

# Disclosing Designs

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|                                                                                             |      |
|---------------------------------------------------------------------------------------------|------|
| INTRODUCTION.....                                                                           | 1632 |
| I. VERBAL TO VISUAL: DESIGN PATENT DISCLOSURES<br>IN EARLY DESIGN PATENT PRACTICE .....     | 1634 |
| A. <i>The Evolving Role of the<br/>        Design Patent Specification</i> .....            | 1635 |
| B. <i>Plural Claiming and the Shift<br/>        to the Pro Forma Claim</i> .....            | 1644 |
| C. <i>Towards Visual Disclosure</i> .....                                                   | 1649 |
| II. DESIGN PATENT DISCLOSURES IN THE<br>MODERN ERA OF VISUAL INFORMATION .....              | 1654 |
| A. <i>The Enabled (and Definite) Design</i> .....                                           | 1654 |
| B. <i>The Described Design</i> .....                                                        | 1662 |
| C. <i>Restriction Practice and the Concept<br/>        of Embodiments of a Design</i> ..... | 1669 |
| CONCLUSION .....                                                                            | 1674 |
| APPENDIX: EMPIRICAL METHODOLOGY .....                                                       | 1675 |
| A. <i>Sampling</i> .....                                                                    | 1675 |
| B. <i>Coding &amp; Reliability</i> .....                                                    | 1676 |
| 1. Written Description (including Claims).....                                              | 1677 |
| 2. Figures.....                                                                             | 1678 |

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## INTRODUCTION

The disclosure function figures prominently in many accounts of the utility patent system.<sup>1</sup> But what of its role in the design patent system? Should it be dismissed as trivial? And if so, what are the practical consequences for design patent doctrine in view of the fact that the doctrines that implement the disclosure function in utility patent law also apply to design patents by statutory mandate?<sup>2</sup>

The disclosure theory posits that patent documents disclose technical information that serves as a quid pro quo for the patent grant.<sup>3</sup> Even aside from controversies about whether the disclosure function is robust for utility patents,<sup>4</sup> the lack of fit with design patents may seem self-evident: the design patent disclosure is not intended to convey technical information. Its chief purpose is to provide notice to the public as to the subject matter that the design patent protects, as the claims do in utility patents.<sup>5</sup> Perhaps Judge Rich had this in mind when he wrote the opinion for the en banc court in *Racing Strollers, Inc. v. TRI Industries, Inc.*,<sup>6</sup> observing that the § 112 best mode requirement is “not applicable” to design patents and that complying with “the remaining requirements of 112” simply entails that the document contain “illustrations . . . depicting the ornamental design.”<sup>7</sup>

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1. See, e.g., Jeanne C. Fromer, *Patent Disclosure*, 94 IOWA L. REV. 539, 547–54 (2009); Sean B. Seymore, *The Teaching Function of Patents*, 85 NOTRE DAME L. REV. 621, 641 (2010).

2. 35 U.S.C. § 171(b) (2012) (“The provisions of this title relating to patents for inventions shall apply to patents for designs, except as otherwise provided.”).

3. See, e.g., Seymore, *supra* note 1, at 622.

4. There are many such controversies. See, e.g., Alan Devlin, *The Misunderstood Function of Disclosure in Patent Law*, 23 HARV. J.L. & TECH. 401 (2010); Lisa Larrimore Ouellette, *Do Patents Disclose Useful Information?*, 25 HARV. J.L. & TECH. 545 (2012); Sean B. Seymore, *Making Patents Useful*, 98 MINN. L. REV. 1046 (2014); Note, *The Disclosure Function of the Patent System (or Lack Thereof)*, 118 HARV. L. REV. 2007 (2005).

5. See, e.g., *Hupp v. Siroflex of Am., Inc.*, 122 F.3d 1456, 1464 (Fed. Cir. 1997) (noting that “the drawings are the claims to the patented subject matter” in modern design patents); GRAEME B. DINWOODIE & MARK D. JANIS, *TRADE DRESS AND DESIGN LAW* 297–380 (2011).

6. 878 F.2d 1418, 1418 (Fed. Cir. 1989) (en banc). The Federal Circuit had taken the case on interlocutory appeal en banc to decide whether, as a matter of law, a design patent application could be filed as a divisional of an earlier-filed utility patent application, claiming the benefit of the utility patent application’s filing date. *Id.* at 1420–21 (answering yes and overruling a prior C.C.P.A. decision that had held to the contrary, *In re Campbell*, 216 F.2d 606 (C.C.P.A. 1954)). *Campbell* seems to have been decided without regard for 35 U.S.C. § 120, and the PTO evidently had come to regard it as erroneous and had been ignoring it.

7. Judge Rich reasoned that the best mode requirement did not apply because “a design has only one ‘mode’ and it can be described only by illustrations showing what it looks like (though some added description in words may be useful to explain the illustrations).” *Racing Strollers*, 878 F.2d at 1420. As for the “remaining” requirements, Judge Rich seemed to be focusing exclusively on the written description requirement applied in the context of a claim to priority in an earlier-filed application. He asserted that compliance was “simply a question of whether the earlier application

To be sure, a modern design patent disclosure differs radically from a utility patent disclosure in format and content. A typical design patent contains only drawing figures,<sup>8</sup> a brief description identifying those figures, and a single pro forma claim that refers to the figures in a prescribed format,<sup>9</sup> along with routine bibliographic information found in all patents. The United States Patent and Trademark Office (“PTO”) regulations strongly discourage any additional written disclosure.<sup>10</sup>

On the other hand, design patent disclosures and utility patent disclosures function alike in some respects. In addition to conveying technical information, a utility patent’s disclosure supports the notice function of the claims,<sup>11</sup> playing a critical role in regulating scope through claim construction doctrines<sup>12</sup> and enablement,<sup>13</sup> and a corollary role in some cases in providing evidence of possession of the invention through the written description doctrine.<sup>14</sup> Design patent disclosures share these aspirations, suggesting that the doctrine and theory of design patent disclosures, like their counterparts in utility patent law, deserve scrutiny.

We engage in that scrutiny here. In Part II, we offer the results of new historical and empirical research based on legislative, administrative, and judicial records. We show through empirical work that in early practice, design patent documents often relied on extensive verbal disclosures and sometimes included elaborate claim sets. We demonstrate that design patent drafting practices shifted dramatically during the nineteenth and early twentieth centuries, ushering in an era

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contains illustrations, whatever form they may take, depicting the ornamental design illustrated in the later application and claimed therein by the prescribed formal claim.” *Id.*; see also *infra* Part III.B. (discussing the role of the written description requirement in modern design patent law).

8. The drawings are to include “a sufficient number of views to constitute a complete disclosure of the appearance of the design.” 37 C.F.R. § 1.152 (2015); see also U.S. PATENT & TRADEMARK OFFICE, MANUAL OF PATENT EXAMINING PROCEDURE §1503.02 (9th ed. 2014) (specifying additional restrictions on the use of surface shading, the use of broken lines, and the substitution of photographs for drawings, among other details) [hereinafter MPEP].

9. 37 C.F.R. § 1.153(a) (2015) (specifying that “[t]he claim shall be in formal terms to the ornamental design for the article (specifying name) as shown, or as shown and described” and that “[m]ore than one claim is neither required nor permitted”). In the rare instance when the design patent document includes additional written disclosure, the words “and described” are to be added to the pro forma claim. MPEP, *supra* note 8, § 1503.01.

10. 37 C.F.R. § 1.153 (“No description, other than a reference to the drawings, is ordinarily required.”); *Cf.* MPEP, *supra* note 8, § 1503.01 (specifying that additional description, while not required, is also not prohibited). Any such additional description is usually confined to the purpose of clarifying the content of the drawings.

11. See, e.g., Jason Rantanen, *Patent Law’s Disclosure Requirement*, 45 LOY. U. CHI. L.J. 369, 378 (2013) (recognizing additional functions beyond the teaching function).

12. See, e.g., *Phillips v. AWH Corp.*, 415 F.3d 1303, 1314–15 (Fed. Cir. 2005) (encouraging courts to resort to the written description to illuminate the construction of disputed claim terms).

13. 35 U.S.C. § 112(a) (2012).

14. *Id.*; *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc).

of “visual information” in which design patent documents took on their modern form, and we analyze the combination of forces that may have brought about that shift.

