

# Patents as Promoters of Competition: The Guild Origins of Patent Law in the Venetian Republic

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## I. INTRODUCTION

The standard view of patents is that—while they incentivize innovation—they tend to dampen competition.<sup>1</sup> Specifically, by providing their holders with the possibility of market power over patented products, patents often result in *supra*competitive pricing, shutting out consumers who otherwise

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1. See generally Mark A. Lemley, *Property, Intellectual Property, and Free Riding*, 83 TEX. L. REV. 1031, 1031, 1058–59 (2005).

would have purchased the patented products in a competitive market.<sup>2</sup> The “embarrassment” of these “monopolies” and their concomitant consumer deadweight losses is tolerated in exchange for compensating inventors for the risks and costs that they and their investors bear, which (in theory) promotes innovation and, hence, economic growth.<sup>3</sup>

Yet, the historical genesis of the patent system turns on quite a different economic story. A key assumption of today’s standard account is that, absent patent protection, products would generally be sold in a competitive market.<sup>4</sup> However, the first regularized patent system appeared during the Renaissance in the Venetian Republic, which was a highly regulated economy.<sup>5</sup> In the Venetian economy, many types of products—particularly, artisanal or technological products<sup>6</sup>—could typically be produced and sold only by artisan and merchant guilds. One important exception to the

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2. Supernormal profits may arise through either an increase in price or a decrease in the cost of producing the good or service. *See generally* WILLIAM M. LANDES & RICHARD A. POSNER, *THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW* 298 (2003); JOHN W. SCHLICHER, *PATENT LAW: LEGAL AND ECONOMIC PRINCIPLES* § 2.15 (2d ed. 2011).

3. Letter from Thomas Jefferson to Isaac McPherson (Aug. 13, 1813), *in* 6 *THE WRITINGS OF THOMAS JEFFERSON: BEING HIS AUTOBIOGRAPHY, CORRESPONDENCE, REPORTS, MESSAGES, ADDRESSES, AND OTHER WRITINGS, OFFICIAL AND PRIVATE* 175, 181 (H.A. Washington ed., 1854).

4. *See, e.g.*, Lemley, *supra* note 1, at 1059, 1072.

5. *See infra* Part III.

6. The concept and term *technology* as we use it today did not arise until after the Renaissance. *See Technology Definition*, OXFORD ENG. DICTIONARY, <http://www.oed.com> (last visited Oct. 4, 2012) (subscription required) (search “Quick Search” for “technology”; then follow “Go” hyperlink; then follow “Full entry” hyperlink) (showing that the modern senses of the term were not used until the seventeenth century and that when the term was used earlier it was only in the sense of a treatise on grammar). Further, even its common modern sense does not map onto all of the “mechanical arts” of the Renaissance, which often included some of what today we would call the “fine arts” such as painting, sculpture, and architecture. *See* Paul Oskar Kristeller, *The Modern System of the Arts: A Study in the History of Aesthetics (I)*, 12 *J. HIST. IDEAS* 496, 510–21 (1951) (arguing that the visual arts of painting, sculpture, and architecture were only just beginning to be separated out from the mechanical arts by commentators in sixteenth century Venice and beyond). By contrast, all of these activities were known by the general term *arts* up through the nineteenth century, even after the term *technology* had been introduced for narrow purposes. *See Art, n.1 Definition*, OXFORD ENG. DICTIONARY, <http://www.oed.com> (last visited Oct. 4, 2012) (subscription required) (search “Quick Search” for “art”; then follow “Go” hyperlink; then follow “art, n.1” hyperlink; then follow “Full entry” hyperlink); *see also* 1 JACOB BIGELOW, *THE USEFUL ARTS, CONSIDERED IN CONNEXION WITH THE APPLICATIONS OF SCIENCE* 13 (Harper & Brothers 1855) (1840) (using the terms *arts* and *useful arts* to designate what we today would refer to as *technology* or *technological arts*); JACOB BIGELOW, *ELEMENTS OF TECHNOLOGY*, at iv (2d ed. 1831) (attempting to introduce the term *technology* to cover the useful arts). Accordingly, we will use the term *arts* throughout to signify all of these artisanal and “technological” activities.

guilds' monopolies were "patents,"<sup>7</sup> which initially provided non-guild members—particularly foreigners—the privilege of being able to sell products and practice methods that were otherwise within the sole province of the guilds. Thus, the original patents were not negative rights to exclude, as today, but positive privileges or licenses to practice.

Soon, these positive privileges were accompanied by—at least in some instances—an express negative right to exclude.<sup>8</sup> We speculate that this development was because of one or both of two reasons. First, the economic power of the guilds may have allowed them to de facto exclude the non-guild artisans despite the latter's license or privilege.<sup>9</sup> Accordingly, the naked privilege or license to make and sell artisanal products was not enough to empower the non-guild artisan to establish a fair beachhead in the relevant market. Second, a bare license—without exclusionary rights—allowed the guilds to appropriate without compensation any inventive technologies introduced by an outsider artisan. If the artisan's products exposed the underlying invention, a mere license to compete with the guilds might not have been, at least in many instances, terribly valuable.

