

ENDEMIC OBVIOUSNESS: A SYMPTOM OF COVID-19

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Despite the extraordinary conditions of the post-pandemic world, inventors of pandemic-related inventions face patentability requirements that were not created with ubiquitous world crises in mind. This article considers the 35 U.S.C. § 103 non-obviousness requirement for patentability in light of the COVID-19 crisis. Applying the modern 35 U.S.C. §103 obviousness analysis to a series of hypotheticals, it appears that each step of the analysis disfavors the pandemic inventor. Because contagion largely halted society and dominated public discourse, pandemic inventions may face an inundated and expanded field of prior art, an augmented level of ordinary skill in the art, and compelling reasons to combine the prior art. Although it seems unfair that pandemic inventors have diminished access to patent rights when compared to their pre-pandemic peers, this result comports with the ultimate goal of patent law: to award patent rights only where necessary to induce innovation.

INTRODUCTION

Although the COVID-19 pandemic has been felt to a varying degree across geographic¹ and demographic² subsets of the population, it has achieved a ubiquitous influence on the American government³ and economy.⁴ In times of crisis, society depends on creative thinking and problem solving to adapt and carry on. This note discusses pandemic inventions, not

1. John Bacon & Mike Stucka, *COVID-19 cases rising in 39 states – 9 months into the pandemic: 'We are overwhelmed,'* USA TODAY: HEALTH (Oct. 7, 2020, 4:05 PM), <https://www.usatoday.com/story/news/health/2020/10/07/united-states-coronavirus-cases-nine-states-records/5906943002/> [<https://perma.cc/VXV6-8GNF>].

2. Daniel Wood, *As Pandemic Deaths Add Up, Racial Disparities Persist — and in Some Cases Worsen*, NPR (Sept. 23, 2020, 1:01 PM), <https://www.npr.org/sections/health-shots/2020/09/23/914427907/as-pandemic-deaths-add-up-racial-disparities-persist-and-in-some-cases-worsen> [<https://perma.cc/AH7D-YP6F>].

3. See Allen Kim et al., *These are the states requiring people to wear masks when out in public*, CNN (Aug. 17, 2020, 5:20 PM), <https://www.cnn.com/2020/06/19/us/states-face-mask-coronavirus-trnd/index.html> [<https://perma.cc/6J8W-MWWN>]; Karen Schwartz, *Thinking of Traveling in the U.S.? Check Which These States Have Travel Restrictions*, N.Y. TIMES (Sep. 23, 2020), <https://www.nytimes.com/2020/07/10/travel/state-travel-restrictions.html> [<https://perma.cc/MDL4-MXB2>]; Alicia Lee, *These states have implemented stay-at-home orders. Here's what that means for you*, CNN (Apr. 7, 2020, 5:23 PM), <https://www.cnn.com/2020/03/23/us/coronavirus-which-states-stay-at-home-order-trnd/index.html> [<https://perma.cc/SJP4-GLDG>].

4. Lora Jones, Daniele Palumbo & David Brown, *Coronavirus: A visual guide to the economic impact*, BBC NEWS (June 29, 2020), <https://www.bbc.com/news/business-51706225> [<https://perma.cc/W6AZ-H7AY?type=image>].

only those directly addressing the virus, like vaccines and therapies, but also the broader class of inventions which solve pandemic-related problems. The inventions this note considers are those that confront the new obstacles to working, studying, socializing, and otherwise adapting to daily life amidst contagion. In this context, the COVID-19 pandemic is cast as an existential crisis which not only demands innovation but is rife with opportunities for it—an extraordinary test for United States patent law.

The system of patent law in the United States was designed from the outset to provide an inducement for inventors to bring forth new and useful knowledge to the benefit of society.⁵ In exchange for sharing technological advancement, the inventor is granted a temporary but powerful—and potentially lucrative—right to exclude others from making, selling, or using their patented invention.⁶ To secure this privilege, the inventor must demonstrate that their patent meets the requirements of utility,⁷ novelty,⁸ and non-obviousness.⁹ These requirements are not only considered in the process of attaining the patent, but are often subject to litigation when the patent is asserted in court.

While United States Patent and Trademark Office (USPTO) generally aims to “foster innovation, competitiveness and economic growth,”¹⁰ it acknowledged a separate and limited role during the pandemic.¹¹ In September of 2020, the USPTO initiated a program to defer fees for COVID-19 related provisional applications in exchange for advance disclosure of the technical subject matter in a publicly accessible database.¹² This program recognized the urgent need for sharing information and fostering collaborative innovation to combat COVID-19, while preserving the patent incentive.¹³ The deferred fee, however, only applied to FDA-regulated inventions.¹⁴ Furthermore, the program left untouched the utility, novelty, and non-obviousness criteria designed to reserve the private monopoly to

5. *Graham v. John Deere Co.*, 383 U.S. 1, 9 (1966).

6. Any of these acts gives rise to an infringement claim under 35 U.S.C. § 271.

7. 35 U.S.C. § 101.

8. *Id.* § 102.

9. *Id.* § 103.

10. U.S. Patent and Trademark Office, U.S. DEP'T OF COM., <https://www.commerce.gov/bureaus-and-offices/uspto> [<https://perma.cc/A8SF-JBVA>].

11. *See* Deferred-Fee Provisional Patent Application Pilot Program and Collaboration Database to Encourage Inventions Related to COVID-19, 85 Fed. Reg. 58038 (Sept. 17, 2020).

12. *Id.* at 58038.

13. *Id.* at 58039.

14. *Id.*

worthy inventions¹⁵ but never intended to account for the circumstances of a pandemic.

Even absent pandemic circumstances, the sweeping reach of the 35 U.S.C. §103 non-obviousness requirement makes it a pervasive obstacle to acquiring and maintaining patent rights.¹⁶ This note seeks to explore the function of the non-obviousness requirement as it applies to pandemic inventions in a pandemic world.

The §103 requirement compares the claimed invention to the vast array of publicly known technology (prior art) through the objective lens of a person having ordinary skill in the art, and withholds patents rights from those unworthy inventions deemed to be obvious.¹⁷ The Supreme Court has interpreted the §103 requirement to require a multi-faceted analysis¹⁸ by which

the scope and content of the prior art are . . . determined; differences between the prior art and the claims at issue are . . . ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or non-obviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented.¹⁹

This note asks whether the modern application of the §103 requirement is appropriate during a worldwide upheaval that imposes a set of shared challenges onto the entire population. Could the meteoric increase in attention to a specific class of problems result in misguided gatekeeping by an obviousness analysis that was not developed with pandemics in mind?

First, this note explores how a pandemic-focused society may create an atypical field of prior art. Industry collaboration coupled with widespread public discourse may result in a field of art that is not only massive but difficult to track. Second, is the proposition that the ubiquity of a worldwide crisis causes disparate fields to interact, augmenting the skills which inventors apply in fields with pandemic-related innovation. As a result, the objective person having ordinary skill in the art is less likely to reflect the pandemic inventor. Third, where the elements of a claimed in-

15. *Graham v. John Deere Co.*, 383 U.S. 1, 9 (1966).

16. Laura G. Pedraza-Fariña & Ryan Whalen, *A Network Theory of Patentability*, 87 U. CHI. L. REV. 63, 65 (2020); Katrina Brundage & James Cosgrove, *Section 103 Rejections: How Common Are They and How Should You Respond?*, IPWATCHDOG (Oct. 3, 2016), <https://www.ipwatchdog.com/2016/10/03/103-rejections-common-respond/> [<https://perma.cc/Z3G2-JXFA>].

17. 35 U.S.C. § 103.

18. *Graham*, 383 U.S. at 17.

19. *Id.* at 17-18.

vention exist in the prior art, it appears that the pandemic may provide ample reasons to combine, thereby establishing a prima facie case for obviousness. Finally, an inquiry into the secondary conditions which normally rebut prima facie obviousness suggests that many of the established arguments are undermined by the circumstances of the pandemic. Overall, it appears that a pandemic inventor may be at a disadvantage in acquiring or maintaining patent rights due to how the pandemic could affect the obviousness analysis. Although at first glance this may seem unfair, it nonetheless aligns with the policy rationales underlying patent law.