In Part III, we turn to modern practice. We canvass the case law applying several § 112 disclosure doctrines to design patents,<sup>15</sup> and we conclude with some observations about restriction practice in design patents.<sup>16</sup> In all of these areas, we conclude that courts and the PTO have struggled to develop a coherent approach to design patent disclosures that borrows appropriately from utility patent jurisprudence while accounting for the visual qualities that make design patents different. While this has resulted in periodic convulsions in technical doctrine, there is something more fundamental afoot here. In particular, we detect contradictions as to what constitutes the protected design subject matter in a design patent—a problem that resides beneath the surface in design patent disclosure cases but could disrupt the stability of the design patent system if left unaddressed.

#### I. VERBAL TO VISUAL: DESIGN PATENT DISCLOSURES IN EARLY DESIGN PATENT PRACTICE

Many early design patent documents look fundamentally unlike their modern counterparts in two respects. First, design patent disclosures did not always adhere to the modern model of primarily visual information. Second, design patents exhibited a wide variety of claiming approaches. The transition to a predominantly visual design patent disclosure took many decades to occur, while the change to a single mandatory pro forma claim was the product of discrete regulation. But both changes followed an extended period during which lawyers experimented with an array of drafting strategies, and the Patent Office responded to those strategies. This occurred with little evidence of any coherent policy position on the role of the description (or the claims) in achieving the goals of the design patent system and with little reflection on the constraints of the statute, which arguably insisted on adherence to utility patent principles.

In this Part, we present the results of a series of empirical projects that examine the drafting practices adopted in design patents during the regime’s first century of existence, and we provide some evidence that the system has shifted towards a predominantly visual model of disclosure. Our descriptive analysis is based on a stratified random sample of design patents that were proportionally allocated by year. In total, we sampled

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15. See *infra* Part III.A. (enablement/definiteness); Part III.B. (written description).

16. See *infra* Part III.C.

11,870 design patents, which represents 8.85 percent of the total patents granted over this time period. We collected information about the written description portion of the specification, the claims, and the drawings, and we analyze each in the subparts below. The full details of our research design are supplied in the Appendix.

### *A. The Evolving Role of the Design Patent Specification*

The statutory provisions governing design patents have never drawn a distinction between design patent disclosures and utility patent disclosures. The original American design patent legislation, passed in 1842,<sup>17</sup> was silent on the requirements for design patent disclosures. Accordingly, by virtue of the 1842 Act's incorporation clause,<sup>18</sup> the utility patent requirements for disclosures applied to design patents.<sup>19</sup> Before 1870, the applicable provisions required, at a minimum: an enabling disclosure; a sufficiently definite indication of what was protected; a set of drawings (at least "where the nature of the case admits of drawings"); and a model ("in all cases which admit of a representation by model").<sup>20</sup>

Design patent practice under these provisions was widely variant. Some early design patents had extensive verbal descriptions with feature-by-feature descriptions of the accompanying drawings—documents that are essentially indistinguishable from utility patent documents.<sup>21</sup> Others employed very brief verbal descriptions accompanied by illustrations.<sup>22</sup>

A trend towards regulating design patent disclosures with greater specificity began in the 1870s.<sup>23</sup> Whereas the Patent Office's 1870 Rules

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17. Act of Aug. 29, 1842, ch. 263, § 3, 5 Stat. 543, 548–49 (1842). For background, see Jason J. Du Mont & Mark D. Janis, *The Origins of American Design Patent Protection*, 88 IND. L.J. 837 (2013).

18. Act of Aug. 29, 1842 § 3 (specifying that "all the regulations and provisions which now apply to the obtaining or protection of patents not inconsistent with the provisions of this act shall apply to applications under this section").

19. See Jason J. Du Mont, *A Non-Obvious Design: Reexamining the Origins of the Design Patent Standard*, 45 GONZ. L. REV. 531, 543, 548, 564, 578–88 (2009) (providing a historical account of the incorporation clause).

20. Act of July 4, 1836, ch. 357, § 6, 5 Stat. 117, 119 (1836). Regarding application of the model requirement to design patents, see Kendall J. Dood, *Patent Models and the Patent Law: 1790–1880 (Part II—Conclusion)*, 65 J. PAT. OFF. SOC'Y 234, 271 (1983).

21. See, e.g., U.S. Patent No. D4,963 (issued May 30, 1871); U.S. Patent No. D4,900 (issued May 23, 1871); U.S. Patent No. D2,477 (issued Oct. 2, 1866); U.S. Patent No. D2,531 (issued Dec. 18, 1866).

22. See, e.g., U.S. Patent No. D4,918 (issued May 23, 1871); U.S. Patent No. D2,662 (issued June 4, 1867); U.S. Patent No. D2,516 (issued Dec. 4, 1866).

23. The 1870 Act largely reinstated the enablement requirement from prior legislation and amplified the definiteness requirement to emphasize formal claiming, requiring that applicants "particularly point out and distinctly claim the part, improvement, or combination which he claims as his invention or discovery." Act of July 8, 1870, ch. 230, § 26, 16 Stat. 198, 201 (1870); cf. Act of

of Practice had merely called for design patent specifications to be “the same as for other patents,”<sup>24</sup> the 1871 Rules required that the specifications “distinctly point out the characteristic features of the design, and carefully distinguish between what is old and what is held to be new.”<sup>25</sup> The Patent Office amended the rules again in 1879, adding more detailed requirements for the content of the design patent application, including a requirement for a “[d]etailed description of the design as it appears in the drawing or photograph, letters or figures of reference being used.”<sup>26</sup> The Patent Office had also excused design patent applicants from the model requirement in 1870,<sup>27</sup> which may have elevated further the importance of the written disclosure. The treatise writer Hector Fenton noted this shift, asserting that the Patent Office had previously permitted “undue laxity in the preparation of [design patent] specifications,” whereas “more recently design patent applications have been closely scrutinized, and the same degree of care and particularity of description and claim required of applicants in the preparation of specifications for such patents, as for patents for other inventions.”<sup>28</sup>

Yet there was little evidence of any emerging consensus in the patent community about the function that a design patent specification was intended to perform or about the necessary rules for supporting that function.<sup>29</sup> For example, in one line of decisions, the Patent Office pushed for more streamlined disclosures by forcing applicants to delete any material in the design patent that described the mechanical functions of the article with which the design was associated or the methods by which

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July 4, 1836, § 6 (requiring that the applicant “particularly specify and point out the part, improvement, or combination, which he claims as his own invention or discovery”).

24. U.S. PATENT OFFICE, RULES AND REGULATIONS FOR PROCEEDINGS IN THE PATENT OFFICE, Rule 81 (1870) [hereinafter 1870 RULES] (“The petition, oath, specification, and other proceedings in the case of applications for letter-patent for a design are the same as for other patents.”).

25. U.S. PATENT OFFICE, RULES OF PRACTICE IN THE UNITED STATES PATENT OFFICE, Rule 81 (1871) [hereinafter 1871 RULES]; *see also* 1871 RULES, *supra*, Rule 14 (imposing this same rule on utility patent disclosures under Rule 14).

26. U.S. PATENT OFFICE, RULES OF PRACTICE IN THE UNITED STATES PATENT OFFICE, Rule 80 (1880).

27. The 1870 Rules specified that “[w]hen a work of design can be sufficiently represented by a drawing, a model will not be required.” 1870 RULES, *supra* note 24, Rule 82. By contrast, for utility patents, the default rule was that models were required, although applicants were permitted to “submit to the Commissioner” the question whether they could be excused from providing a model in a given case. 1870 RULES, *supra* note 24, Rule 24.

28. HECTOR T. FENTON, THE LAW OF PATENTS FOR DESIGNS 60 (Philadelphia, William J. Campbell 1889).

29. *See id.* (observing that “[m]uch difference of opinion has existed among patent practitioners, as to the essential requisites of a design specification”).

the articles were constructed.<sup>30</sup> The concern was that such disclosures might mislead the unwary public into believing that the design patent actually conferred utility patent-like protection, covering mechanical functions or methods of construction.<sup>31</sup> In these decisions, then, the Patent Office essentially was using the disclosure rules to regulate subject matter eligibility (and perhaps scope of protection) in the nature of a quasi-functionality doctrine.<sup>32</sup>

Some practitioners pushed in exactly the opposite direction, embracing a strategy that favored extensive verbal disclosures to accompany the drawings, with the goal of broadening the scope of protection beyond the strict confines of the depicted design.<sup>33</sup> A lawyer drafting a design patent disclosure might interject alternative or conditional language highlighting specific features, for example.<sup>34</sup>

Other practitioners seemed to favor minimal disclosures. Indeed, some practitioners submitted design patent applications that included no verbal disclosure whatsoever, just drawings and the requisite identifying information. Such a patent was at issue in *Dobson v. Dornan*.<sup>35</sup> The design patent in suit in *Dobson*, which was directed to a carpet pattern, included a photograph, a one-sentence verbal description (“The nature of my design is fully represented in the accompanying photographic

30. See, e.g., *Ex parte Norton*, 1882 Dec. Comm’r Pat. 14, 15 (“Applicant, however, must strike out of his application everything descriptive of the mechanical functions of the device.”); *Ex parte Fairchild*, 1873 Dec. Comm’r Pat. 45, 45 (“All description of the mechanical construction of the article should be eliminated, as well as all reference to its purpose as a matter of utility. All matter of this description is improper in a design patent.”); *Ex parte Diffenderfer*, 1872 Dec. Comm’r Pat. 154, 155 (noting that “the applicant should be required to erase from his description all references to the function of the standard, or any portion thereof, described”).