Thus, over time, the exclusionary right became standard in the patent grant. Yet, the positive privilege to practice—at least in those product areas occupied by the guilds—never ceased to accompany the exclusionary right. This was because, without such a positive right in a heavily regulated economy such as that of Renaissance Venice, it would be illegal for the artisan to make and sell the products. Unlike today's patent systems—which solely encompass negative rights to exclude against the backdrop of a generally free market—the Venetian patent system provided a dual right, part of which allowed the patent holder to compete in an otherwise regulated system dominated by the guilds.

Directly contrary to the view that patents tend to diminish competition, patents in the Venetian Republic arguably enabled a new kind of

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7. Here we do not necessarily mean modern utility patents, but the early versions of *litterae patente* that were "open letters" of the sovereign providing certain rights or privileges to the recipient. *See, e.g.*, CHRISTINE MACLEOD, *INVENTING THE INDUSTRIAL REVOLUTION: THE ENGLISH PATENT SYSTEM, 1660–1800*, at 10 (1988) (quoting 2 WILLIAM BLACKSTONE, *COMMENTARIES* \*346).

8. *See infra* text accompanying notes 28–46.

9. For example, the guilds could have pressured customers not to buy from the non-guild artisans, similar to anticompetitive business tactics of today. *See, e.g.*, *United States v. Microsoft Corp.*, 253 F.3d 34, 58–64 (D.C. Cir. 2001) (finding that Microsoft's restrictions in its Original Equipment Manufacturer (OEM) licenses unfairly limited third-party web browser firms such as Netscape from accessing the OEM personal computer market).

competition from outside of the guild system. This insight is important for two reasons. First, it is critical to understanding the historical genesis of the patent system, as well as the changes it underwent as it migrated from the Venetian Republic to the very different economic systems in other European countries, such as the Netherlands, France, and England, and later the United States. For instance, the insight may help explain how the “novelty” and “ingenuity” requirements for patenting in Venice were more vigorous in practice than the significantly relaxed “substantial novelty” requirement in the English system.<sup>10</sup> While the British system developed from the need to bring in existing arts and artisans from the Continent to train British apprentices, the Venetian system developed in what was then the leading artisanal capital of Renaissance Europe. Therefore, in the Venetian system, the guilds actively policed patent applications, and the patent authorities worked in concert with the guilds to reject those applications for putative inventions that were already known to guild members and, apparently, for those inventions that could easily be made by a guild artisan based on existing art. In England, however, little to no such pressure existed, resulting perhaps in a system with fewer hurdles in practice to patentability.

Second, although patents today nominally provide negative rights to exclude, in effect, they often provide effective positive privileges to practice. Specifically, the “defensive” attributes of patents can prevent lawsuits from other patent holders, providing a de facto “freedom to operate” where none exists de jure.<sup>11</sup> Relatedly, startups and small companies can sometimes leverage the “offensive” attributes of patents to enter markets otherwise dominated by incumbents.<sup>12</sup> Indeed, in some industries, the incumbents—taken as a group—act as guilds of sorts, dominating production and sales.<sup>13</sup> To an extent, patents may allow outsiders to break the grip of these modern-day guilds by offering what Judge Jerome Frank has termed a “slingshot” for the small company “David” against the big company “Goliath.”<sup>14</sup> In this sense, the challenge

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10. See *infra* note 60 and accompanying text.

11. See Stuart J.H. Graham & Ted Sichelman, *Why Do Start-Ups Patent?*, 23 BERKELEY TECH. L.J. 1063, 1065 (2008).

12. See *id.*

13. Cf. Robert P. Merges, *From Medieval Guilds to Open Source Software: Informal Norms, Appropriability Institutions, and Innovation* (Nov. 13, 2004) (unpublished manuscript) (on file with authors) (suggesting that certain features of medieval and Renaissance guilds appear in patent pools and standard-setting organizations).

14. *Picard v. United Aircraft Corp.*, 128 F.2d 632, 643 (2d Cir. 1942) (Frank, J., concurring) (“The threat from patent monopolies in the hands of such ‘outsiders’ may create a sort of competition—a David versus Goliath competition—which reduces the inertia of some huge industrial aggregations that might otherwise be sluggish.”); see also Colleen V. Chien, *Of Trolls, Davids, Goliaths, and Kings: Narratives and Evidence in the*

to the traditional view of patents-as-competition-dampeners is not only pertinent to historical accounts but also to the functioning—and our understanding—of the patent system today.

Part II of this Article describes the artisan and merchant guild systems of the Venetian Republic. Part III explores the emergence of the patent system as a means for foreigners and Venetian citizens to compete with the guilds, as well as the eventual addition of negative exclusive rights to the basic license form of positive patent privileges. In so doing, contrary to the speculation of some scholars, we reject with near certainty the contention that the first patent law statute granting exclusionary rights for—in modern parlance—technological inventions was a silk-specific directive enacted by the Venetian Grand Council in the late fourteenth or early fifteenth century. Rather, the first record of a patent grant with exclusionary rights for such inventions is one by the Venetian Senate in 1416, and the first patent law statute was the Venetian Patent Act of 1474 (the 1474 Act).<sup>15</sup> Part IV then considers the ramifications of patenting against the backdrop of a regulated economy. First, it explains how the evolution of patent laws in the West likely depended on the migration of the patent system from the highly regulated economy of Venice to less regulated economies in Europe. Second, it provides some reflections and lessons for the role of patents in today’s economy, showing that—like in the days of the Venetian Republic—patents can still function to promote competition.