I. A BRIEF OVERVIEW OF OBVIOUSNESS

Although the requirement that a patented invention be non-obvious was first codified in the 1952 Patent Act, its roots are often traced to the 1850 Supreme Court decision in *Hotchkiss v. Greenwood*.²⁰ In *Hotchkiss*, the Court held that although a porcelain doorknob met the two existing statutory requirements of novelty and utility, it did not warrant patent protection because the substitution of porcelain for a conventional material such as brass or wood did not require, “more ingenuity and skill . . . than . . . possessed by an ordinary mechanic acquainted with the business.”²¹ This holding not only voided the patent in question, but it also established a new requirement of “skill and ingenuity” to determine patentability along with the existing requirements that an invention be new and useful.²²

Subsequent cases probed whether this new factor required a subjective demonstration of creative genius exceeding the capacity of a lowly mechanic,²³ or whether it required a more objective showing that the invention was a substantial advancement in the art.²⁴ Congress eliminated the subjective alternative in the 1952 Patent Act²⁵ with explicit language: “Patentability shall not be negated by the manner in which the invention was made.”²⁶ Left with the objective alternative, courts evaluated substantial advance-

20. Glynn S. Lunney, Jr. & Christian T. Johnson, *Not So Obvious After All: Patent Law's Nonobviousness Requirement, KSR, and the Fear of Hindsight Bias*, 47 GA. L. REV. 41, 55 (2012); Pedraza-Fariña, *supra* note 16, at 78.

21. *Hotchkiss v. Greenwood*, 52 U.S. 248, 267 (1851).

22. *Id.*

23. See *Cuno Eng'g Corp. v. Automatic Devices Corp.*, 314 U.S. 84, 91 (1941) (holding that for patentability an invention “must reveal the flash of creative genius, not merely the skill of the calling”).

24. *Atl. Works v. Brady*, 107 U.S. 192, 200 (1883) (“The design of the patent laws is to reward those who make some substantial discovery or invention, which adds to our knowledge and makes a step in advance in the useful arts.”).

25. Pedraza-Fariña, *supra* note 16, at 81.

26. 35 U.S.C. § 103.

ment through both cognitive factors, like the inventor's insight and creativity, as well as economic factors.²⁷ The economic lens for obviousness is supported by "the idea that market forces create a baseline demand for routine, spontaneous improvements that require no patent inducement."²⁸

In 1966, years of jurisprudence culminated in the Supreme Court's *Graham v. John Deere* decision, which establishes the framework of the modern obviousness analysis. This framework probes the obviousness of an invention in a series of inquiries. First, the "scope and content of the prior art" is explored in search of elements which allude to the claimed invention.²⁹ Prior art is evidence that the invention in question, or an element of it, was already known to the public prior to the filing of the patent application. The differences between this prior art and the claimed invention are then established.³⁰ Next, the analysis constructs an objective person having ordinary skill in the art as a lens through which to view these differences.³¹ With all this information in hand, the obviousness of the invention is determined in light of any apparent reasons to combine the elements available in the prior art.³² This step of the analysis may form a prima facie case of obviousness, and, if so, the inventor is permitted to raise secondary considerations in rebuttal.³³

Each step of the obviousness analysis is discussed in detail below as this note explores the potential impact that the pandemic may have on the prior art, the person having ordinary skill in the art, reasons to combine, and secondary considerations supporting a rebuttal of prima facie obviousness.

II. THE PANDEMIC'S IMPACT ON THE OBVIOUSNESS ANALYSIS

A. A Turbulent Field of Prior Art Stocks an Arsenal for Obviousness

The first step in the obviousness analysis is to consider the "scope and content of the prior art" available for comparison to the claims at issue.³⁴ Prior art is evidence indicating that the claimed invention was already available to the public, and such evidence can take a variety of forms. In

27. Pedraza-Fariña, *supra* note 16, at 78.

28. *Id.* at 80.

29. *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966).

30. *Id.*

31. *Id.*; 35 U.S.C. § 103.

32. *Graham*, 383 U.S. at 17. However, the modern jurisprudence for this step is largely governed by *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 419 (2007).

33. *Graham*, 383 U.S. at 17-18.

34. *Id.*

addition to other patents and patent applications, the field of prior art includes printed publications and instances of public use, sale, or availability otherwise.³⁵ While the prior art is limited to that which was available at the time of invention,³⁶ once a prior art reference is identified, its availability is presumed regardless of whether the inventor actually knew about it.³⁷ Furthermore, prior art references need not be from the same field of endeavor as the invention in question so long as they are considered to be “reasonably pertinent” to the problem addressed by the invention.³⁸ In this context, reasonably pertinent means that the reference, “logically would have commended itself to an inventor’s attention in considering his problem.”³⁹ Pandemic or not, these bounds define an expansive array of available prior art to initiate the obviousness analysis as a broad avenue toward rejection or invalidation rather than a narrow path. Pandemic circumstances, however, may amplify the breadth of available prior art.

The nature of technological development during the pandemic response appears to create a field of prior art that heightens the risk of invalidation at this very first step of the obviousness analysis. First, the pandemic has created a world where typically disparate fields of technology are faced with similar problems. Due to widespread collaboration across industries, many pandemic inventions are likely to be considered obvious combinations of analogous art. Second, there is a massive influx of knowledge sharing which increases the quantity of potential prior art. Likening prior art to ammunition aimed at a potential inventor’s patent, where more prior art is available, there is an increased likelihood that the patent will be struck down as obvious. Third, this influx is of a magnitude that reduces the likelihood that any person could be aware of all the prior art when they file, thus increasing their risk of rejection by the patent office or later invalidation during litigation.

1. A Pervasive Response Joins Disparate Fields in Sharing Art

The COVID-19 pandemic has changed everyday life for the population in ways too numerous to count. Opportunities for innovation are not only found in direct response to fighting the pandemic, like medical treatments and vaccines, but also in areas of technology which are tangentially

35. 35 U.S.C. § 102(a)(1)–(2).

36. *W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1553 (Fed. Cir. 1983).

37. *In re Rouffet*, 149 F.3d 1350, 1357 (Fed. Cir. 1998) (assuming that “all prior art references in the field of the invention are available to this hypothetical skilled artisan”).

38. *In re Bigio*, 381 F.3d 1320, 1325 (Fed. Cir. 2004).

39. *In re ICON Health & Fitness, Inc.*, 496 F.3d 1374, 1379-80 (Fed. Cir. 2007) (quoting *In re Clay*, 966 F.2d 656, 659 (Fed. Cir. 1992)).

related to the pandemic and its impact on society. When totally different industries are faced with similar challenges, there is increased likelihood that ideas will be shared and new solutions will be created.

As a result of the pandemic, different fields are interacting in ways that they never have before. Grade schools are enacting disinfecting regimes reminiscent of hospital protocols or even engaging students with remote conferencing tools designed for the workplace.⁴⁰ Workplace ergonomic challenges come home with adults working remotely to support various industries.⁴¹ Lifestyle and fashion brands collide with public health where government mandates and private business owners require mask wearing in public settings.⁴² The lean manufacturing techniques of the automotive industry meet medical devices where the government calls on factories to re-tool in support of the pandemic response.⁴³ Healthcare meets the industry of multi-purpose event spaces where convention centers are converted into hospitals.⁴⁴ The trucking and food industries meet mortuary services where refrigerated trucks are used as morgues.⁴⁵ A variety of corporations are voluntarily devoting their resources to manufacturing Personal Protective Equipment (PPE).⁴⁶ Small breweries and distilleries are repurposed to produce sanitizers.⁴⁷

40. Hristina Byrnes, *Reopening schools amid COVID-19: A mix of in-person attendance, remote learning and hybrid plans*, USA TODAY (Aug. 3, 2020, 10:09 AM), <https://www.usatoday.com/story/money/2020/08/03/every-states-plan-to-reopen-schools-in-the-fall/112599652/> [<https://perma.cc/DTZ2-DGQK>].

41. See May Wong, *Stanford research provides a snapshot of a new working-from-home economy*, STANFORD NEWS (Jun. 29, 2020), <https://news.stanford.edu/2020/06/29/snapshot-new-working-home-economy/> [<https://perma.cc/DZY5-L9WA>].

42. See Kim, *supra* note 3.

43. Michael C. Bender & Mike Colias, *Trump Orders General Motors to Make Ventilators*, WALL ST. J. (Mar. 27, 2020, 9:08 PM), <https://www.wsj.com/articles/trump-lashes-out-at-general-motors-over-ventilators-11585327749> [<https://perma.cc/7SM5>].

44. Ariana Eunjung Cha et al., *Hospitals on soccer fields, in state park cabins and converted convention centers*, WASH. POST (Mar. 30, 2020), <https://www.washingtonpost.com/health/2020/03/26/coronavirus-hospitals/> [<https://perma.cc/E8DN-Q794>].