31. Commissioner Mortimer Leggett described such design patent applicants as “imposters” and argued that they “desire a design patent merely to obtain the right to put the word ‘patented’ upon their manufacture, and thereby deceive the public and wrong real inventors, for they well know that not one person in ten thousand will ever learn the fact that the patent only covers the design.” *Ex parte Parkinson*, 1871 Dec. Comm’r Pat. 251, 252.

32. No formal functionality doctrine existed until 1902, when the ornamentality requirement was added to the statute at the behest of Commissioner Allen. See Jason J. Du Mont & Mark D. Janis, *Functionality in Design Protection Systems*, 19 J. INTELL. PROP. L. 261, 264–65 (2012) (discussing the legislative history).

33. Cf. *Untermeyer v. Jeannot*, 20 F. 503, 504 (S.D.N.Y. 1884) (declining to extend the scope of the design patent at issue beyond the design depicted in the accompanying photograph where the verbal description lacked broadening language); WILLIAM D. SHOEMAKER, PATENTS FOR DESIGNS 169 (1929) (suggesting that applicants had “sought through added description . . . to broaden the patent” by stressing that certain visual features were “dominating in importance” or were “immaterial”).

34. By contrast, lawyers drafting utility patent applications may have the impulse to omit certain details strategically to avoid the risk that those details will be used to narrow the claims, or to preserve the details as trade secrets.

35. *Dobson v. Dornan*, 118 U.S. 10, 14 (1886); see JASON J. DU MONT & MARK D. JANIS, AMERICAN DESIGN PATENT LAW: A LEGAL HISTORY ch. 6 (forthcoming 2016) (analyzing the *Dobson* case record).

illustration, to which reference is made.”) and a pro forma claim (“I claim as my invention, the configuration of the design hereunto annexed, when applied to carpeting.”).<sup>36</sup> The alleged infringer claimed that the patent was invalid for failing to comply with the requirement to provide a written description of the invention and to “particularly point out and distinctly claim the part, improvement, or combination which he claims as his invention or discovery.”<sup>37</sup>

The Court dismissed this argument summarily. The description and claim complied with the statute, the Court concluded. The patent described and claimed the subject matter that “the photographic illustration represents as a whole,” when applied to carpeting.<sup>38</sup> That subject matter was “better represented by the photographic illustration than it could be by any description, and a description would probably not be intelligible without the illustration.”<sup>39</sup>

The reference to the design “as a whole” was crucial. The Court seemed to be saying that it was perfectly fine for a patentee to rely on an illustration, rather than on any elaborate verbal description, because the scope of the design patent’s claim would be limited to include all of the details of the illustration. As applied to the carpet design at issue in *Dobson*, the Court reasoned that “the claim . . . covers the design as a whole, and not any part of it as a part, and it is to be tested as a whole as to novelty and infringement.”<sup>40</sup>

The *Dobson* vision of the role of the design patent disclosure was entirely at odds with the role of the disclosure in utility patent law, and some commentators struggled to accept it.<sup>41</sup> Nonetheless, by way of a

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36. U.S. Patent No. D6,822 (issued Aug. 19, 1873).

37. Patent Act of 1870, § 26, ch. 230, 16 Stat. 198 (1870).

38. *Dobson*, 118 U.S. at 14.

39. *Id.*

40. *Id.* at 15. A similar debate had long festered in British design registration law. In *Holdsworth v. McCrea*, 2 L.R. 380 (H.L. 1867), the registrant had deposited a sample of fabric bearing the registered design, unaccompanied by any description in writing, relying on Copyright of Designs Act, 1858, 21 & 22 Vict. c. 70, § 5 (permitting applicants to register a design by submitting a “pattern or portion of an article” bearing the design). The alleged infringer argued that the registrant’s sample included multiple design elements, and it was impossible for anyone to tell whether the registrant was claiming protection for the entirety or some subset of elements. The issue made its way to the House of Lords, which upheld the validity of the registration but seemed to suggest that the scope of protection would be limited to “replicas” of the sample. *Holdsworth*, 2 L.R. at 387–88 (speech of Lord Westbury). After decades of debate, the British courts finally decided that the reference to “replicas” did not mean that exact identity between the registered and alleged infringing designs was required. See DU MONT & JANIS, *supra* note 35, ch. 5 (summarizing the debate).

41. Fenton was certain that the Court had gone too far. The fact that the Court had approved of this “laxity” in disclosure practice was lamentable because its effect was to “reduce the grade of [design] patents, and convert them into simple certificates of registration or a drawing.” FENTON, *supra* note 28, at 60. Fenton perhaps should have mentioned that it was he who had made the

series of rule changes and Commissioner's decisions, the Patent Office began to formalize the exceptional status of design disclosures, moving the focus away from extensive verbal disclosure. By 1897, the Patent Office had eliminated the requirement that design patent specifications distinguish old elements from new.<sup>42</sup> The 1897 Rules of Practice also expressly prohibited design patent applicants from including descriptions of mechanical function and the like in their design patent specifications.<sup>43</sup> At the same time, the Patent Office began to recommend the use of a single, pro forma claim that incorporated by reference the illustrations and the verbal disclosure,<sup>44</sup> a matter that we discuss in more detail in Part II.B.

The most significant indication of the exceptionalist view comes from a set of controversial decisions in which the Patent Office sought to transform the *Dobson* holding into a prohibition against verbal disclosures. Commissioner Allen started along this path in *Ex parte Freeman*,<sup>45</sup> expressing distaste for written disclosures in design patent applications:

In designs the appearance is the new thing which is to be secured by a patent. Words do not explain, but rather confuse, when added to the disclosure of the drawing. For this reason such descriptive material should be reduced to a minimum, or, better still, entirely eliminated from design patent specifications. There can be no place in a design patent specification for such descriptions as are intended to differentiate between material and immaterial elements, the test of which is the effect produced upon the eye of the beholder.<sup>46</sup>

This was a curious sentiment to express in a case where the entirety of the written description appears to have occupied no more than a short paragraph and seems to be little more than a formulaic description of the drawings rather than any aggressive effort to broaden the scope of

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disclosure challenge that the Court had rejected in the *Dobson* case, as he had represented the alleged infringer Dobson.

42. U.S. PATENT OFFICE, RULES OF PRACTICE IN THE UNITED STATES PATENT OFFICE, Rule 81 (1897) [hereinafter 1897 RULES] (“The specification must distinctly point out the characteristic features of the design . . .”). The Office further amended this language in 1903, requiring that the specification must “distinctly describe the article in its aspect of shape or configuration and ornamentation. U.S. PATENT OFFICE, RULES OF PRACTICE IN THE UNITED STATES PATENT OFFICE, Rule 81 (1903) [hereinafter 1903 RULES].

43. 1897 RULES, *supra* note 42, Rule 84:

A design . . . is to be shown and described in its aspect of shape or pattern only. Hence, reference to the materials used or the mode of their utilization in the construction of the article to which the design is applied, or the mechanical construction of the article, can not properly enter into the description of the design.

44. 1903 RULES, *supra* note 42, Rule 81 (“The claim may properly be, in the broadest form, for the ornamental design, substantially as shown and described.”).

45. 1903 Dec. Comm’r Pat. 172.