## II. THE ARTISAN GUILDS OF THE VENETIAN REPUBLIC

In 1173, the Venetian Republic passed legislation to formalize the relations between the State and the informal trade associations of specialist artisans and merchants.<sup>16</sup> After 1173, the government officially policed the activities of the now-formalized guilds.<sup>17</sup> Although many types of guilds emerged in the twelfth and thirteenth centuries, of import here were the *arti*—working guilds whose province was roughly the “useful arts,” as

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*Litigation of High-Tech Patents*, 87 N.C. L. REV. 1571, 1577, 1585–87 (2009); Stephen H. Haber et al., *On the Importance to Economic Success of Property Rights in Finance and Innovation*, 26 WASH. U. J.L. & POL’Y 215, 222 (2008) (“[P]atents are powerful antimonopoly weapons—the vital slingshots ‘Davids’ use to take on ‘Goliaths.’”).

15. See *infra* text accompanying notes 45–50.

16. RICHARD J. GOY, *VENETIAN VERNACULAR ARCHITECTURE: TRADITIONAL HOUSING IN THE VENETIAN LAGOON* 91 (1989).

17. See *id.*

that term was used many centuries later in the United States.<sup>18</sup> Those *arti* focused on a particular craft such as shipbuilding, glassmaking, and woolworking grew fairly rapidly in the first half of the thirteenth century and, pursuant to a statute enacted in 1261, became subject to even closer state regulation.<sup>19</sup> Under this 1261 statute, guilds codified their internal rules and, once approved by the State, these rules became legally binding “statutes” regulating the guilds.<sup>20</sup> Typically, these statutes maintained guild knowledge as trade secrets, often with severe punishment for violations.<sup>21</sup>

Of particular importance, the *arti* were granted exclusive rights by the State to practice the “mechanical trades.”<sup>22</sup> Thus, ordinary citizens could not, for instance, practice woolworking, glassmaking, or shipbuilding without the blessing of one of the appropriate guilds.<sup>23</sup> In effect, any inventions created by guild members or anybody outside the guilds were subject to the effective monopoly rights of the guilds, such that the guilds enjoyed the exclusive ability to practice these inventions in their relevant artisanal domains.<sup>24</sup> These monopoly rights were supplemented by the trade secrecy regimes enforced by the guilds and sanctioned by the State. Hence, these practices effectively obviated the need for separate patents providing exclusionary rights to the guilds.

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18. *See id.* at 91–92. The main difference is that what we would separate out today as the visual arts components of the fine arts—painting, sculpture, and architecture—were generally included in these useful or mechanical arts. *See supra* note 6; *see also* GOY, *supra* note 16, at 99 (discussing the various lesser *arti* and elaborating that “the guild of painters embraced every type of painting from the simple decoration of wall surfaces to the great fresco works of Tiepolo and the canvases of Titian and Tintoretto”).

19. *See* GOY, *supra* note 16, at 91–92.

20. *See id.* at 92.

21. *See* PAMELA O. LONG, OPENNESS, SECRECY, AUTHORSHIP: TECHNICAL ARTS AND THE CULTURE OF KNOWLEDGE FROM ANTIQUITY TO THE RENAISSANCE 88–92 (2001) [hereinafter LONG, OPENNESS]; Pamela O. Long, *Invention, Authorship, “Intellectual Property,” and the Origin of Patents: Notes Toward a Conceptual History*, 32 TECH. & CULTURE 846, 873 (1991) [hereinafter Long, *Conceptual History*]; Francesca Trivellato, *Guilds, Technology, and Economic Change in Early Modern Venice*, in GUILDS, INNOVATION, AND THE EUROPEAN ECONOMY, 1400–1800, at 199, 223 (S.R. Epstein & Maarten Prak eds., 2008).

22. GOY, *supra* note 16, at 93–94. These trades were also more commonly known as the mechanical arts in the Renaissance. *See supra* note 6. The term *trade* can be confusing in that it was historically used for both commercial trading—or merchant—activities as well as skilled artisanal crafts. *See Trade, n. Definition*, OXFORD ENG. DICTIONARY, <http://www.oed.com> (last visited Oct. 4, 2012) (subscription required) (search “Quick Search” for “trade”; then follow “Go” hyperlink; then follow “trade, n.” hyperlink; then follow “Full entry” hyperlink). Here Goy uses *trade* in the latter sense.

23. *See* GOY, *supra* note 16, at 94.

24. Often, multiple guilds would share exclusive rights to make and sell particular crafts. *See* Trivellato, *supra* note 21, at 221–22. Thus, at least early on, the guild system functioned as an oligopoly rather than a monopoly. *Id.* at 224–25. Over the years, overlapping guilds often merged into true monopolist guilds. *See id.* at 218.