45. Jemima McEvoy, *Repeating N.Y.'s Nightmare, Texas and Arizona Request Refrigerated Trucks for Filling Morgues*, FORBES (Jul. 17, 2020, 2:05 PM), <https://www.forbes.com/sites/jemimamcevoy/2020/07/17/repeating-nys-nightmare-texas-and-arizona-request-refrigerated-trucks-for-filling-morgues/#74d6f3d12214> [<https://perma.cc/P95X-4VZX>].

46. Chauncey Alcorn, *3D printer companies step in to fill hospitals' desperate need for face shields*, CNN BUS. (Apr. 6, 2020, 11:42 AM), <https://www.cnn.com/2020/04/06/business/face-shields-3d-printer/index.html> [<https://perma.cc/G9GA-3K7W>].

47. Carrie Napoleon, *Breweries switch missions; hand sanitizers newest vintage in COVID-19 effort*, CHI. TRIB. (Mar. 27, 2020, 1:50 PM), <https://www.chicagotribune.com/suburbs/post-tribune/ct-ptb-brewery-hand-sanitizer-st-0326-20200327-4z7bxrxv4rabrblbibznwm7exq-story.html> [<https://perma.cc/K9XS-VDYS>].

The prior art used to support an obviousness challenge can either come from the same field of endeavor or other fields if “reasonably pertinent” to the problem addressed by the invention in question.⁴⁸ Because of this, the inventions arising from pandemic-induced intermixing of industries may face an expanded set of available prior art for two reasons: (1) newly merged fields of art; and (2) heightened pertinence between otherwise unrelated fields.

First, where cross-industry collaboration merges two fields, the prior art from each may become applicable to the obviousness analysis with no need to consider its pertinence. As a hypothetical, consider the use of video conferencing technology in elementary education. Suppose that prior to the pandemic there existed independent fields of elementary education aids and video conferencing technology. In the past, these two fields may have been less likely to mingle because the facial limitations of video conferencing technology made it ill-suited to address the educational needs of young students. As a result of the pandemic, in-person education was eliminated as an option. The next best solution—video conferencing—was called upon to keep children occupied, educated, and socially engaged. In this scenario, presume that the facial limitations of video conferencing previously alluded to became opportunities for invention and that the inventors will seek patents. Although there may have been sparse instances of video conferencing applied to elementary education prior to the pandemic, due to the ubiquitous nationwide adoption of online education, it is now more likely that an examiner or judge will entertain a new field designation of remote elementary education. If an emerging field like this becomes recognized, it may encompass the art of both previously independent fields: elementary education aids and video conferencing technology. As a result, inventions in this area could face more prior art with no pertinence limitation if filed post-pandemic than if they were filed prior to the pandemic.

Second, where cross-industry collaboration does not join two fields, the sweeping definition of pertinence, that which “logically . . . commend[s] itself to an inventor’s attention in considering his problem,”⁴⁹ could more easily be satisfied during a pandemic. For this discussion, return to the use of videoconferencing during the pandemic. Perhaps a tool or technique that is common to elementary education is incorporated by an inventor into videoconferencing software to increase engagement not only in elementary aged children but in adult workers as well. The result is a

48. *In re Bigio*, 381 F.3d 1320, 1325 (Fed. Cir. 2004).

49. *In re ICON Health & Fitness, Inc.*, 496 F.3d 1374, 1379-80 (Fed. Cir. 2007) (quoting *In re Clay*, 966 F.2d 656, 659 (Fed. Cir. 1992)).

seemingly patentable contribution to videoconferencing technology for the workplace. Prior to the pandemic, an examiner or judge may not have viewed a technique used in a kindergarten classroom as being pertinent to video conferencing, which at the time was rooted solely in a business context. Applying the definition of pertinence, the kindergarten classroom technique would not have logically commended itself to an inventor's attention in considering the problems associated with the business tool of videoconferencing. As a result, a pre-pandemic obviousness challenge to this invention may be less likely to include prior art from the field of elementary education and therefore may be more likely to be viewed as non-obvious and patentable. Post-pandemic, however, videoconferencing has bridged the gap between the classroom and the board room. For this reason, a judge or examiner is more likely to view prior art from the field of elementary education as pertinent to the business tool invention. In this scenario, the pandemic circumstances amplify the already broad scope of what is considered "pertinent"⁵⁰ to stock an enlarged cache of prior art for an argument of obviousness.

The current obviousness analysis could be influenced by the pandemic to include a broader set of prior art than an inventor would typically face. This system disfavors patentability regardless of the fact that it may have taken the extraordinary circumstance of a once-in-a-century crisis to cause the merging of fields or the solutions of disparate fields to logically commend the inventor's attention.⁵¹ Already challenged for being subjective and unpredictable,⁵² the current governing standards may cause mixed-field pandemic inventions to face an especially expansive array of prior art.

2. A Concerted Worldwide Focus Creates a Flood of Prior Art

Although the USPTO is encouraging the publication of a subset of COVID-19 related provisional applications through its deferred fee program,⁵³ it is unclear whether there has been a rush on attaining patent rights to COVID-19 related inventions. Some sources show that patent applications are down in 2020,⁵⁴ but it is possible that a rush on pandemic patents

50. See *In re Bigio*, 381 F.3d at 1325.

51. See *In re ICON*, 496 F.3d at 1379-80 (quoting *In re Clay*, 966 F.2d 656, 659 (Fed. Cir. 1992)).

52. Brenda M. Simon, *The Implications of Technological Advancement for Obviousness*, 19 MICH. TELECOMM. TECH. L. REV. 331, 354 (2013); Pedraza-Fariña, *supra* note 16, at 66.

53. Deferred-Fee Provisional Patent Application Pilot Program and Collaboration Database to Encourage Inventions Related to COVID-19, 85 Fed. Reg. 58038 (Sept. 17, 2020).

54. Brian Eakin, *Iancu Says Patent Filings Are Slowing Down Amid Pandemic*, LAW 360 (Sept. 21, 2020, 6:29 PM), <https://www.law360.com/articles/1312267/iancu-says-patent-filings-are-slowing-down-amid-pandemic> [<https://perma.cc/5KRY-FEVU>].

can coexist with an overall downturn in general patenting activity. Patent filings may be the first place one looks, but prior art can also be found in printed publications and instances of public use, sale, or availability otherwise.⁵⁵ With this in mind, consider how the pandemic has prompted massive media coverage and extensive public discourse which could potentially qualify as prior art. Since the pandemic began it has dominated—locally, nationally, and internationally—the main outlets for journalism and social media.

It is a fundamental principle that “once an invention is in the public domain, it is no longer patentable by anyone.”⁵⁶ “Because there are many ways in which a reference may be disseminated to the interested public, ‘public accessibility’ has been called the touchstone in determining whether a reference constitutes a ‘printed publication’ bar under 35 U.S.C. § 102(b).”⁵⁷ The standard for this public accessibility requirement is whether it would be found upon exercise of reasonable diligence in locating it.⁵⁸ Factors that have been recognized to favor public accessibility include the distribution of copies, storage of the information in an indexed database, the duration that information was displayed, and, for limited presentations, the capacity of the intended audience to retain the information.⁵⁹ In a time where thirst for content is motivated by the pandemic’s impact on daily life, much of the population is infatuated with COVID-19 media coverage.⁶⁰ In contrast to typical technological advances which may fly somewhat under the radar of public accessibility, during the pandemic, both traditional media and social media outlets have responded to public demand by trumpeting content regarding COVID-19 related issues, technologies, and scientific underpinnings.

Furthermore, it is arguable that the pandemic has broken down the traditional quality filters of scientific dialogue, thereby allowing information that typically would not meet the definition of public accessibility to become prior art sooner in development. A critical element in the culture

55. 35 U.S.C. § 102(a)(1)–(2).

56. *Blue Calypso, L.L.C. v. Groupon, Inc.*, 815 F.3d 1331, 1348 (Fed. Cir. 2016) (quoting *In re Hall*, 781 F.2d 897, 898 (Fed. Cir. 1986)).

57. *In re Klopfenstein*, 380 F.3d 1345, 1349 (Fed. Cir. 2004) (quoting *In re Hall*, 781 F.2d at 898–99).

58. *Kyocera Wireless Corp. v. Int’l Trade Comm’n*, 545 F.3d 1340, 1350 (Fed. Cir. 2008).