46. *Id.*

coverage. Regardless, the rejection had been based on prior art, and the Commissioner Allen upheld it.<sup>47</sup>

The 1904 Rules appeared to move substantially further. The Patent Office once again amended its rules on the content of design patent disclosures, no longer mandating the inclusion of a “detailed description of the design” as it appeared in the drawing, but rather simply calling for “a description of the figure or figures of the drawing.”<sup>48</sup> In addition, amended Rule 81 no longer referred to the specification or any expectation that it would contain a written description, but instead expressed the view that “since the appearance can be disclosed only by a picture of the article, the claim should be in the broadest form for the article as shown.”<sup>49</sup>

Soon afterwards, in *Ex parte Mygatt*,<sup>50</sup> Commissioner Allen sought to impose an affirmative prohibition against verbal disclosures. There, the Patent Office had required a design patent applicant to delete “certain descriptive matter contained in the specification,” and the applicant petitioned Commissioner Allen to have that requirement set aside. According to the Commissioner, whereas the description related to “the mechanical construction of the device,” the design patent statute, of course, was directed to the ornamental appearance of an article and had “nothing to do with the use to which it is put, the functions which it performs, or to its mechanical construction.”<sup>51</sup> Accordingly, the Commissioner ruled that “[d]escription of these matters, therefore, is not only unnecessary, but is confusing and misleading.”<sup>52</sup> Because infringement deals with identity of appearance, rather than function, use, or construction, “[t]he description should not deal with these matters,

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47. *Id.* On appeal to the Court of Appeals for the District of Columbia, the applicant challenged the Commissioner’s statement about descriptions, but the court seemed to consider the Commissioner’s statement innocuous:

Undoubtedly, in the matter of application for a patent for a design, a picture of the design serves to convey a greatly more adequate idea of the design than any verbal description could possibly do; and, in the presence of the picture, a superadded verbal description is generally useless and oftentimes confusing. This is all that the Commissioner said, or apparently intended to say; and, as it is the dictate of reason, common sense, and common experience, we fail to find any error in it.

*In re Freeman*, 23 App. D.C. 226, 229 (D.C. Cir. 1904). The applicant’s description illustrated “the utter futility of attempting by words to describe the appearance of an object which may be perceived immediately upon inspection of a picture thereof,” according to the court. *Id.* at 229–30. Regardless, the court concluded that the Commissioner’s statement about descriptions did not affect the prior art rejection, which was correctly sustained. *Id.* at 230–31.

48. U.S. PATENT OFFICE, RULES OF PRACTICE IN THE UNITED STATES PATENT OFFICE, Rule 82, 28 (1904).

49. *Id.* Rule 81.

50. 1905 Dec. Comm’r Pat. 243.

51. *Id.*

52. *Id.*

since it would lead the unskilled to suppose that they constituted the essential elements of the design for which protection is furnished by the design patent.”<sup>53</sup> Applying those principles to the application at issue, Commissioner Allen concluded that the applicant’s written description was “unnecessary.”<sup>54</sup> The applicant’s description attempted to put into words what was already shown in the drawings, and “[t]he present practice of the Office is to dispense with all such description as surplusage and as calculated to mislead.”<sup>55</sup>

On appeal in *Mygatt*, the Court of Appeals of the District of Columbia swiftly condemned the Patent Office’s approach.<sup>56</sup> The Court of Appeals pointed out that *Dornan* had merely approved of the use of the drawing to comply with the disclosure requirements, rather than prohibiting the use of additional written disclosure.<sup>57</sup> A rule forbidding additional disclosure would seem to be in conflict with the statute, the court opined.<sup>58</sup> Moreover, to the extent that the Patent Office was objecting to the use of additional disclosure for “fiscal reason[s],” (presumably meaning that the Patent Office feared that design patent examination would be more complex and costly), those reasons were “not entitled to much consideration” because design descriptions would be relatively short even when used, and the Patent Office could seek to limit the use of unduly extensive descriptions.<sup>59</sup>

While Commissioner Allen failed in his effort to create an anti-disclosure requirement for design patents, his bias in favor of visual information, and his view of verbal disclosures in design patents as generally unhelpful, has arguably persisted. The language of the 1904 Rules of Practice lingered.<sup>60</sup> In 1959, the Patent Office promulgated the direct predecessors to the modern regulations governing design patent practice, which provided that verbal descriptions were ordinarily not

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53. *Id.*

54. *Id.*

55. *Id.*

56. *In re Mygatt*, 26 App. D.C. 366, 375 (D.C. Cir. 1905).

57. *Id.* at 373 (asserting that *Dobson* did not hold “that no further description is permissible at the election of the applicant, or that he may not more particularly point out his invention in his claim”).

58. *Id.*

59. *Id.* at 373–74. The court reversed the rejection, noting that it seemed odd for the Patent Office to call for a model of the design at issue (as if the drawing alone did not sufficiently disclose the design), but then purport to prohibit the applicant from including verbal descriptions of the design in addition to the drawings.

60. See, e.g., U.S. PATENT OFFICE, RULES OF PRACTICE IN THE UNITED STATES PATENT OFFICE, Rules 81–82 (1920).

appropriate (and certainly not required) for design patents.<sup>61</sup> But these regulatory developments occurred in the absence of any express statutory mandate to distinguish design patents from utility patents in regards to disclosure requirements<sup>62</sup> and without the development of any coherent concept of the role of the disclosure in design patent documents.

Our empirical analysis provides evidence that the verbal information in design patent documents decreased over the latter half of the nineteenth century. It also indicates that the transition was not smooth, perhaps corroborating our historical analysis of the conflicting forces that would have influenced drafting strategies.

To assess the amount of verbal information in design patent documents, we measured the specification length for all of the design patents in our sample, defining specification length for this purpose as the length (in inches) of any written content except the patent's title and bibliographic information—essentially, the written description and claims.<sup>63</sup> The following graph depicts the change in mean specification length of the design patents in our sample for each year, after omitting all years with fewer than twenty-five observations<sup>64</sup> and all handwritten patents.<sup>65</sup>

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61. Patents, Trademarks, and Copyrights, 37 C.F.R. § 1.153(a) (1959); *see id.* § 1.154(b) (specifying the elements that “should be observed” in a design patent specification, identifying a “description of the figure or figures of the drawing” and a “description, if any”).

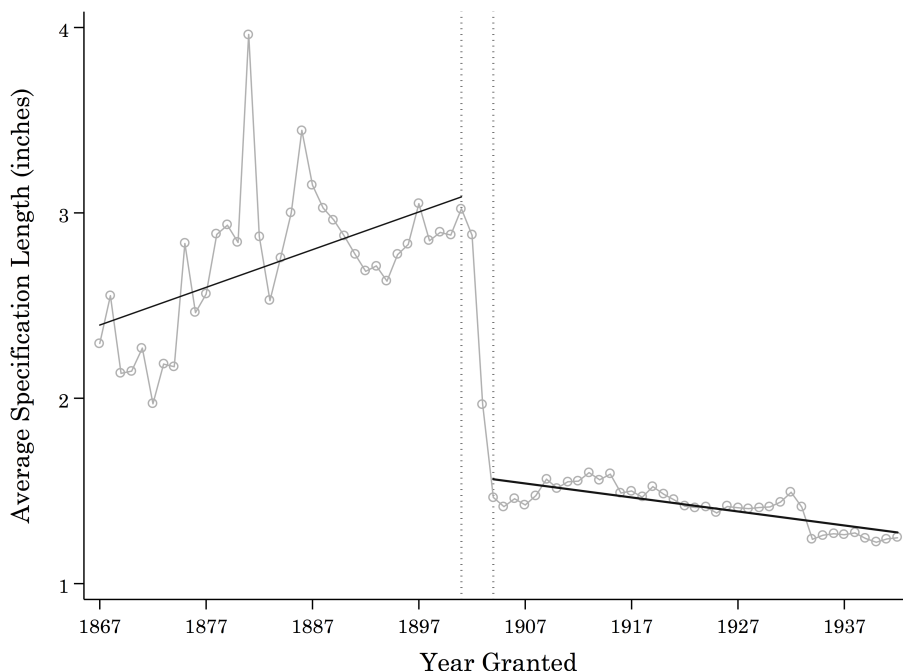
62. Indeed, these developments were arguably in tension with the mandate of the incorporation provision. *See* FENTON, *supra* note 28, at 59–60 (“It is quite true that a design may be fully described to the mind by lines in a drawing, yet the statute [(i.e., the incorporation clause)], in express words, requires a specific and particularized *written* description and claim *in addition* to a drawing.”).

63. *See infra* Appendix for complete methodological details.

64. A minimum quantity of observations was set to avoid potential distortions caused by outliers, and was carried throughout the empirical portion of this Article where figures are used to display shifts in annual mean values. However, the precise number of minimum observations was arbitrarily chosen. In Figure 1—which is restricted to non-handwritten patents—1867 was the first year with at least twenty-five observations in our sample. Based on these restrictions, from 1867 through 1942, our sample included 152 observations per year on average. However, because our sample is proportionally allocated by the number of patents granted each year, and this quantity grew tremendously over this time horizon, there is a great deal of variance in the average number of observations:  $\bar{x}$ =152.96,  $s$ =124.29,  $Q1$ =65,  $Q2$ =101,  $Q3$ =215.5,  $n$ =76.

