPTO, PROGRESS AND POTENTIAL: 2020 UPDATE ON U.S. WOMEN INVENTOR-PATENTEES 3 (2020), <https://www.uspto.gov/sites/default/files/documents/OCE-DH-Progress-Potential-2020.pdf>.

³ ELYSE SHAW & CYNTHIA HESS, INST. FOR WOMEN’S POL’Y RSCH., CLOSING THE GENDER GAP IN PATENTING, INNOVATION, AND COMMERCIALIZATION: PROGRAMS PROMOTING EQUITY AND INCLUSION (2020), https://iwpr.org/wp-content/uploads/2020/10/C471_Programs-promoting-equity_7.24.18_Final.pdf.

⁴ Jennifer Hunt et al., *Why Don’t Women Patent* 1 (Nat’l Bureau of Econ. Rsch., Working Paper No. 17888 2012), <https://www.nber.org/papers/w17888>.

⁵ Ufuk Akcigit & Nathan Goldschlag, *Measuring the Characteristics and Employment Dynamics of U.S. Inventors* (Ctr. for Econ. Stud. Working Paper No. CES-22-43, 2022) <https://www2.census.gov/ces/wp/2022/CES-WP-22-43.pdf>.



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⁶ Alex Bell et al., *Who Becomes an Inventor in America? The Importance of Exposure to Innovation 2* (Nat'l Bureau of Econ. Rsch., Working Paper No. 24062 2019), https://www.nber.org/system/files/working_papers/w24062/w24062.pdf.

⁷ See THE GLOBAL GENDER GAP IN INNOVATION AND CREATIVITY: AN INTERNATIONAL COMPARISON OF THE GENDER GAP IN GLOBAL PATENTING OVER TWO DECADES, WIPO, <https://www.wipo.int/edocs/pubdocs/en/wipo-pub-ds-gender-2023-en-the-gender-gap-in-global-patenting-an-international-comparison-over-two-decades.pdf> (2023); see also Holly Fechner, *To Understand Why America's Lead in Tech and Innovation Is Eroding, Look at China's Investment in Women Inventors*, FORTUNE (Apr 18, 2023), <https://fortune.com/2023/04/18/america-lead-tech-innovation-eroding-china-investment-women-inventors-holly-fechner/>.

⁸ Akcigit & Goldschlag, *supra* note 5, at 4.

⁹ Joan Farre-Mensa et al., *What Is a Patent Worth? Evidence from the U.S. Patent "Lottery" 2–3* (Nat'l Bureau of Econ. Rsch., Working Paper No. 23268 2018), https://www.nber.org/system/files/working_papers/w23268/w23268.pdf.

¹⁰ EMMA WILLIAMS-BARON ET AL., INST. FOR WOMEN'S POL'Y RSCH., INNOVATION AND INTELLECTUAL PROPERTY AMONG WOMEN ENTREPRENEURS: A REPORT ON WOMEN'S BUSINESS OWNERSHIP (2018), https://iwpr.org/wp-content/uploads/2020/10/C472_Report-Innovation-and-Entrepreneurship-9.6.18-clean.pdf.

¹¹ Lisa Cook, Webinar on The Economic and Social Implications of Racial Disparities for Princeton Univ. (June 8, 2020), <https://bcf.princeton.edu/wp-content/uploads/2020/11/Combined-Slides-10.pdf>.

¹² Bell et al., *supra* note 6.

¹³ See, e.g., Holly Fechner et al., *Increasing Inventor Diversity: U.S. Public Policy Recommendations*, 22 TECH. & INNOVATION 407, 409, <https://inventtogether.org/wp-content/uploads/Increasing-Inventor-Diversity-U.S.-Public-Policy-Recommendations.pdf> (2022).

¹⁴ See *Patent Process Overview*, USPTO, <https://www.uspto.gov/patents/basics/patent-process-overview#step1> (last visited Aug. 8, 2023).

¹⁵ See *id.*

¹⁶ Louis E. Fogel & Shaun M. Van Horn, *In Brief: Patent Prosecution in USA*, LEXOLOGY (May 29, 2020), <https://www.lexology.com/library/detail.aspx?g=08f84c85-7e5b-4917-a9cd-d4ddaf145557>.

¹⁷ See *id.*

¹⁸ See *USPTO Fee Schedule*, USPTO, <https://www.uspto.gov/learning-and-resources/fees-and-payment/uspto-fee-schedule> (last visited Aug. 8, 2023).

¹⁹ REPORT OF THE ECONOMIC SURVEY, AIPLA; 2021.

²⁰ *Id.*

²¹ See SHAW & HESS, *supra* note 3, at 2.

²² See *An Overview of the USPTO Patent Pro Bono Program*, USPTO, https://www.uspto.gov/sites/default/files/documents/Patent_Pro_Bono_Programs_Listening_Session_Presentation.pdf at 4–5.

²³ See *id.* at 6; Akcigit & Goldschlag, *supra* note 5, at 36.

²⁴ See *id.*

²⁵ See *id.*

²⁶ THE INVENTOR'S PAT. ACAD., <https://learn.inventtogether.org/>.

²⁷ See AIPLA, *supra* note 19.



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²⁸ *Id.*

²⁹ See Press Release, *USPTO Launches PTAB Pro Bono Program*, USPTO (Mar. 24, 2022), <https://www.uspto.gov/about-us/news-updates/uspto-launches-ptab-pro-bono-program> (“The program will later expand to include AIA Trials.”).

³⁰ Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011).

³¹ *Id.*