59. See *In re Klopfenstein*, 380 F.3d at 1350.

60. See Amy Mitchell & J. Baxter Oliphant, *Americans Immersed in COVID-19 News; Most Think Media Are Doing Fairly Well Covering It*, PEW RSCH CTR. (Mar. 18, 2020), <https://www.journalism.org/2020/03/18/americans-immersed-in-covid-19-news-most-think-media-are-doing-fairly-well-covering-it/> [<https://perma.cc/L94X-TK2M>]. (A Pew Research Center survey conducted in March 2020 indicated that “Roughly half of U.S. adults (51%) are following news about [COVID-19] very closely, with another 38% following it fairly closely.”)

of science is a tradition of peer review that is intended to assure the legitimacy of scientific claims.⁶¹ This review takes time and can act as a speed limit in the dissemination of the ideas which ultimately survive scrutiny.⁶² During the pandemic, the need for rapid collaboration in the face of an existential crisis has placed peer review on the chopping block. As previously discussed, the USPTO itself is promoting this behavior by encouraging the publication of interim results in the form of provisional applications with a deferred fee incentive,⁶³ but more generally during the pandemic the scientific community has seen an increase in publication prior to peer review, where scientists view the risks associated with publicizing erroneous results as being outweighed by the benefits of collaboration in fighting COVID-19.⁶⁴ This means that information is becoming publicly available earlier in development.⁶⁵ But for the circumstances of the pandemic, such unvarnished and half-baked information may not have become available prior to a patent's filing date, thus would not have existed as prior art against it.

Outside of the traditional realm of scientific discourse, the government itself is producing potential prior art. Via Twitter and press conferences, government officials are openly discussing early and unproven methods of medical treatment, and, in some cases, going so far as to promote them in ways unprecedented prior to the pandemic.⁶⁶ Similar to *SecurityPoint v. United States*, in which FAA and TSA guidance documents were cited as prior art regarding a security checkpoint patent,⁶⁷ it is foreseeable that the guidelines issued by government agencies in response to COVID-19 could be used as prior art against a pandemic invention.⁶⁸ Compared to the centralized federal response to terrorism which produced the prior art in *SecurityPoint*,⁶⁹ the government's pandemic response is likely producing a

61. Hannah Thomasy, *In the Race to Crack Covid-19, Scientists Bypass Peer Review*, UNDARK (Apr. 1, 2020), <https://undark.org/2020/04/01/scientific-publishing-covid-19/> [<https://perma.cc/4WJE-JR9V>].

62. *Id.*

63. Deferred-Fee Provisional Patent Application Pilot Program and Collaboration Database to Encourage Inventions Related to COVID-19, 85 Fed. Reg. 58038, 58038 (Sept. 17, 2020).

64. Thomasy, *supra* note 61.

65. *Id.*

66. See Katherine J. Wu, *With 'Cure' Comment, Trump Exaggerates Known Benefits of Another Covid-19 Therapy*, N.Y. TIMES (Oct. 8, 2020), <https://www.nytimes.com/2020/10/08/technology/trump-covid-cure.html> [<https://perma.cc/6CWF-VZL7>].

67. *SecurityPoint Holdings, Inc. v. United States*, 129 Fed. Cl. 25, 33, 38 (2016).

68. For example, the CDC has issued guidelines to address the risks of Covid-19 in homes, schools, workplaces, healthcare facilities, and more. See *COVID-19*, CDC, <https://www.cdc.gov/coronavirus/2019-ncov/index.html> [<https://perma.cc/DRL5-WT5B>].

69. See *SecurityPoint*, 129 Fed. Cl. at 33, 38.

much larger quantity of prior art. Due to the limited federal response,⁷⁰ rather than a handful of federal agency guidelines, the pandemic inventor could be faced with many times more guidelines, all the way down to the municipal level. Considering the differing responses across the country, not only is this source of prior art large in quantity, but it is likely broad in scope.

In its course, the pandemic has captured the attention of the news media, social media, and the government machine, each of which is churning out content that could qualify as prior art against the pandemic invention. Traditional filters on the dissemination of information have been breached, allowing information to be shared without restraint. On top of it all, social media as a secondary source has distributed the information of the other sources in a viral way that certainly satisfies the public availability requirement. On many levels, it seems that pandemic circumstances are a perfect storm for subjecting the pandemic inventor to a torrent of prior art.

3. Awareness of the Field is Reduced Amid a Flood of Prior Art

Because the pandemic poses a set of common challenges for all inventors, it is likely that parallel and contemporaneous efforts are developing similar pandemic-related technologies. Due to both the magnitude and breadth of the pandemic response, the field of prior art may be in a state of disarray which makes it difficult for an inventor to track what technologies have already been placed in the public domain and are therefore unpatentable. While the previous section suggests that an increased quantity of prior art has become publicly available because of the pandemic, this section proposes that faced with an information deluge, an inventor may not have the capacity to perceive it all. Such a scenario leaves the inventor at risk of applying for a patent unaware that their invention has already been rendered obvious.

Patent applications operate as an especially cruel form of prior art in this situation because they are effective upon filing⁷¹ but remain unpublished for eighteen months.⁷² This creates a procedural hurdle to the well-intentioned inventor trying to claim a non-obvious patent. A patent

70. See Sheryl Gay Stolberg et al., *With the Federal Health Megaphone Silent, States Struggle with a Shifting Pandemic*, N.Y. TIMES (Jun. 17, 2020), <https://www.nytimes.com/2020/06/17/us/politics/coronavirus-pandemic-federal-response.html> [<https://perma.cc/KQ8N-5JTS>].

71. 35 U.S.C. § 102(d).

72. 35 U.S.C. § 122(b).

typically takes about two years to prosecute,⁷³ making it possible that a rival application could turn up late into prosecution, or even after a rapid issuance, and be used to attack the patent's claims. Although the USPTO's COVID-19 deferred fee program alleviates this concern by publishing provisional applications immediately in a publicly accessible database, it is only available for FDA-regulated technologies,⁷⁴ leaving other pandemic-adjacent inventors in the dark.

It should also be noted that in addition to the challenges described above, there exists a disincentive for an inventor to actively search out other patents for fear of liability for willful infringement and the accompanying treble damages.⁷⁵ Although patent applicants have a duty of disclosure, candor, and good faith in dealing with the USPTO,⁷⁶ this duty only applies to known relevant documents and does not require applicants to conduct a prior art search.⁷⁷ Pandemic or not, any inventor has some minimal knowledge of the state of the art and is ill-advised to pursue claim language that they know is rendered obvious by other patents. If the pandemic results in a rush of patent applications and prior art generation that is beyond the capacity of the inventor to track, it stands to reason that the pandemic inventor has lesser knowledge of the field than an inventor in less turbulent times. This could leave the pandemic inventor more likely to inadvertently pursue an obvious patent.

The availability of a printed publication as prior art rests on whether it was, "available to the extent that persons interested and ordinarily skilled in the subject matter or art[,] exercising reasonable diligence, can locate it."⁷⁸ Because the analysis does not consider actual awareness of the existence of the printed publication, this reasonable diligence standard operates against the interest of the pandemic inventor who cannot possibly keep tabs on the growing cache of potential art. Although it could be argued that the massive public discourse regarding the pandemic should make the inventor more aware of the state of the art, there could be a risk of information over-

73. The USPTO estimates the traditional total pendency of a patent application to be 23 months. *Patents Pendency Data November 2020*, U.S. PAT. & TRADEMARK OFF., <https://www.uspto.gov/dashboard/patents/pendency.html> [<https://perma.cc/2DXU-PGTS>].

74. Deferred-Fee Provisional Patent Application Pilot Program and Collaboration Database to Encourage Inventions Related to COVID-19, 85 Fed. Reg. 58038, 58039 (Sept. 17, 2020).

75. Simon, *supra* note 52, at 346.

76. 37 C.F.R. §1.56(a).

77. *See FMC Corp. v. Hennessy Indus., Inc.*, 836 F.2d 521, 526 n.6 (Fed. Cir. 1987) ("As a general rule, there is no duty to conduct a prior art search, and thus there is no duty to disclose art of which an applicant could have been aware."). *But see* John A. Dienner, *Lightening the Load of the Patent Examiner*, 47 J. PAT. OFF. SOC'Y 148, 151 (1965) (noting that "generally, no worthwhile application for patent is filed without a search [of] previously acquired knowledge of the prior art.").