This meant that anybody outside the guilds who innovated needed approval by the appropriate guild to practice and sell their inventions. Foreign nationals were particularly burdened by this result because they were generally forbidden from becoming members of the guilds, at least without extended residence in the Republic.<sup>25</sup> However, at least in some guilds, if a foreigner was qualified to practice an art in another region, he could apply to the guild for approval to work his craft in the Republic, so long as he paid an appropriate registration fee.<sup>26</sup> It is unclear from the available records if this practice was the case in all the guilds—particularly after the early fourteenth century, during which time the Republic became “increasingly hostile” to foreigners.<sup>27</sup> Regardless of foreigners’ ability to gain entry into the relevant guild to practice their art, presumably at least some foreigners wanted to forgo the restrictions placed upon them by the guilds. As the next Part of the Article describes, the need of the Republic to recruit foreign artisans, coupled with their inability—or, at least, reluctance—to comply with guild rules, provided the impetus for the genesis of the patent system.

### III. THE EMERGENCE OF PATENT PRIVILEGES AGAINST THE BACKDROP OF THE GUILDS

Partly responsible for the supervision of the guilds was the Provveditori di Comun (Commissioners of the Commune), particularly for the wool and silk industries and a number of lesser guilds.<sup>28</sup> The Provveditori di Comun was also partly in charge of the naturalization of foreigners.<sup>29</sup> Apparently in need of foreign artisans and their technology—and effectively

25. *See id.* at 222 (“Patents were also instruments to bypass guild monopolies. Barred from Venetian guilds, foreigners—including artisans and entrepreneurs from other Italian states as well as Germans, French, Dutch, and English—often used them with this goal in mind.”); *see also* STANLEY BOORMAN, OTTAVIANO PETRUCCI: CATALOGUE RAISONNE 28 (2006); GOY, *supra* note 16, at 97.

26. *See* GOY, *supra* note 16, at 97. In some cases, foreigners were allowed a grace period—for example, eight days—in which they could work in Venice without guild approval. *See id.* at 99.

27. Gerhard Rösch, *The Serrata of the Great Council and Venetian Society, 1286–1323*, in *VENICE RECONSIDERED: THE HISTORY AND CIVILIZATION OF AN ITALIAN CITY-STATE, 1297–1797*, at 67, 82 (John Martin & Dennis Romano eds., 2000).

28. SATYA DATTA, *WOMEN AND MEN IN EARLY MODERN VENICE: REASSESSING HISTORY* 45 (2003). The main supervisory power over all the guilds lay with the Giustizia Vecchia. *See* GOY, *supra* note 16, at 91–92; Long, *Conceptual History*, *supra* note 21, at 871.

29. *See* E. NATALIE ROTHMAN, *BROKERING EMPIRE: TRANS-IMPERIAL SUBJECTS BETWEEN VENICE AND ISTANBUL* 43 n.46 (2012).

contravening the monopoly rights of the guilds—the Grand Council (likely in concert with the *Provveditori di Comun*) granted licenses for building various kinds of mills and dredging machines to individuals outside of the guilds, typically foreigners, starting in the early thirteenth century and continuing through the fifteenth century.<sup>30</sup> Of course, such a license would only allow the licensee to compete alongside the guilds, but would not prevent the guilds from appropriating the licensee’s invention, if feasible.<sup>31</sup>

Presumably, foreigners complained of such appropriation of their inventions by the guilds and petitioned the government for not only a positive privilege to compete with the guilds, but also for *exclusionary rights* over any inventions they might bring to the Republic. According to some scholars, the earliest documentary evidence of a law granting such exclusionary rights is a silk-specific directive from the late fourteenth or early fifteenth century that was supposedly issued by the Grand Council:

If somebody invents any machine or process to speed up silk-making or to improve it, and if the idea is actually useful, the inventor can obtain an exclusive privilege from [the *Provveditori di Comun*].<sup>32</sup>

The original source of this putative directive is from Carlo Antonio Marin’s 1800 treatise on the commercial history of the Venetian Republic. Unfortunately, Marin does not quote the original language of this apparent directive and fails to cite to the original document evidencing as much in the Venetian Archives.<sup>33</sup> Frank Prager and others have relied on the

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30. See Long, *Conceptual History*, *supra* note 21, at 877; Frank D. Prager, *A History of Intellectual Property from 1545 to 1787*, 26 J. PAT. OFF. SOC’Y 711, 713–14 (1944). Another example of such a license is from 1297, when the Grand Council passed a law allowing non-guild physicians to make their own medicines in secret and sell them through licensed shops without interference from the guilds. See Long, *Conceptual History*, *supra* note 21, at 876. This law seems to have been directed at local physicians because it does not mention foreigners, as does the later 1474 Act, and hence does not seem to have been directed at luring foreigners.

31. As Frank Prager aptly notes:

Whoever proposed a new technology needed, in the first place, a specially created power or license to infringe existing guild monopolies by making, selling or using the new invention. Such specially created rights were called privileges. They were not, originally, exclusive rights. They were granted and revoked by the state, depending on what was deemed to be useful.

Prager, *supra* note 30, at 714.

32. F.D. Prager, *The Early Growth and Influence of Intellectual Property*, 34 J. PAT. OFF. SOC’Y 106, 130–32 (1952) (citing 5 CARLO ANTONIO MARIN, *STORIA CIVILE E POLITICA DEL COMMERCIO DE’ VENEZIANI* 158, 256 (1800)).