65. Handwritten patents disappeared from our sample entirely by 1866, when the Patent Office began printing issued patents. *See* THOMAS C. THEAKER, ANNUAL REPORT OF THE COMMISSIONER OF PATENTS 8 (1868) (indicating that printing commenced on November 20, 1866). While the Patent Office eventually printed of all utility patents granted after the passage of the 1836 Act, it did not do the same for design patents (granted since 1842).

FIGURE 1: ANNUAL AVERAGE SPECIFICATION LENGTH



As shown in Figure 1, our results may be divided chronologically into three distinct periods: (1) a period of increasing specification length from 1867 until about 1901, (2) a period of precipitous decline from 1901 to 1904, and finally (3) a period of very slight decline from 1904 to 1942.

The observed growth in average specification length prior to the turn of the twentieth century (Period 1) may indicate that the strategy of using a robust disclosure to seek a wide scope of protection was a popular one, and that the 1870 Act and Patent Office rules were perceived to call for more extensive disclosure, at least on balance.<sup>66</sup>

The sharp decline of specification length observed after the turn of the century (Period 2) coincides with Commissioner Allen's failed efforts to institute an anti-disclosure rule (e.g., in *Freeman* and *Mygatt*). But the decline also straddles the passage of the ornamentality requirement in the 1902 Act. Ironically, then, it was in all likelihood a functionality restriction, not a disclosure requirement, that had the biggest impact on disclosure drafting practices in our sample.

Finally, our data also shows that extensive verbal disclosures never returned to design patent documents after the early 1900s (Period 3). Although Commissioner Allen's outright prohibition against verbal

66. See *supra* notes 24–27, 33–34 and accompanying text.

information did not become the prevailing rule, our data indicates that short specifications became the norm, setting the stage for the modern era of reliance on visual information.

*B. Plural Claiming and the Shift to the Pro Forma Claim*

Early design patent practice is remarkable in that patent lawyers experimented with claim drafting techniques that are today exclusively associated with utility patents—and the Patent Office endorsed this practice, at least at first.<sup>67</sup> In 1869, in *Ex parte Bartholomew*, Commissioner Fisher ruled that design patent applicants could direct claims to a genus of designs based on the disclosure of an individual species within the genus.<sup>68</sup> A year later, in *Ex parte Sheppard*, he upheld the use of plural claims in design patents, concluding that “[i]f the design contains features which are new, singly and in combination, no reason is known to me why they may not be so claimed.”<sup>69</sup> The 1871 Rules of Practice likewise seemed to contemplate that design patents could contain plural claims, specifying that these claims “should be as distinct and specific as in the case of patents for inventions or discoveries.”<sup>70</sup> As a result, it became increasingly common to find design patents that contained one or all of the following claim types: (1) pro forma claims that contained little more than a preamble and reference the drawings (and written description, when relevant), (2) claims to specific design elements or unique combinations of those elements, and (3) genus claims where the drawings contained one or more species of the design.

Our empirical work suggests that for several years during the latter half of the nineteenth century, many patent lawyers took

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67. *But see* WILLIAM EDGAR SIMONDS, *THE LAW OF DESIGN PATENTS* 196–99 (New York, Baker, Voorhis & Co. 1874) (asserting that as of the mid-1870s, most design patents used a single, pro forma claim).

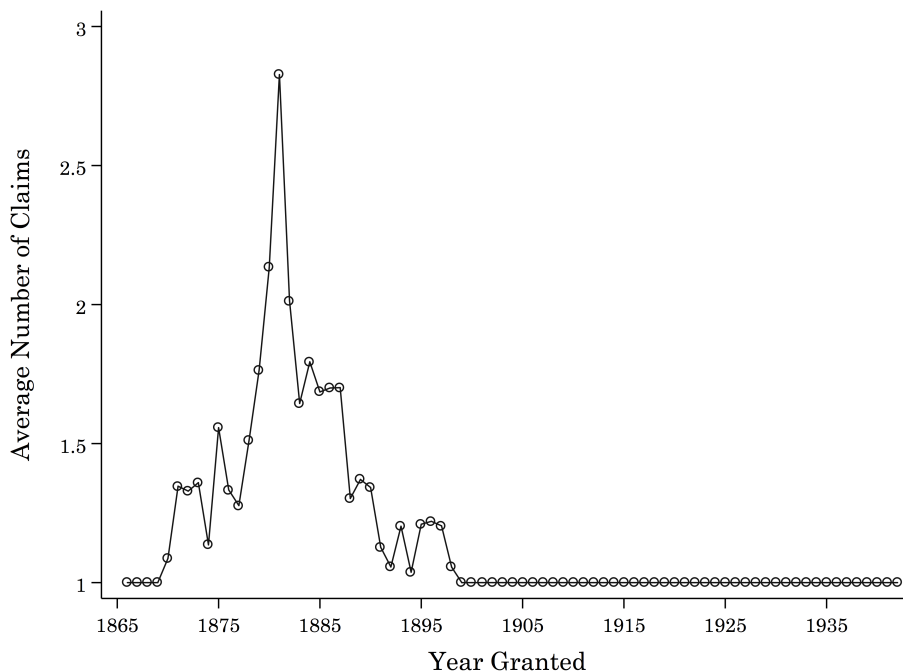
68. 1869 Dec. Comm’r Pat. 103, 105 (noting that the Patent Office’s practices on this matter had not been uniformly applied, but concluding: “I have no hesitation in saying . . . that a valid patent may be granted for a new genus or class of ornaments, as well as for specific ornaments . . .”); *see also* SIMONDS, *supra* note 67, at 198 (“It will thus be seen that the courts and the Patent Office are both committed to the doctrine of allowing claims to specific features of a design, both singly and in combination.”).

69. 1870 Dec. Comm’r Pat. 22. Fisher ruled that he “agree[d] with the examiner that there is no provision, or fair construction of, the act relating to letters-patent for designs, which forbids the union of two or more claims or clauses of claim in a single patent.” *Id.* Fisher also pointed out that past administrations had allowed design patents to issue with multiple claims. *Id.* The first published design patent infringement decision likewise commented that a design patent ordinarily could “include a patent for a combination, and an invention of some of the parts of which the combination consists.” *Root v. Ball & Davis*, 20 F. Cas. 1157, 1158 (C.C.D. Ohio 1846).

70. 1871 RULES, *supra* note 25, Rule 81. The Patent Office later hedged, adding the proviso “when the design admits of it” to the sentence on design patent claims. U.S. PATENT OFFICE, RULES OF PRACTICE IN THE UNITED STATES PATENT OFFICE (1879), Rule 80.

advantage of the Patent Office's invitation to exercise creative judgment in drafting design patent claims. The figure depicted below plots the mean number of claims observed in the design patents in our sample, excluding design patents issued in years with fewer than twenty-five observations.

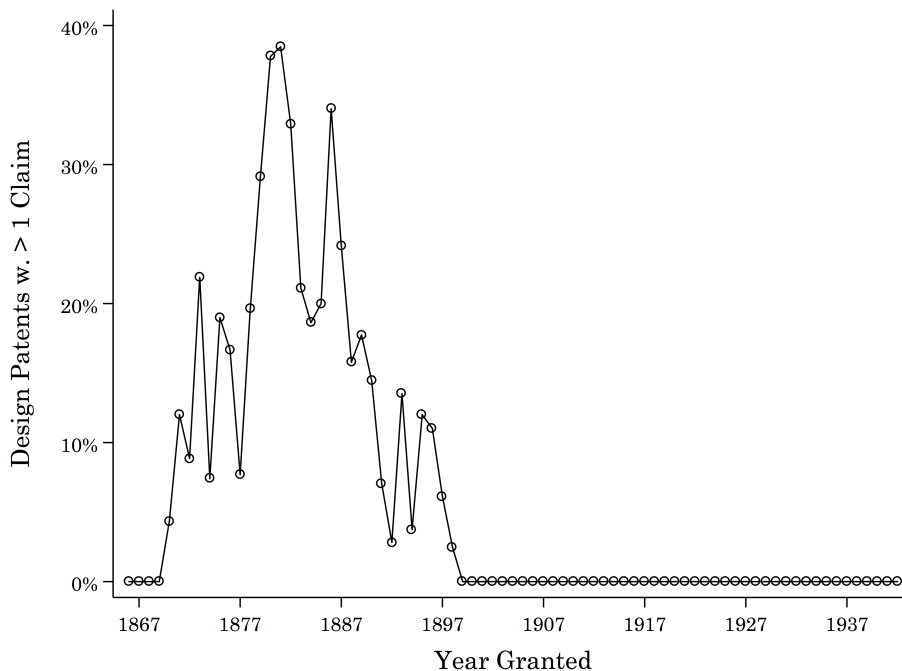
FIGURE 2: ANNUAL AVERAGE NUMBER OF CLAIMS



As shown in Figure 2, the mean number of claims per design patent in a given calendar year generally increased until reaching its height in 1881, and then decreased thereafter.<sup>71</sup> When viewed as the share of patents from each cohort with more than one claim, it is apparent that multi-claim design patents were a common feature of the design patent system from the 1870s through the late 1890s.