78. *Voter Verified, Inc. v. Premier Election Sols.*, 698 F.3d 1374, 1380 (Fed. Cir. 2012).

load operating to the contrary. If in normal times an inventor is fishing in a metaphorical lake for relevant prior art, the pandemic inventor, by contrast, is fishing in a rushing river flowing to a rapidly expanding ocean of information. The pandemic inventor operates in a world where a continuous news cycle fervently churns out information regarding the economic, industrial, and societal impacts of COVID-19. To the extent that this inventor chooses to search for prior art, there is a heightened time factor at play. Unless the inventor searches at the ideal time, the most important prior art to their application may be pushed downstream, displaced in their search results by newer references which could be less relevant. The well-intentioned inventor who seeks to claim only non-obvious technology in their patent application is always limited by their diligence in searching prior art, but pandemic inventors are disadvantaged due to a heightened criticality of time in searching a high output field.

A counterargument is that any disadvantages that the inventor faces in their capacity to maintain awareness of the prior art are balanced by similar challenges faced by both patent examiners and litigious adversaries. As previously mentioned, although those prosecuting patents have a duty to disclose prior art of which they are aware, they do not have a duty to search for prior art, and in practice they often do not.⁷⁹ If a turbulent field of prior art makes references more difficult to find, this may operate in favor of the inventor in securing their patent rights by making it more difficult for the patent examiner and any subsequent post-grant challengers to find the prior art. But there is an inherent inequity in the parties' capacities to search for prior art which places inventors and examiners in a category distinct from ex-post challengers. Inventors and examiners alike have limited time to search for prior art; inventors are in a race to stake their claims on technology, and examiners are bound by bureaucratic limitations.⁸⁰ On the other hand, challengers both in post-grant proceedings and litigation have much more time to search the art at their leisure.⁸¹ Furthering their advantage,

79. See *supra* note 77.

80. See Simon, *supra* note 52, at 372 (“Inadequate funding coupled with increased demand limits the resources available for examining applications. Examiners spend twenty hours or less evaluating each application from filing to final disposition. On average, this short amount of time spent per application spans approximately three years.”); Greg Reilly, *The Complicated Relationship of Patent Examination and Invalidity*, 69 AM. U. L. REV. 1095, 1116 (2020) (“The core structure of patent examination prevents examiners from accessing some categories of prior art necessary to fully evaluate patentability, identifying and examining the full scope of the claimed rights, and determining whether the claimed invention will remain patentable over the full life of the patent rights.”).

81. See Reilly, *supra* note 80, at 1140–41 (“The structural barriers that prevent a complete evaluation of patentability in Patent Office examinations are absent or mitigated during ex post invalidation in litigation or Patent Office post-issuance proceedings.”).

these challengers have the luxury of a large body of publicity for all things pandemic-related to build their case for obviousness.

Pandemic or not, prior art is dynamic by nature. The argument here is that the pandemic creates a special disarray which leaves inventors to wander through a minefield in claiming a non-obvious invention.

B. The PHOSITA Does not Resemble the Pandemic Inventor

After establishing what is available as prior art, the next step in the obviousness analysis determines the objective lens through which to consider it—the perspective of the hypothetical person having ordinary skill in the art (PHOSITA).⁸² Courts consider several factors to determine the level of ordinary skill in the art: “(1) the educational level of the inventor; (2) the type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of active workers in the field.”⁸³ Because the “inferences and creative steps” of the PHOSITA are considered,⁸⁴ how the court defines the skill level of the PHOSITA becomes critical to the obviousness analysis. A higher skilled PHOSITA may be viewed to have greater capacity for inference and creativity. Therefore, the higher the skill level assigned to the PHOSITA, the more likely the court will find that the differences between the claimed invention and the prior art are such that the claimed invention is obvious to the PHOSITA.

During the pandemic, disparate fields of technology are faced with non-traditional problems concerning public health. Whether they are directly collaborating or not, a diverse array of inventors are approaching similar problems and applying their own individualized expertise in creating solutions. Where the inventor themselves does not possess the same level of skill assumed of the PHOSITA, the gap can be either advantageous or disadvantageous to the obviousness of their invention.

Take, for example, a hypothetical invention arising out of the presidential order for General Motors to manufacture ventilators during the pandemic.⁸⁵ One purpose of the order was to leverage the expertise and resources that General Motors has in assembly lines and mass production to address the nationwide shortage of ventilators. Imagine that the hypothetical invention leverages automotive experience to increase the manufactur-

82. 35 U.S.C § 103.

83. *Daiichi Sankyo Co., Ltd. v. Apotex, Inc.*, 501 F.3d 1254, 1256 (Fed. Cir. 2007).

84. *KSR Intern. Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007).

85. *Bender*, *supra* note 43.

ing output of the ventilators. In this scenario, the relevant field of art to making ventilators may be generally viewed as manufacturing medical equipment. While the inventor is an automotive manufacturing engineer, the active worker in the field is a medical device manufacturing engineer. The educational level of the two types of engineers is essentially the same but the other factors defining the skill of the PHOSITA diverge. The problems encountered in medical device manufacturing are generally focused on quality control and regulatory compliance.⁸⁶ By contrast, the automotive industry enjoys less rigorous regulation, a large consumer market, and competes on slimmer margins resulting in more focus placed on decreasing cost and increasing output. Also due to government regulation, innovations in medical device manufacturing may be slower compared to automotive manufacturing because medical device manufacturers hesitate to adopt the most sophisticated manufacturing technology until it is proven to be safe in the eyes of regulators.⁸⁷ By contrast, automotive engineers have greater freedom to adopt state of the art manufacturing methods to improve the bottom line.⁸⁸ When faced with the problem of rapidly manufacturing new ventilators, the automotive engineer may be viewed as having a higher level of skill than the medical engineer because the automotive engineer is more accustomed to high output manufacturing and state of the art manufacturing techniques. In this hypothetical, when an automotive engineer invents something to improve output in the field of medical device manufacturing, the advancement will be judged from the perspective of the medical device manufacturing engineer having ordinary skill. The factors considered by the court effectively allow the sophisticated automotive manufacturing engineer to play down a league—gauged against the lower

86. See U.S. FOOD & DRUG ADMIN., QUALITY SYSTEM (QS) REGULATION/MEDICAL DEVICE GOOD MANUFACTURING PRACTICES (2018) (“Manufacturers must establish and follow quality systems to help ensure that their products consistently meet applicable requirements and specifications. The quality systems for FDA-regulated products (food, drugs, biologics, and devices) are known as current good manufacturing practices.”). For this specific scenario, the FDA has acknowledged that regulatory barriers stand in the way to a ramp up of ventilator production and announced that it would reduce such barriers for the duration of the public health emergency. U.S. FOOD & DRUG ADMIN., ENFORCEMENT POLICY FOR VENTILATORS AND ACCESSORIES AND OTHER RESPIRATORY DEVICES DURING THE CORONAVIRUS DISEASE 2019 (COVID-19) PUBLIC HEALTH EMERGENCY (2020).

87. For example, the FDA has recognized a need to promote advanced manufacturing in the industries they regulate and has taken it upon themselves to establish programs to that end. See Stephen M. Hahn, *Accelerating the Adoption of Advanced Manufacturing Technologies to Strengthen Our Public Health Infrastructure*, U.S. FOOD AND DRUG ADMIN., <https://www.fda.gov/news-events/fda-voices/accelerating-adoption-advanced-manufacturing-technologies-strengthen-our-public-health> [<https://perma.cc/63C5-A4E8>].

88. See Bill Koenig, *Automotive Industry Improves Automation, Adopts Advanced Tech*, SME (Mar. 1, 2019), <https://www.sme.org/technologies/articles/2019/march/automotive-industry-improves-automation-adopts-advanced-tech/> [<https://perma.cc/BVS6-RNS7>] (“The U.S. auto industry has been automated for decades.”).

skills of the medical device manufacturing engineer in high output manufacturing. In effect, the automotive manufacturing engineer faces a lower obviousness bar to claiming patent rights in their invention.

On the other hand, there is the situation where the inventor is less sophisticated than the PHOSITA. For example, consider a hypothetical teacher who, when using video conferencing to teach a remote class of unruly elementary schoolers, invents a new videoconferencing feature. The field of art is video conferencing and the active worker in that field has a computer science degree. In this case, an invention created by the lesser skilled teacher may seem well within the inferences and creative steps of the PHOSITA—a sophisticated computer programmer. As a result, the teacher's invention is less likely to clear the obviousness bar for patentability.