33. MARIN, *supra* note 32, at 258 (“*C. inventasse qualche macchina od artificio per agevolare o perfezionare i lavori di seta: provata ehe sia con l’effetto la promessa utilità dell’ uno o dell’altro; possa l’inventore ottenere privilegio esclusivo per anni 10 accordatogli per li Provveditori di Comun.*”). Giulio Mandich remarks that he searched for the directive in the Archives but could not find it. Giulio Mandich, *Venetian Origins of Inventor’s Rights*, 42 J. PAT. OFF. SOC’Y 378, 378–79 (1960).

language of the Marin treatise, along with other evidence showing that the bulk of Venetian silk regulations were enacted between 1390 and 1410,<sup>34</sup> as support for the view that Marin was paraphrasing a silk-specific patent law directive from the late fourteenth or early fifteenth century, nearly 100 years before the passage of the Venetian Patent Act of 1474.<sup>35</sup>

Based on our extensive research at the Venetian State Archives, we can now say with near certainty that Marin was referring to the 1474 Act, and that no such silk-specific patent law directive was ever issued. Several reasons support such a view. First, before the relevant section containing the passage cited by Prager and others, Marin explicitly states that he is describing silk-related laws and directives of the Senate, Major Council, and other governmental departments found in the Capitolare records of the Provveditori di Comun, and not the records of the Senate or Grand Council per se.<sup>36</sup> Indeed, upon our review of the entire Capitolare, all of the *nonpatent* laws and directives Marin described in the relevant section of his treatise can be found in those records.

The only patent-related directive in the Capitolare is the 1474 Act, passed by the Senate.<sup>37</sup> We believe that Marin mistakenly attributed this Act to the Grand Council instead of the Senate, because adjacent laws and directives in the Capitolare were passed by the Grand Council, and the relevant citation in the Capitolare does not clearly indicate that the law was passed by the Senate.<sup>38</sup> Moreover, some of the language in the 1474 Act itself could be read out of context to indicate that it was passed by the Grand Council.<sup>39</sup> As for the silk-specific nature of Marin's description, it seems reasonable to believe that Marin was simply noting in the silk-specific section of his treatise that, in the context of silk production, inventions in that field could be protected by patents. In other words, Marin did not mean to imply that the Act described in the Capitolare was limited to silk inventions. Much of the particular language Marin used

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34. See Prager, *supra* note 32, at 131 n.34 (citing 1 VETTOR SANDI, PRINCIPJ DI STORIA CIVILE DELLA REPUBBLICA DI VENEZIA 754 (1772)).

35. See *id.* at 131–32.

36. MARIN, *supra* note 32, at 256–58.

37. Archivio Stato di Venezia [ASV], Provveditori di Comun, Capitolare (1272–1600), b.1, c.89r-v.

38. See *id.* at c.87r-90v.

39. See *id.* at c.89r-v (“Andara parte che p[er] auctorita de questo *Cons[elo]* . . .”) (emphasis added). In English, the relevant clause reads: “Be it enacted that, by the authority of this *Council* . . .” Giulio Mandich, *Venetian Patents (1450–1550)*, 30 J. PAT. OFF. SOC’Y 166, 177 (1948) (emphasis added).

(for example, “*artificio*,” “*perfezionare*,” “*utilità*”) can be found directly in the 1474 Act, and he specifically mentions that the patents are granted by the Provveditori di Comun for a period of ten years.<sup>40</sup> Second, although the Provveditori di Comun did issue patents without Senatorial approval, the only examples of such rely on the authority of the 1474 Act. In this regard, we agree with the findings of Luca Molà that the Provveditori di Comun could issue ten-year patents under the 1474 Act, but patents of longer term needed Senatorial approval.<sup>41</sup> However, there is no indication in the record that the Provveditori di Comun had authority prior to the 1474 Act to issue patents on its own accord.<sup>42</sup> Although many documents relating to the Provveditori di Comun have been destroyed, all of the legislative acts relating to that governmental department—which was founded in the early fourteenth century—are extant.<sup>43</sup> In a careful review of these documents, we found no law enacted by the Grand Council or the Senate prior to 1474 formally providing the Provveditori di Comun any patent-granting authority for silk-related inventions or otherwise.<sup>44</sup>

In sum, we believe there is very strong evidence to rebut Prager’s and others’ interpretations of Marin’s treatise that the first exclusionary patent rights for what we would today label “technological” inventions appeared in a directive limited to silk inventions passed in the late fourteenth or early fifteenth century. Rather, the first evidence of such exclusionary rights appears in 1416, when Ser Franciscus Petri, from Rhodes, was granted a patent by the Grand Council of Venice<sup>45</sup> for his device for fulling wool (that is, turning it into felt).<sup>46</sup> Notably, Petri was a foreigner and there is no evidence that he himself was the inventor of the device.<sup>47</sup> But he was awarded the patent because the pestles on his device “full thus perfectly, better than the fullers existing in the waters surrounding’

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40. MARIN, *supra* note 32, at 258.

41. LUCA MOLÀ, *SILK INDUSTRY OF RENAISSANCE VENICE* 188 (2000).

42. Specifically, we reviewed all of the ten-year patents issued directly by the Provveditori di Comun—except one we could not locate—examined by Molà. *See id.* at app. B.

43. *See* Provveditori di Comun, *supra* note 37.