71. The peak reached in 1881 is partially driven by a set of outliers in our sample, containing 11, 13, and 15 claims, respectively: U.S. Patent No. D12,437 (issued Aug. 30, 1881); U.S. Patent No. D12,199 (issued Mar. 29, 1881); U.S. Patent No. D12,288 (issued May 31, 1881). When these three patents are removed, the increase leading to the 1881 peak is more gradual than Figure 2 depicts. Specifically, removing the outliers reduced the annual mean number of claims per patent from 2.83 ( $s=3.35$ ,  $n=52$ ) to 2.20 ( $s=2.22$ ,  $n=49$ ).

FIGURE 3: ANNUAL SHARE OF PATENTS WITH MORE THAN ONE CLAIM



Indeed, in 1880 and 1881, about thirty-eight percent of our sample contained more than one claim. As shown in Figures 3 and 4, the phenomenon of plural claiming in design patents extended for about thirty years, ending by the turn of the century.<sup>72</sup>

According to Patent Office records, however, Commissioner Hall began curtailing the practice in 1888. In one case, he ruled that the applicant must amend his claims to include an express reference to the figures.<sup>73</sup> He also rejected the use of genus claims in design patents altogether and questioned strongly the use of claims directed to individual design features. Commissioner Hall's reasoning remains instructive today because it illustrates that fundamental insights about what constituted the object of protection in design patents were still crystallizing long after the design patent system was created. For Commissioner Hall, the rejection of generic claiming was partly a

72. The last year in our sample with any observations of patents with more than one claim was 1898, containing one patent with four claims, three patents with three claims, and 158 patents with only one claim.

73. *Ex parte* Gerard, 1888 Dec. Comm'r Pat. 37, 39–40 (affirming the examiner's requirement that the claims include the words "as shown and described," reasoning that those words signify that a design patent is limited to "the very subject-matter 'shown and described' and its equivalents").

response to the Supreme Court's *Gorham v. White* decision establishing the design patent infringement standard.<sup>74</sup> That standard contemplated liability for unauthorized designs that might not be identical copies of the patented design, as long as they were substantially similar to the ordinary observer, and this provided a scope of protection that obviated the need for generic claims, according to Commissioner Hall.<sup>75</sup>

Implicit in this reasoning is an understanding that design patent protection extends beyond the precise subject matter disclosed (albeit just barely),<sup>76</sup> coupled with a judgment that it would be preferable to await ex post judicial determinations of the scope of protection, rather than charging designers with the obligation to define it ex ante through claims.<sup>77</sup> This, of course, is notable as another instance of design patent exceptionalism. Utility patent law does not rely exclusively on infringement doctrines to calibrate the permissible scope of protection, but instead operates through the combined work of infringement and enablement, using enablement to answer how much extrapolation beyond the scope of the disclosed embodiments is permissible. Design patent law charted a different path, placing faith primarily in the infringement standard.

Commissioner Hall also expressed the view that if genus claims were routinely allowable in design patents, designers would invariably attempt to lay claim to designs that they had yet to conceive.<sup>78</sup> Such a view seems to proceed from the premise that only that which is explicitly disclosed can be deemed to have been conceived for purposes of design patent protection. Moreover, it reveals that at this time there was no clear conception of the design patent's subject matter or the extent to which it might extend beyond its disclosure.

The resistance to plural claiming also links to debates about the unitary nature of design subject matter—whether a design must be understood as an inseparable combination of the whole, or whether it can

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74. 81 U.S. 511, 522–23 (1871).

75. *Gerard*, 1888 Dec. Comm'r Pat. at 41, 46; *Ex parte Gerard (Gerard II)*, 1888 Dec. Comm'r Pat. 49, 50; SIMONDS, *supra* note 67, at 198–99 (asserting that *Gorham* gives a design patent claim “all the generic effect it can have,” such that permitting genus claims in design patents would “seem not advisable”).

76. For cases restricting design patent scope to the scope of the preferred embodiments, irrespective of the presence of genus claims, see *Frank v. Hess*, 84 F. 170, 170 (E.D. Pa. 1897) (asserting that “[t]he monopoly must be confined to the particular design described and shown”); *Conde v. Valkenburgh*, 39 F. 788, 789 (N.D.N.Y. 1889) (questioning the validity of a design patent claim that was not limited to the particular design shown in the drawings).

77. See also *Ex parte Hess & Hess*, 1891 Dec. Comm'r Pat. 142, 143 (asserting that allowing design patent applicants to engage in an elaborate claiming practice would create “hopeless confusion” at the Patent Office by forcing it to take on the function of the courts).

78. *Gerard*, 1888 Dec. Comm'r Pat. at 46.

be disaggregated into subsidiary components, any of which might also qualify as a design (and be claimed as such). The Patent Office had struggled with this issue, periodically rejecting claims<sup>79</sup> to specific design elements when those elements were not distinct or “segregable” enough from the underlying design,<sup>80</sup> or requiring that divisional applications be filed when those elements were so distinct and segregable from the other elements that they failed to produce a unified design.<sup>81</sup>

Other rationales were also in play. By shifting from multiple claiming towards a regime based on visual information, the Patent Office may have hoped to simplify assessments of design patent scope (by inducing reliance on the drawings) and may have sought to reduce the administrative burdens associated with prosecution of complex design patent documents.<sup>82</sup>

Regardless of the merits of these positions, plural claiming (along with the use of genus claims) had all but vanished from design patents by the turn of the century. In 1897, the Patent Office updated its rules to encourage pro forma claiming, expressly recommending that “the claim may properly be, in the broadest form, for the design, substantially as shown and described.”<sup>83</sup> The following year, in *Ex parte Wiessner*, the Patent Office ruled that claims purporting to encompass multiple species of designs would not be permitted in design patents.<sup>84</sup> *Wiessner* echoed

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79. *Ex parte* Coe, 1897 Dec. Comm’r Pat. 187, 188 (upholding the examiner’s claim rejection; reasoning that “[w]hen an inventor has produced a design, he has produced a single shape or configuration and not a duality or plurality of such shapes or configurations”). The Office sometimes applied this same analysis to require changes to the drawings. See *Ex parte* Hill & Renner, 1898 Dec. Comm’r Pat. 38, 38–39 (requiring the applicant to remove one of the figures, confirming “that the doctrine of genus and species does not apply to design cases,” and reasoning that “[w]hen an inventor has produced a design, he has produced a single shape or configuration, not several”); *Ex parte* Jenks, 1898 Dec. Comm’r Pat. 81, 82 (stating that “modifications of designs do not exist and should not be shown and described in one patent, and the decisions of this Office require applicants to restrict their drawings and description to one design, leaving out all reference to modifications”).

80. See, e.g., *Ex parte* Bennett, 1891 Dec. Comm’r Pat. 100, 101 (endorsing the examiner’s segregability analysis where the subordinate claims to various rug design elements were fragmentary); *Ex parte* Pope, 1883 Dec. Comm’r Pat. 74, 75 (affirming the examiner’s rejection of a claim to the upper portion of a seat-riser on the grounds that it was “not for a definite, segregable, distinctive part of a design”).

81. See, e.g., *Ex parte* Patitz, 1883 Dec. Comm’r Pat. 101, 102 (finding no unity of design for a mirror-frame and sconce); *Ex parte* Brower, 1873 Dec. Comm’r Pat. 151, 151–52 (same, for an inkstand and stopper).

82. See *Patitz*, 1883 Dec. Comm’r Pat. at 102 (noting that permitting multiple claiming would “confuse and cripple the classification established for the proper and orderly administration of the business of the [Patent] Office”).

83. 1897 RULES, *supra* note 42, Rule 81.