Regardless of the inventor's skill level relative to the objective PHOSITA, the impact of the pandemic on the prior art (discussed in the previous section) may be attenuated based on the level of skill in the art. It has been proposed that advances in cognitive technology and knowledge sharing impacts obviousness differently for skilled and less skilled arts.⁸⁹ A parallel reasoning applies to the atypical field of prior art resulting from the pandemic. Access to information only matters if it can be integrated. Therefore; the less skilled the PHOSITA is, the less likely a flood of prior art is to impact the obviousness analysis.⁹⁰ “All the information in the world will not make an ordinary mechanic likely to integrate it.”⁹¹ In contrast, more information available to more creative PHOSITAs would have a greater impact on obviousness.⁹²

Finally, it must be acknowledged that common sense can be used to argue obviousness.⁹³ In the context of the pandemic, information that may have previously been niche subject matter has become public discourse. Non-scientists are engaging in informal discussions of public health, pathology, virology, and more. It stands to reason that the common sense and baseline education of the population with regard to pandemic topics has risen as a result of exposure to the news cycle and social media. As the level of common sense attributable to the PHOSITA rises, so too does the likelihood that an invention is deemed obvious.

89. See Simon, *supra* note 52, at 348.

90. *Id.*

91. *Id.*

92. *Id.*

93. Perfect Web Techs., Inc. v. InfoUSA, Inc., 587 F.3d 1324 (2009).

C. *The Pandemic World is Rife with Reasons to Combine*

Once the scope and content of the prior art and the level of ordinary skill in the art is determined, the next step is to seek a prima facie case for the obviousness of the claimed subject matter.⁹⁴ The modern jurisprudence for this step of the analysis is established in *KSR v. Teleflex*, which broadly supports any well-articulated and explicit argument for an apparent reason to combine the prior art elements “in the fashion claimed by the patent at issue.”⁹⁵ Some of the more established arguments to this end include: motivation, teaching, market forces, that it was obvious to try, and that it was merely an old device updated with new technology.⁹⁶ During a worldwide pandemic it seems that if the component parts of a pandemic-related invention can be found in the prior art, there exist ample reasons to combine them.

1. The Pandemic Itself Motivates Invention

A direct motivation can be found in the fact that COVID-19 poses a mortal threat to the entire population of the world. This applies best to inventions which directly fight the virus or prevent transmission like vaccines, therapies, masks, and sanitizers. Less directly, the pandemic could provide motivation to inventions which address society’s response and adaptation to a pandemic lifestyle—like remote working technologies. If the components of an invention exist in the prior art, the pandemic itself could be viewed as an explicit motivation to prompt the PHOSITA to combine them thereby rendering the invention obvious.⁹⁷

2. The Mass Media Coverage of the Pandemic Could Teach the PHOSITA to Combine Prior Art Elements

It could be argued that pandemic media coverage has become a classroom for public health knowledge. While the media’s suggestions of hand washing and mask wearing are nothing new; other suggestions teach measures that were previously unheard of, like sterilizing groceries prior to bringing them into the home.⁹⁸ Even government issued guidelines regard-

94. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966).

95. *KSR Intern. Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007).

96. *Id.*

97. *Id.*

98. Erin Gillespie, *Sanitize groceries, discard takeout containers immediately: Doctor demonstrates ‘sterile technique’*, FOX 5 (Mar 26, 2020), <https://www.fox5dc.com/news/sanitize-groceries-discard-takeout-containers-immediately-doctor-demonstrates-sterile-technique> [<https://perma.cc/2XD9-AMZB>].

ing the pandemic response could be used to form an argument for teaching.⁹⁹

3. Market Disruption Incentivizes Pandemic Invention

In *KSR v. Teleflex*, a strong marketplace incentive in the automotive industry provided a reason to combine a mechanical accelerator pedal with an electronic position sensor.¹⁰⁰ In that case, the market of the 90's was trending toward computer-controlled engines which required electronic input rather than the previously standard mechanical linkage.¹⁰¹ Compared to the mundane automotive market forces cited in *KSR*, surely the economic devastation of COVID-19 can be viewed to create market forces relevant to the obviousness analysis for pandemic inventions. For example, stay at home orders and corporate policies¹⁰² could be argued to drive unprecedented demand for developing ergonomic workspace solutions for the home. More drastic are markets where consumer participation has become compulsory as a result of the pandemic. For example, government-issued mask mandates¹⁰³ generate compulsory participation in the market for face masks. Where everyone is forced to buy a mask, the market incentive for inventive differentiation from the competition is at its peak. An even more extraordinary market phenomenon is seen where governments themselves have taken on the responsibility to purchase millions of doses of vaccines and provide them to every member of the public for free.¹⁰⁴ In this case, not only is a new market for an inventive solution created by the pandemic, but demand is artificially maximized by the government's commitment to buy it for everyone. For pandemic inventions, the obviousness analysis is likely to view such market forces as a strong reason to combine existing prior art elements.

4. Pandemic Panic Makes Inventive Solutions More Obvious to Try

Compared to pre-pandemic times, the sense of urgency of the pandemic response may make certain inventions more obvious to try. In *KSR v. Teleflex*, the Supreme Court noted that “[w]hen there is a design need or

99. See *SecurityPoint Holdings, Inc. v. United States*, 129 Fed. Cl. 25, 40 (2016) (finding that TSA guidelines teach away from using carts in security check stations).

100. *KSR*, 550 U.S. at 424.

101. *Id.* at 407-08.

102. Wong, *supra* note 41.

103. See Kim, *supra* note 3.

104. Sarah Kliff, *The U.S. Commits to Buying Millions of Vaccine Doses. Why That's Unusual*, N.Y. TIMES: THE UPSHOT (Jul. 22, 2020), <https://www.nytimes.com/2020/07/22/upshot/vaccine-coronavirus-government-purchase.html> [<https://perma.cc/K4KY-S96V>].

market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp.”¹⁰⁵ The desperation of the pandemic provides ample market pressure for certain pandemic-related inventions. In areas where there are a finite number of predictable solutions available, pandemic-prompted supply shortages—like those seen in personal protective equipment¹⁰⁶ and in life support equipment¹⁰⁷—make traditional solutions unavailable. By reducing the number of identified and predictable solutions available to the PHOSITA, the circumstances of the pandemic may make other solutions more obvious to try.

5. A Pandemic Invention May Be Cast as a Solution from a Prior Pandemic that Was Merely Updated with Modern Technology

Because this is not the first pandemic in human history, pandemic related inventions are potentially subject to the arguments that they just represent old technologies that have been updated in an obvious way to incorporate what is now widely used technology. In *KSR*, the Court found reason to combine prior art elements to equip an existing car pedal with electronic controls because technological advancements made it clear that computer-controlled engines would become the standard.¹⁰⁸ In the context of COVID-19, the evidence used to support such an analysis may combine lessons learned from the 1918 flu pandemic with any of the technological advancements in the one hundred years since.

Assuming that the component parts of a pandemic invention are found in the prior art, it seems likely that the omnipresent pandemic provides ample reason to combine in support of prima facie obviousness.

D. Secondary Considerations for Non-obviousness are Undermined

Where the available prior art, the ability of the PHOSITA, and a reason to combine are found to support a prima facie case for obviousness, the inventor’s last resort is to rebut the determination with objective evidence

105. *KSR*, 550 U.S. at 421.

106. Andrew Jacobs, *Health Care Workers Still Face Daunting Shortages of Masks and Other P.P.E.*, N.Y. TIMES (Dec. 20, 2020), <https://www.nytimes.com/2020/12/20/health/covid-ppe-shortages.html> [<https://perma.cc/AFX6-7KK5>].

107. Andrew Jacobs, *Fears of Ventilator Shortage Unleash a Wave of Innovations*, N.Y. TIMES (Apr. 17, 2020), <https://www.nytimes.com/2020/04/17/health/ventilators-coronavirus.html> [<https://perma.cc/4CH2-VUSU>].

108. *KSR*, 550 U.S. at 424.

of non-obviousness.¹⁰⁹ Courts rarely hold that objective evidence is sufficient to overcome prima facie obviousness, so the inventor must bring forth an extensive argument.¹¹⁰ There exist many established arguments to support such a case, including: commercial success, long-felt but unsolved need, the failed efforts of others, copying by others, praise for the invention, unexpected results, disbelief of experts, and licensing of the invention.¹¹¹ Unfortunately for the pandemic inventor, however, the sanctuary offered by these secondary conditions appears to be broadly undercut by the pandemic. Because a causal nexus must be established between the merits of the invention and secondary considerations for non-obviousness,¹¹² many rebuttals which would be available in normal times are seemingly eclipsed by pandemic circumstances.