44. *See id.*

45. LONG, OPENNESS, *supra* note 21, at 94.

46. ASV, Maggior Consiglio, Deliberazioni, Feb. 20, 1415, r.22, c.7, sub 20; *see also* Long, *Conceptual History*, *supra* note 21, at 877; Mandich, *supra* note 33, at 379 n.6. The patent term was fifty years. *See* Long, *Conceptual History*, *supra* note 21, at 877. In this regard, note that the Venetian year began on March 1; therefore, February 20, 1415, would have been February 20, 1416, under our calendar system. *See* MARINO SANUDO, *VENICE, CITÀ EXCELENTISSIMA: SELECTIONS FROM THE RENAISSANCE DIARIES OF MARIN SANUDO*, at xxii (Patricia H. Labalme & Laura Sanguineti White eds., Linda L. Carroll trans., 2008).

47. *See* LONG, OPENNESS, *supra* note 21, at 94.

the Rialto.”<sup>48</sup> Petri’s possession of the device and the know-how to make and use it appears to have been sufficient impetus for the Grand Council to issue him the patent.<sup>49</sup>

Perhaps exclusionary patent grants were issued on a “customary” (that is, a non-statutory) basis without participation by the Senate in the early fifteenth or even late fourteenth century. Unfortunately, it appears that all of the early records regarding Venetian patents, other than those granted by the Grand Council and the Senate, have been lost or destroyed, so it is likely impossible to confirm or deny such a proposition.<sup>50</sup> Of course, this lacuna leaves an evidentiary gap of potentially monumental proportion, and it is not until 1444 that the next patent appears in the extant record.<sup>51</sup> Several more grants are in the available record through the adoption of the 1474 Act, in which, *inter alia*, the Provveditori di Comun was given authority by the Senate to grant patents for novelty, ingenuity, and utility in apparently all artisanal fields.<sup>52</sup>

Despite the prominent gaps in the record, it is sufficient to draw several important inferences, albeit ones that are somewhat speculative in nature. Specifically, the earliest patent laws were positive privileges that allowed foreigners to practice their crafts with immunity from guild monopolies. These laws were adopted by the Grand Council and implemented by the Provveditori di Comun, apparently in response to the problems foreigners experienced in delivering innovative new products in the face of guild prerogatives—particularly, foreigners’ difficulties in obtaining the imprimatur of the guilds to practice their crafts in the Republic. Eventually,

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48. *Id.* (quoting translation in Mandich, *supra* note 33, at 379 n.6 with minor changes).

49. *Id.*

50. See ASV, Index 87, Provveditori di Comun, at 2 (showing that the first “*Atti*,” which contain the examination records, begin in 1518, and the first “*Scritture*,” which also contain examination records, begin in 1562); Interview with Michela del Borgo, Former Dir., Archivio Stato di Venezia, in Venice, It. (June 2011) (noting that many of the patent records were destroyed when the French occupied Venice starting in 1796). Moreover, all of the loose files (*filza*) of the Provveditori di Comun, which contained numerous patent-related records, are no longer extant. See ASV, Index 87, Provveditori di Comun.

51. Mandich, *supra* note 33, at 379.

52. See Ted Sichelman & Toni Veneri, A Proper Interpretation of the Venetian Patent Act of 1474 (2012) (unpublished manuscript) (on file with authors); cf. Long, *Conceptual History*, *supra* note 21, at 878; Mandich, *supra* note 39, at 177. In practice, following the 1474 Act, the Senate retained granting authority for all “customary law” patents—typically, those with terms longer than ten years—and the Provveditori di Comun had the authority to grant “statutory law” patents for terms of ten years. See Sichelman & Veneri, *supra*.

patents were coupled with exclusionary rights when foreigners—and, eventually, domestic subjects—presented sufficiently useful inventions to the governmental authorities.<sup>53</sup> The first documentary evidence of this process is the patent grant to Petri in 1416.<sup>54</sup> There is no documentary evidence that the Grand Council ever passed a patent statute limited to silk in the late fourteenth or early fifteenth century. Rather, the first evidence of any general patent statute—namely, one covering more than a single patent grant—is the 1474 Act, when the Senate formally conferred authority on the Provveditori di Comun to grant patents for a term of ten years, but retained its customary pre-1474 power to grant patents of longer duration.

#### IV. RECONCEIVING THE HISTORY AND FUNCTION OF PATENTS

These findings have important ramifications for our understanding of the historical underpinnings of patent law, as well as our theoretical understanding of the role of patents. First, the earliest patent laws were very likely a reaction by the Venetian government—apparently the Provveditori di Comun and Grand Council—to the inability or reluctance of foreigners to come to terms with the working guilds. By providing positive privileges for foreigners—and, later, domestic artisans—to work alongside the guilds, patents actively promoted competition. Moreover, by coupling these privileges with negative exclusionary rights, the patent system provided for a government-administered, case-by-case means for promoting innovation, which stood in substantial contrast to the guild-dominated, trade-secret-oriented system that provided exclusive privileges over entire artisanal fields. Furthermore, unlike trade secrets of indefinite duration—and although the Venetian system did not explicitly provide for disclosure of patented inventions through publication—it was understood that the working of an invention in the Republic would very likely teach other artisans how to practice it, often in the form of apprentices who worked for the inventing artisan and then carried the invention forward in their own work.<sup>55</sup> This system would effectively enable others to use the invention at the end of the patent term.