84. 1898 Dec. Comm’r Pat. 236, 242. For many decades, the Patent Office limited design patent applicants to a single claim. The C.C.P.A. eventually endorsed this practice. *In re* Rubinfeld, 270 F.2d 391, 395–96 (C.C.P.A. 1959).

one of Commissioner Hall's rationales from *Gerard*: designers might use such claims to attempt to capture designs that they had not invented.<sup>85</sup>

After *Wiessner*, plural claiming ended for design patents.<sup>86</sup> Our data reflects as much. Of the 162 design patents that we sampled in 1898, only four (2.47%) contained more than one claim, and this is the last year in our sample with any multi-claim design patents.<sup>87</sup> But the debate over how far a designer should be allowed to extrapolate from the disclosed design has never been put to rest.

### C. Towards Visual Disclosure

As the Patent Office successively minimized the design patent document's allowable verbal elements in the latter part of the nineteenth century, the exercise of disclosing a design became predominantly one of conveying visual information through the document's figures. The figures would need to serve as the chief vehicle for providing notice to the public of the protected subject matter, the chief vehicle for demonstrating compliance with disclosure and definiteness requirements, and the only remaining aspect of the document allowing for the deployment of creative drafting techniques for establishing scope.

Not surprisingly, drafting practices concerning design patent illustrations changed substantially during this time period, probably to accommodate the newly prominent roles that illustrations needed to play, although other motivations were also present. One shift related to the medium used for the illustrations: in the 1870s and early 1880s, it was relatively common for design patent applications to use photographs (and related formats), but this practice ended abruptly in 1891, when the Patent Office promulgated rules providing that applicants could only use photographs if the nature of the subject matter necessitated them; otherwise, drawings were to be used.<sup>88</sup> The Patent Office also instituted several other costly requirements for the use of photographs, citing the

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85. *Wiessner*, 1898 Dec. Comm'r Pat. at 238.

86. Instead, the Patent Office recommended that applicants use drawings showing the design "in its simplest form,"—i.e., "the genus stripped of additions." *Feder v. Poyet*, 1899 Dec. Comm'r Pat. 218, 220–221.

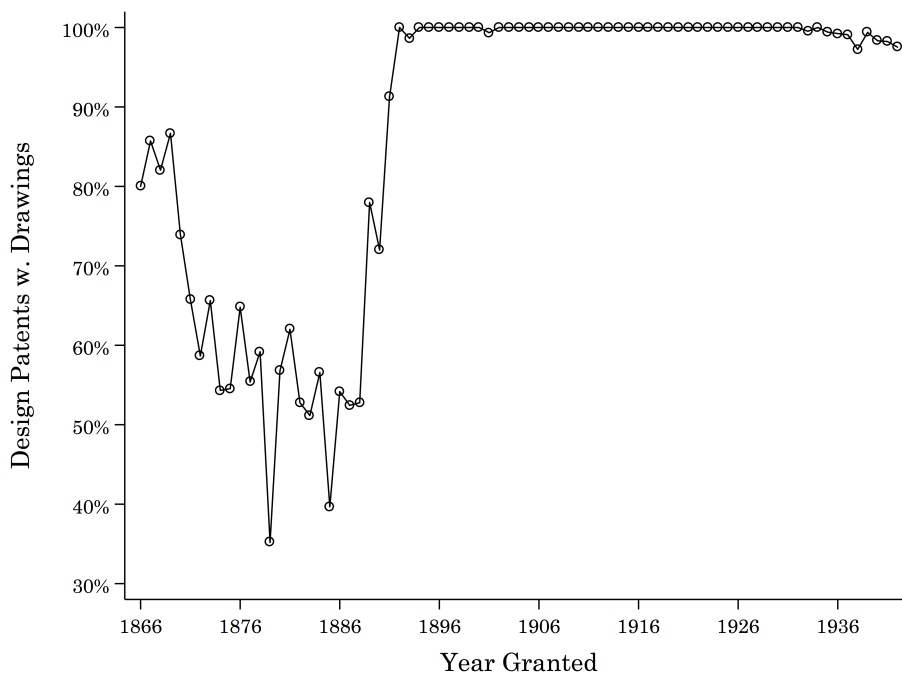
87. Of the 9201 design patents in our sample issued after 1898, each contained only one claim. See also WILLIAM L. SYMONS, *THE LAW OF PATENTS FOR DESIGNS* 89 (1914) (asserting that *Wiessner* had eliminated the multiple claiming practice).

88. U.S. PATENT OFFICE, *RULES OF PRACTICE IN THE UNITED STATES PATENT OFFICE*, Rule 83 (1891) [hereinafter 1891 RULES] (stating that the examiner could recommend the use of a photograph if the design could not "properly be represented" by a drawing); see also *Ex parte Poole*, 1892 Dec. Comm'r Pat. 233, 234 (ruling that whether the applicant could rely on a photograph was a matter of the Office's discretion); 1891 RULES, *supra*, Rules 54, 55 (authorizing the Office to discard photographs and create replacement drawings for a fee).

need to ensure uniform reproduction.<sup>89</sup> Even apart from these new administrative hurdles, it stands to reason that applicants would have shifted away from photographs as the basis for their design patent disclosures, because the use of drawings provides the opportunity for at least modest control over scope, while photographs might incorporate details not necessary to the visual impression that the design is intended to protect.

Our empirical analysis supports the shift in practice. Indeed, Figure 4—which plots the annual share of patents that relied on drawings, instead of photographs, and omits years with fewer than twenty-five observations—demonstrates that patentees relied almost exclusively on drawings after the Patent Office’s rule changes in 1891.

FIGURE 4: ANNUAL SHARE OF PATENTS WITH DRAWINGS (VERSUS PHOTOGRAPHS)



Perhaps it is even more surprising that our data shows that design patent applicants relied so heavily on photographic illustrations prior to the 1891 rule changes.

In addition to the sharp swing towards the use of drawings, there were other indications of the rising sensitivity about the nature and

89. 1891 RULES, *supra* note 88, Rule 84 (requiring special mounting and more copies than for drawings).

content of the disclosed visual information in design patent documents. For example, conflict arose over whether the drawings depicting designs for surface ornamentation must depict the precise articles of manufacture on which the surface ornamentation was applied,<sup>90</sup> a requirement that might have significantly narrowed the scope of protection for a number of design patents.<sup>91</sup> The Patent Office eventually declined to impose such a requirement, instead permitting applicants to rely on generic references to the article of manufacture in the *verbal* disclosure (e.g., in the *pro forma* claim).<sup>92</sup>

Having been denied the opportunity to draft claim sets in the style of utility patents, applicants attempted to recalibrate design patent scope visually by incorporating dotted lines in their drawings to designate design features they viewed as unimportant, leaving the essential features in solid lines.<sup>93</sup> The Patent Office initially insisted that these features still formed part of the design,<sup>94</sup> but later allowed applicants to use dotted lines to designate features that were physically present but were not to be taken into account in forming an overall visual impression of the claimed design.<sup>95</sup>

Other conflicts arose over matters of minutiae in the drawings, such as the use of shading techniques<sup>96</sup> and the use of views that seemed to be directed at conveying mechanical function, rather than visual appearance, to the consumer (e.g., cross-sectional views in some circumstances).<sup>97</sup> These issues took on exaggerated significance in a system that relied so heavily on visual information to establish scope, but

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90. See Jason J. Du Mont & Mark D. Janis, *Virtual Designs*, 17 STAN. TECH. L. REV. 107, 114–21 (2013) (synthesizing the relevant decisions).

91. See *Ex parte* Cady, 1916 Dec. Comm'r Pat. 57, 61–62 (“[U]ntil some court has definitely spoken [on this requirement] it will be safer and, I think, more proper for the applicant to state in his specification that his design is to be used as the figure of an enumerated number of articles of commerce.”).