The commercial success of a pandemic invention can be used to argue that it is a non-obvious invention.¹¹³ In *Innovention Toys v. MGA Entertainment*, the court held that commercial success despite “despite the obstacles . . . encountered in the wake of Hurricane Katrina” was “highly probative as an objective indicator of non-obviousness.”¹¹⁴ A similar argument could be made on a much broader scale based on the pandemic. Bolstered by evidence of joblessness and recession, the inventor could portray their invention to be of such a nature and value to society that it succeeded in a hostile market. Such an argument for non-obviousness, however, is deflated by the fact that commercial success is readily attributable to market transformations as a result of the pandemic rather than the worthiness of the invention. The pandemic has not only caused surges in demand for existing pandemic-related products,¹¹⁵ but has also created new markets from scratch. Where an inventor attempts to use a claim for commercial success to support the non-obviousness of their invention, they will have to overcome the fact that much of this success may have been brought on by the pandemic itself. This could potentially be done by demonstrating that

109. *Transocean Offshore Deepwater Drilling, Inc. v. Maersk Drilling USA, Inc.*, 699 F.3d 1340, 1349 (2012).

110. *Id.* at 1354.

111. *Id.* at 1349.

112. *Solder Removal Co. v. USITC*, 582 F.2d 628, 637 (1978).

113. See *Transocean*, 699 F.3d at 1350.

114. *Innovention Toys, LLC v. MGA Entm't, Inc.*, No. 07-6510, 2012 U.S. Dist. LEXIS 156733, at *3 (E.D. La. Nov. 1, 2012).

115. As discussed above in section III C in which the unique market forces spurred by the pandemic were suggested to provide reason to combine prior art elements in establishing prima facie obviousness.

within the pandemic economy, the invention outperformed its competitors based on the merits of its design.¹¹⁶

Copying of the invention or even licensing of it by others can support an argument for non-obviousness by suggesting industry recognition of the invention's merits.¹¹⁷ But in a world where pandemic-related inventions are sold in a pandemic-driven market, copying by others may be viewed to be driven by easy money rather than appreciation for the merits of the invention.

Praise for the invention is another potential basis to argue that the merits of the invention rebut obviousness.¹¹⁸ In a pandemic-affected world, praise may be easy to come by for any pandemic invention and carry less weight as an argument for non-obviousness. As discussed above, unfounded praise for unsupported science has been broadly shared not only in social media but by sources which were previously viewed to be especially trustworthy, like the president of the United States.¹¹⁹ Praise for pandemic inventions may be less a validation of technological merit and more a reflection of desperation and blind optimism toward putative solutions to pandemic hardship. It should be noted that in a competitive field, this secondary consideration may remain a viable argument where the unequal praise compared to competitors can be linked to the merits of the invention.

On the other hand, there are some secondary considerations which may operate to the benefit of the inventor in the circumstances of the pandemic.

Inventors find support for non-obviousness where they can argue that their invention addresses a long-felt but unmet need.¹²⁰ This argument, however, is highly dependent on its framing. For example, humanity has faced a threat of viral infection since the dawn of time, but this does not mean that there was a pre-pandemic need for an invention that aids a local microbrewery in manufacturing sanitizer. Similarly, the technology for remote education has long had its problems, but the specific needs addressed by a pandemic inventor could have only come into public focus during the pandemic when remote education became widespread across age

116. Such an argument is successfully made in *Transocean v. Maersk*, where the Court overturns a finding that commercial success was not a result of the free market based in part by Transocean's demonstration that their invention commanded a market premium over the competitors. *Transocean*, 699 F.3d at 1350.

117. *See id.* at 1352.

118. *Id.* at 1351.

119. *See Wu*, *supra* note 66.

120. *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966).

groups and other demographics. Both inventions address an unmet need, but was it long-felt?

SecurityPoint v. United States discusses long-felt but unmet need in the context of the terrorist attacks of 9/11.¹²¹ Expert testimony stated that the problem of long wait times in security lines became acute only after 9/11 and that the invention took place merely ten months later.¹²² The court rejected the argument that ten months was insufficient to argue non-obviousness on the basis of long-felt but unmet need.¹²³ The court ultimately found that, “the law imposes no *per se* floor on the length of time needed to establish a long-felt need in the art.”¹²⁴

This suggests that a court may be generous in viewing long felt but unmet need in favor of the pandemic inventor. Like *SecurityPoint*, the unmet needs of the pandemic can be argued to have become acute on known dates based on the government responses like stay-at-home orders. Furthermore, it is within reason that the solutions to address these needs could be invented within a similar timeframe of 10 months.

The failed efforts of others can be used to support an argument that if the invention was truly obvious, competing inventors would have figured it out.¹²⁵ Such an argument would require the inventor to demonstrate that others were trying to solve the problem addressed by their invention and that they were not successful in doing so. This argument may be readily available to inventors in technologies where the pandemic inspired parallel inventorship or some sort of technological race. Because so many others were vying to solve the problem, the fact that one inventor found the solution first indicates that they made an inventive leap in technology that should be viewed as exceeding the obvious.

III. THE POLICY IMPLICATIONS OF HEIGHTENED OBVIOUSNESS IN A PANDEMIC

The discussion above can be distilled into four ways that the pandemic has disfavored related inventions with regards to the obviousness analysis. First, the quantity of available prior art and the PHOSITA’s perceived capacity to combine it may both be increased by pandemic-fueled interaction of disparate fields. Second, extensive media coverage and public discourse results in a field of prior art that could be so immense and dynamic that it is

121. *SecurityPoint Holdings, Inc. v. United States*, 129 Fed. Cl. 25, 45 (2016).

122. *Id.* at 44.

123. *Id.* at 45.

124. *Id.*

125. *Graham*, 383 U.S. at 17.

difficult to track. Third, the pervasive impact of the pandemic provides inventors with ample reasons to combine prior art elements into solutions for pandemic problems. Finally, the circumstances of the pandemic could undercut many of the secondary conditions which would support non-obviousness of the invention. All of these factors combine to leave pandemic inventors at a disadvantage in gaining patent rights compared to their pre-pandemic peers.

Accepting the proposition that pandemic-related inventions could be at a unique disadvantage when subjected to the modern obviousness analysis, the next question is whether it matters. Up to this point, this paper has viewed the obviousness analysis as it is applied in the trenches of the examiner's office or judge's courtroom. Moving forward, it explores the underlying policy which supports these governing rules. By operating to the detriment of the pandemic inventor, is the modern obviousness jurisprudence acting contrary to the principles intended to regulate the patent reward? Is the analysis led astray by the extraordinary circumstances of a generational pandemic?

Because obviousness is such an elusive concept to measure, the rules and analysis cited above represent the Court's best effort at creating a proxy framework to carry out a policy justification for awarding the patent privilege. The United States patent system is at its core a utilitarian endeavor to encourage disclosure of new technologies for the benefit of United States citizens.¹²⁶ This concept traces back to the constitutional mandate that "Congress shall have Power . . . To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries."¹²⁷ From these constitutional roots has grown a patent system which operates on behalf of society to obtain the disclosure of technology by granting the inventor a right to exclude others from making, using, offering to sell, or selling it for 20 years.¹²⁸ This right to exclude can be extraordinarily lucrative to the inventor but can also operate to stifle overall progress in the useful arts.¹²⁹ With this in mind, it is important that the operating rules of patent law strike a balance which holds true to their purpose.

During a pandemic which impacts so many aspects of society, the need for adaptation to a new way of life could inspire a wave of inventive activity. As the current pandemic recedes, so too will many of the accom-

126. Pedraza-Fariña, *supra* note 16, at 79.

127. U.S. CONST. art. I, § 8, cl. 8.

128. 35 U.S.C. § 154, 271.

129. *KSR Intern. Co. v. Teleflex Inc.*, 550 U.S. 398, 427 (2007).

panying issues facing society, but some could be here to stay.¹³⁰ While the optimist may view the pandemic as transient, some experts anticipate a pandemic-riddled future.¹³¹ As such, inventions which may have been prompted by this once-in-a-century catastrophe could find an enduring new market. For example, inventions that enabled a manufacturing ramp up of consumables like personal protective equipment and cleaning supplies may find a lucrative long-term market due to a lasting change in post pandemic hygiene. Patent protection for such inventions could prove to be a very valuable asset to the pandemic inventor, but is it deserved?