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53. See Mandich, *supra* note 33, at 378–81 (indicating that the first Venetian patent awarded to a domestic inventor was in 1470); Mandich, *supra* note 39, at 172–75. By the end of the fifteenth century, the vast majority of patents were being granted to Venetians. See *infra* note 62 and accompanying text.

54. See *supra* notes 45–49 and accompanying text.

55. See LONG, OPENNESS, *supra* note 21, at 93; Carlo Marco Belfanti, *Guilds, Patents, and the Circulation of Technical Knowledge: Northern Italy During the Early Modern Age*, 45 *TECH. & CULTURE* 569, 578 (2004) (arguing that patents worked in tandem with the secrecy of the guilds, in that the former were issued to introduce arts or devices unknown to the local guilds with the expectation that the art or device would then be assimilated into the local guilds).

The adoption of the patent system in Venice allowed in many senses for the “democratization” of invention, diminishing the power of the guilds and increasing the power of independent inventors.<sup>56</sup> Historians have debated the precise stance and relationship of the guilds to the patent system, but it remains clear that the guilds did help police the granting of the patents.<sup>57</sup> For example, Luca Molà recounts in detail how the guilds—at least in some cases—opined on the novelty of pending applications, as well as two episodes in which the guilds vigorously sought to revoke already issued patents, apparently on lack of novelty grounds.<sup>58</sup> One of us has opined elsewhere that the rise of the patent system in Venice was in part a means for the State to reduce the power of the guilds—in particular, by essentially bribing or inciting individual guild members to disclose their inventions in exchange for these valuable new patent rights that could be enforced through state powers.<sup>59</sup>

Taking into account at least some guild opposition to patents potentially elucidates the genesis and evolution of patent doctrine as it migrated from the Venetian Republic to the very different economic systems of other European countries, including England, and later to the United States. Although we are still undertaking further review of the substantive requirements for patenting in the Venetian Republic, the strong guild presence there may help to explain why the Venetian requirements of novelty and ingenuity had more bite than the oft-termed “substantial novelty” requirement in England.<sup>60</sup> Specifically, it appears the Venetian guilds could be relied upon to innovate as “ordinary artisans,” so to speak, whereas in England such ordinary innovation was not so commonplace. Thus, it is not surprising that the Venetian guilds appeared to actively

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56. Cf. B. ZORINA KHAN, *THE DEMOCRATIZATION OF INVENTION: PATENTS AND COPYRIGHTS IN AMERICAN ECONOMIC DEVELOPMENT, 1790–1920* (2005) (describing how the nineteenth century American patent system enlarged the set of inventors who could obtain legal rights to their inventions).

57. Cf. Long, *Conceptual History*, *supra* note 21, at 881 (“Early Venetian patents often awarded monopolies to outsiders in ways that cannot have been favorable to native guildsmen.” (footnote omitted)).

58. MOLÀ, *supra* note 41, at 199–201 (“The Provveditori di Comun, as they frequently did, asked guild authorities for their opinion on the matter.”).

59. Sean M. O’Connor, *The Central Role of Law as a Meta Method in Creativity and Entrepreneurship*, in *CREATIVITY, LAW AND ENTREPRENEURSHIP* 87, 101–03 (Shubha Ghosh & Robin Paul Mallory eds., 2011).

60. See John F. Duffy, *Inventing Invention: A Case Study of Legal Innovation*, 86 *TEX. L. REV.* 1, 18, 23–32 (2007) (discussing the genesis of the substantial novelty doctrine in English patent law).

oppose patent applications for putative inventions not only known to them but also those that they would have invented in the ordinary course.

In England, however, patents operated without the omnipresent background of monopolist artisan guilds, which possessed and sustained artisanal knowledge, at least by the time a true patent system began to take hold there in the mid- to late seventeenth century.<sup>61</sup> The focus of the English patent system was primarily on the importation of artisanal practices and their related goods that were well-established on the Continent, whereas Venetian patents—at least by the early sixteenth century—were primarily awarded to domestic inventors for truly novel and ingenious arts or machines.<sup>62</sup> As early as 1331, the English Crown granted patents to the first importers of artisanal practices and goods not available in England.<sup>63</sup> The Crown eventually granted patents to importers of inventions made abroad.<sup>64</sup> Such a practice was not very different from the Venetian system, which examined novelty against the available—or potentially available—“prior art” solely in the Republic.

Over time, however, the English system became corrupted through the grant of patents by the Crown to court favorites for ordinary goods already available in England, resulting in Parliament’s passage of the Statute of Monopolies in 1623. The statute banned all monopoly grants except for those to the “true and first inventor” of “new manufactures within this realm.”<sup>65</sup> Although the Statute of Monopolies sustained the privileges of the English guilds—and in many ways entrenched their power, especially for the merchant guilds<sup>66</sup>—it diminished the ability of the Crown to grant

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61. See MARIA BROUWER, GOVERNANCE AND INNOVATION: A HISTORICAL VIEW 35–36 (2008). Although the Crown had issued patents for invention well before the Statute of Monopolies, the numbers are relatively few, and the English patent system did not take hold until the mid-seventeenth century, around the time when the craft guilds began to substantially decline in force. See generally MACLEOD, *supra* note 7. To be certain, there are some scattered examples of guild opposition in England to patents in the seventeenth century, but it appears this seemingly low level of opposition generally ceased by the eighteenth century. See E. Wyndham Hulme, *Privy Council Law and Practice of Letters Patent for Inventions from the Restoration to 1794* (pts. 1–2), 33 LAW Q. REV. 63, 180 (1917).

62. See ROBERTO BERVEGLIERI, INVENTORI STRANIERI A VENEZIA (1474–1788): IMPORTAZIONE DI TECNOLOGIA E CIRCOLAZIONE DI TECNICI ARTIGIANI INVENTORI: REPERTORIO 22 (1995) (showing that most patents were granted to Venetians from 1474 onward).

63. See P.J. Federico, *Origin and Early History of Patents*, 11 J. PAT. OFF. SOC’Y 292, 293 (1929).

64. See *id.*

65. THOMAS G. FESSENDEN, AN ESSAY ON THE LAW OF PATENTS FOR NEW INVENTIONS 218 (1810) (quoting *Hornblower v. Boulton*, (1799) 101 Eng. Rep. 1285, 1288 (K.B.)) (internal quotation marks omitted), available at <http://books.google.com/books?id=aT8sAQAAMAAJ>.

66. See generally Thomas B. Nachbar, *Monopoly, Mercantilism, and the Politics of Regulation*, 91 VA. L. REV. 1313, 1354 (2005). Part of our speculation depends upon the difference between the artisan guilds and the merchant guilds. Although the merchant

naked monopolies, and the rise of “economic liberalism” continued to weaken the remaining monopoly rights enjoyed by the guilds.<sup>67</sup> Unlike in Venice, as the patent system in England came to the fore in the late seventeenth and eighteenth centuries, there was no widespread artisan guild system that produced ordinary domestic innovations and could police the grant of patents.<sup>68</sup> Coupled with the historical practice in England of focusing patent grants on the importation of established artisanal practices and their resultant manufactures from the Continent,<sup>69</sup> the less vigorous substantial novelty requirement in England becomes comprehensible.

Second, the use of patents as positive privileges to allow independent inventors to compete with entrenched interests is not unique to the Venetian Republic. Although patents today nominally provide mere negative rights to exclude, in practice, they often provide effective positive privileges to practice via “defensive” properties. In some industries, the incumbents—taken together—act as quasi-guilds, dominating production and sales through the cross-licensing of patents as well as more explicit knowledge-sharing.<sup>70</sup> To a certain extent, the “offensive” attributes of patents may allow startups and other potential entrants to break the grip of these modern-day guilds by offering what has been called a “slingshot” for the small

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guilds enjoyed more staying power after the Statute of Monopolies, these merchants presumably did not have the requisite artisanal knowledge to police the granting of patents. To be certain, the power of both the merchant and artisan guilds declined into the late seventeenth and eighteenth centuries, the very time that the English patent system was on the rise. See STELLA KRAMER, *THE ENGLISH CRAFT GILDS AND THE GOVERNMENT: AN EXAMINATION OF THE ACCEPTED THEORY REGARDING THE DECAY OF THE ENGLISH CRAFT GILDS* 139–47 (1905).

67. WILLIAM LETWIN, *LAW AND ECONOMIC POLICY IN AMERICA: THE EVOLUTION OF THE SHERMAN ANTITRUST ACT* 32 (1965).

68. See FREDERIC AUSTIN OGG, *ECONOMIC DEVELOPMENT OF MODERN EUROPE* 55–56 (rev. ed. 1926); see also 2 WILLIAM ASHLEY, *AN INTRODUCTION TO ENGLISH ECONOMIC HISTORY AND THEORY* 66–189 (4th ed. 1906), available at <http://socserv.mcmaster.ca/econ/ugcm/3ll3/ashley/History2.pdf>; ENGLISH GILDS, at clxi–clxiv (Toulmin Smith ed., 1870); KRAMER, *supra* note 66, at 139–47. Another problem was that the English system, during the period in question, had no effective examination of patent applications; thus, any policing would have come at the litigation stage, presenting even greater barriers to guild intervention. See Duffy, *supra* note 60, at 30.

69. Cf. Duffy, *supra* note 60, at 27–28 (explaining the loss of the Venetian ingenuity requirement “as collateral damage from the decades of abusive monopolies by the Crown”).

70. Cf. Merges, *supra* note 13 (contending that patent pools and guilds exhibit common features).

company “David” against the big company “Goliath.”<sup>71</sup> In this sense, our challenge to the traditional view of patents-as-competition-dampeners is not only pertinent to historical accounts but also to the functioning and roles of the patent system today.

## V. CONCLUSION

The traditional view of patents focuses on the trade-off between competition and innovation incentives. Yet, at their origin in the Venetian Republic, patents functioned very differently. In particular, they fostered competition—first by foreigners and soon thereafter by Venetian citizens—with the entrenched guilds that otherwise were entitled to state-sanctioned monopolies. Understanding the competition-promoting role of patents not only has profound implications for historical accounts but also for our modern-day views of patents.

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71. *See supra* note 14 and accompanying text.