On the one hand, innovation is crucial to society's collective success by not only fighting the pandemic directly through vaccines and therapies, but also in maintaining the viability of our economy and other necessary social constructs. From this perspective, one might jump to the conclusion that the government should encourage innovation by all available means, including incentivization through lucrative patent rights. Under this line of thought it would seem appalling that the pandemic inventor has less access to patent rights when compared to their pre-pandemic peers. A system designed to foster innovation should not be easily undermined by a crisis which demands the very same innovation.

On the other hand, it could be argued that the privileges of the patent holder to exclude others from practicing their claimed technology represent a public embarrassment, or an offense to "the inherent free nature of disclosed ideas".¹³² Monopolistic grants, like patents, should be reserved only to circumstances in which the technology would not have been developed otherwise.¹³³ In this case, the pandemic represents a circumstance where an invention would be elicited absent the inducement of the patent reward. Therefore, the system of patent law would be right to exercise discretion.

One framework for understanding the policy goals of the obviousness analysis poses two theories to justify granting patent rights.¹³⁴ The first theory can be classified as cognitive in that it awards patent rights to only those inventions which demonstrate a worthy exercise of insight and creativity.¹³⁵ The second theory can be described as an economic approach

130. E.g., Robert I. Sutton, *Remote Work Is Here to Stay. Bosses Better Adjust*, WALL ST. J. (Aug. 2, 2020), <https://www.wsj.com/articles/remote-work-is-here-to-stay-bosses-better-adjust-11596395367> [<https://perma.cc/FKX2-JJJE>].

131. Victoria Gill, *Coronavirus: This is not the last pandemic*, BBC NEWS (Jun. 6, 2020), <https://www.bbc.com/news/science-environment-52775386> [<https://perma.cc/3HQ2-CPTL>].

132. *Graham v. John Deere Co.*, 383 U.S. 1, 9 (1966).

133. *Id.* at 11.

134. Pedraza-Fariña, *supra* note 16, at 96.

135. *Id.* at 70.

which asks if the patent incentive is required to induce innovation or whether market forces alone would have been sufficient to bring about the same social good.¹³⁶ While the current obviousness framework focuses more on the economic approach, the cognitive theory plays a conceptual role in an obviousness determination as well.¹³⁷

A. The Cognitive Approach

The cognitive justification for obviousness looks for an exceptional level of inventor insight or creativity in reaching the claimed technological advancement to surpass the obviousness bar to patentability.¹³⁸ This theory is alluded to in Supreme Court dicta stating that “the results of ordinary innovation are not the subject of exclusive rights under the patent laws. Were it otherwise patents might stifle, rather than promote, the progress of useful arts.”¹³⁹

At first glance it may seem that the pandemic has no impact on an inventor’s innate capacity at technical insight or creativity; therefore, it should not impact an inventor’s ability to attain a patent. This conclusion, however, is based on a subjective view of creativity tied to the individual inventor and is not supported by the law.¹⁴⁰ Such a subjective analysis is rightly quashed because a patent system charged with promoting societal advance in the useful arts must evaluate advancement using a societal gauge. As such, it makes sense that technical insight and creativity are considered in the obviousness framework through a more global and objective inquiry into the prior art and the PHOSITA. The prior art demonstrates the state of technology at the time of invention, a baseline from which the advancement is measured. The PHOSITA is the objective measuring stick by which the advancement is gauged.

As noted above, the interaction of disparate fields in response to the pandemic may result in a scenario where the influx of prior art has raised, or simply obscured, the baseline from which to measure advancement. Furthermore, industry mingling may result in a situation where the objective PHOSITA becomes less representative of the inventor contributing to the field. As a result, the pandemic inventor may have a more difficult time

136. *Id.* at 69.

137. *Id.* at 81-82, 84.

138. *Id.* at 70.

139. *KSR Intern. Co. v. Teleflex Inc.*, 550 U.S. 398, 427 (2007).

140. The *Graham* framework considers the objective PHOSITA rather than the inventor himself. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). Congress explicitly prohibited using the “manner in which the invention was made” to negate patentability. 35 U.S.C. § 103.

overcoming an obviousness assertion. If these conditions effectively raise the level of creativity and insight necessary to earn a patent, is it fair to the pandemic inventor?

One may argue that the way the obviousness framework approaches a turbulent field of prior art unfairly penalizes inventors during a time of massive disruption. The tidal wave of discourse related to the pandemic creates a situation where inventors may not be aware of the state of the art. It may seem unfair that a pre-pandemic and a pandemic inventor could both make advancements of equal creativity and insight, but the pandemic inventor would be punished due to an influx of prior art which they could not keep tabs on. But this argument does not hold up. Regardless of the inventor's knowledge it is a fundamental principle that "once an invention is in the public domain, it is no longer patentable by anyone."¹⁴¹ Pandemic or not, the system of patent law must not be used to retract technology from the public domain because that would stifle the advancement of the art.

One may argue that by using the objective PHOSITA standard to measure the advancement of the art, the obviousness analysis improperly discards the work of inventors operating outside their normal fields. This argument applies to scenarios in which, due to the pandemic, an outside inventor contributes to a field with an especially sophisticated PHOSITA. To patent an invention in such a field, the outside inventor must overcome a high bar set by the "inferences and creatives steps" of the more sophisticated PHOSITA.¹⁴² This inventor may be denied recognition and reward for their contribution just because the elite class of those ordinarily operating in the field could have thought of it. The fact that those in the field did not think of this hypothetical invention would seem to suggest that it was creative and not obvious; however, this argument is subject to the rebuttal that prior to the pandemic the problem just didn't exist.

In general, the policy of reserving the patent reward to inventions born of worthy creativity and insight seems to survive the potential impact that the pandemic has on the modern obviousness analysis. Despite the potential for the individual pandemic inventor to be disadvantaged, the level of creativity and insight must be viewed objectively and at a societal level.

141. *Blue Calypso, L.L.C. v. Groupon, Inc.*, 815 F.3d 1331, 1348 (Fed. Cir. 2016) (quoting *In re Hall*, 781 F.2d 897, 898 (Fed. Cir. 1986)).

142. *KSR*, 550 U.S. at 418.

B. The Economic Approach

The economic approach considers whether the patent incentive is required to induce innovation or whether market forces alone would have been sufficient to bring about the same social good.¹⁴³ This theory seeks to avoid the societal cost imposed by the exclusivity of patent rights on technologies which could have otherwise entered the public domain.¹⁴⁴ To this end, American patent law seeks “to develop some means of weeding out those inventions which would not be disclosed or devised but for the inducement of a patent.”¹⁴⁵

As discussed above, the pandemic may have generated a flood of prior art, and where the elements of an invention exist in the prior art, the pandemic provides ample reasons to combine them. This suggests that many pandemic inventions would have been devised and disclosed absent the inducement of the patent reward. Therefore the predicted result that a pandemic inventor is disadvantaged in attaining patent rights comports with the economic policy approach to obviousness.

While the reasons to combine that are considered in this analysis were limited to those widely accepted by courts, it should be noted that the pandemic may provide other inducement for innovation and disclosure. For example, in fields that are emerging or especially active as a result of the pandemic, inventors may be incentivized to disclose their technologies early in an effort to block competitors from attaining patent rights.¹⁴⁶ Additionally, faced with pandemic, some inventors may even find a moral imperative to share their technology to the benefit of humanity. It seems that in the context of a pandemic, the patent’s economic incentive may be less necessary for the progress in the useful arts.

CONCLUSION

This note merely speculates on the potential impact of COVID-19 on the obviousness analysis for pandemic inventions. In each step of the obviousness framework there exists a potential disadvantage facing the pandemic inventor. The field of prior art is not only inundated with pandemic media coverage but expanded as disparate fields interact. Where the pandemic causes industry players to intermingle, the PHOSITA becomes less

143. Pedraza-Fariña, *supra* note 16, at 69.

144. See Simon, *supra* note 52, at 368.

145. *Graham*, 383 U.S. at 11.

146. See Rebecca S. Eisenberg, *The Promise and Perils of Strategic Publication to Create Prior Art: A Response to Professor Parchomovsky*, 98 MICH. L. REV. 2358 (2000).

likely to resemble the inventor. The pandemic itself provides a solid set of reasons to combine which could support a prima facie case for obviousness. Finally, many of the last-ditch rebuttal arguments that have been recognized by courts to counter prima facie obviousness are undermined by the circumstances of the pandemic. As a result, it appears that pandemic inventors may have diminished access to patent rights when compared to their non-pandemic peers. Although it may seem unfair, this outcome is broadly supported by the policy of patent law which seeks to award patent rights only where necessary to induce exceptional creativity in advancing the useful arts.