92. See, e.g., *Ex parte* Andrews, 1917 Dec. Comm'r Pat. 13, 14; *Ex parte* Fulda, 1913 Dec. Comm'r Pat. 206, 209.

93. See, e.g., *Ex parte* Adams, 1898 Dec. Comm'r Pat. 109, 110.

94. *Id.*

95. See, e.g., *Ex parte* Guinzburg, 1925 Dec. Comm'r Pat. 159, 159 (involving a boundary line).

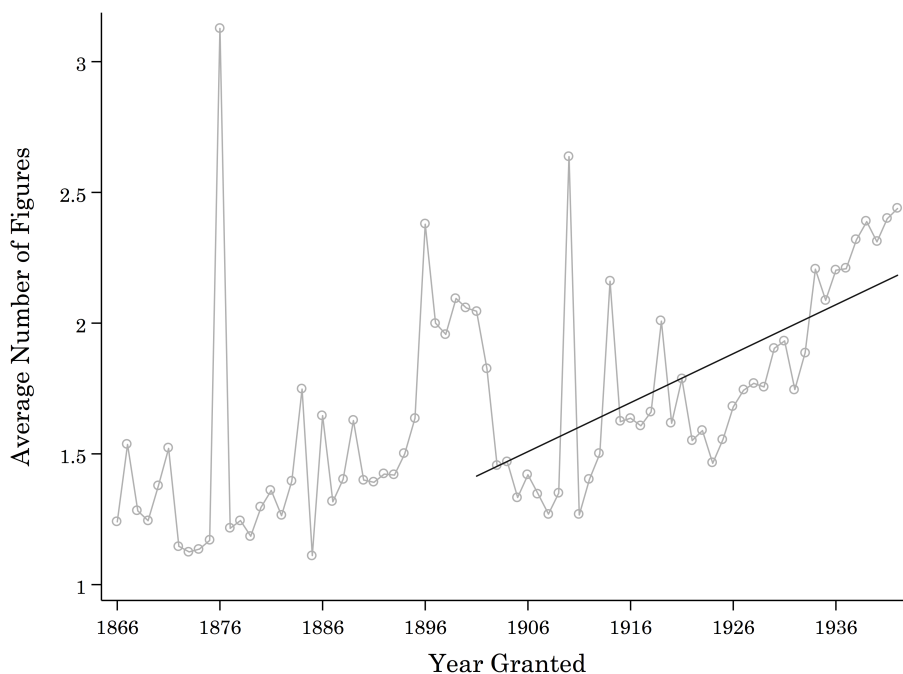
96. See, e.g., *Ex parte* Kohler, 1905 Dec. Comm'r Pat. 165, 165 (requiring surface shading in lines instead of stippling patterns). *But see Ex parte* Bryant, 1916 Dec. Comm'r Pat. 36, 36 (permitting stippling).

97. See, e.g., *Ex parte* Kohler, 1905 Dec. Comm'r Pat. 192, 192 (requiring that the drawings “illustrate the design as it will appear to purchasers and users”); *Ex parte* Weihman, 1905 Dec. Comm'r Pat. 437, 438 (rejecting the use of a panoramic view for displaying a thimble on the ground that it might imply the equivalent of utility patent protection).

they also reflected other considerations, such as administrative efficiency and proscriptions against protecting functional features.<sup>98</sup>

Perhaps the most prominent indicator of the shift to visual information is the increasing volume of figures observed in design patents during the late nineteenth and early twentieth centuries.<sup>99</sup> As depicted by the linear trend line in Figure 5 below, after the turn of the century—following the Patent Office’s adoption of the requirement for a single pro forma claim and its efforts to cut down on the contents of the written description—we found evidence in our data that applicants began using more figures in their design patents.

FIGURE 5: ANNUAL AVERAGE NUMBER OF FIGURES

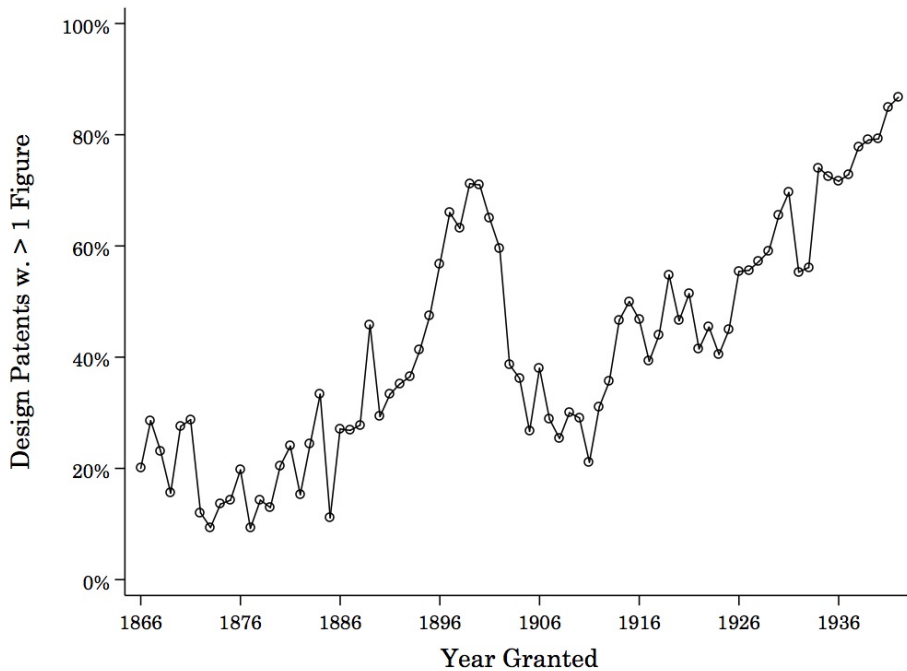


This trend may be easier to visualize in Figure 6, which depicts the share of design patents containing more than one figure.<sup>100</sup>

98. Eventually, the Patent Office adopted a more deferential approach to cross-sectional views. See, e.g., *Ex parte Lohmann*, 1912 Dec. Comm'r Pat. 336, 337 (allowing the use of a cross-sectional view of a tire tread design).

99. We recognize that the number of drawing figures in a design patent might also be affected by other factors, such as the nature of the subject matter.

100. The sharp drop in the early 1900s, interrupting what otherwise would have been a general increase from the early 1870s forward, may be a product of the implementation of the ornamentality requirement and the development of a restriction practice requiring applicants to split up applications that contained multiple distinct designs.

FIGURE 6: ANNUAL SHARE OF PATENTS WITH MORE THAN ONE FIGURE

In sum, our empirical work complements our historical analysis and provides evidence that design patentees at one time adopted disclosure techniques traditionally associated with utility patent practice. By the turn of the century, however, this practice had been significantly curtailed. We do not detect any single motivating influence explaining this shift from verbal to visual. Moreover, we see little evidence that either the courts or the Patent Office were cognizant of the difficulties that lay ahead in reconfiguring utility patent doctrine for an era of visual information. Nor do we find any indication of any conscious effort to reimagine the role to be played by a predominantly visual disclosure and how that might connect to the basic notion of the patent bargain.

## II. DESIGN PATENT DISCLOSURES IN THE MODERN ERA OF VISUAL INFORMATION

Once design patent law shifted to a practice of predominantly visual disclosure, it never returned to the more heterogeneous approach of the prior era. Yet modern design patent law has failed to develop native standards that reflect a coherent notion of the role that visual disclosure is to play or a coherent notion of what constitutes a protected “design.” Instead, it has borrowed ad hoc from utility patent jurisprudence, with little regard for the quandaries that arise when utility patent rhetoric is inserted into the visual inquiries of design patent law.

In this Part, we analyze three doctrinal contexts in which disclosure issues appear in modern design patent law. First, where “the overall appearance of the design is unclear” from the disclosure, the requirements of definiteness under § 112(b) and enablement under § 112(a) may be implicated.<sup>101</sup> Second, where the drawings have been amended during prosecution in a manner that lacks antecedent support in the application as originally filed—or in the priority document if there is a claim to priority—an issue of compliance with the § 112(a) written description requirement may arise.<sup>102</sup> Third, where the disclosure combines multiple designs that are deemed to be distinct from each other, the PTO may require the applicant to divide the disclosure into separate applications as part of the prosecution process.<sup>103</sup> While the PTO and the courts have attempted to articulate pragmatic rules to govern these scenarios, those rules rely too heavily on utility patent rhetoric and lack a core conception of what it means to claim intellectual property rights visually.

### *A. The Enabled (and Definite) Design*

Utility patent law requires that the patentee’s disclosure enable the practice of the claimed invention<sup>104</sup> and that the claims to that invention be definite.<sup>105</sup> The requirements are separate—and the 1952 Act was structured to encourage the distinction.<sup>106</sup> Enablement regulates

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101. MPEP, *supra* note 8, §1504.04; *infra* Part II.A.

102. *See infra* Part II.B.

103. *See infra* Part II.C.

104. 35 U.S.C. § 112(a) (2012).

105. 35 U.S.C. § 112(b) (2012); *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2128–31 (2014) (establishing the test for definiteness); *see* John R. Allison & Lisa Larrimore Ouellette, *How Courts Adjudicate Patent Definiteness and Disclosure*, 65 DUKE L.J. 609, 609–96 (2016) (assessing utility patent cases involving enablement, the written description requirement, and definiteness).

106. *See* P.J. Federico, *Commentary on the New Patent Act*, reprinted in 75 J. PAT. & TRADEMARK OFF. SOC’Y 161, 186 (1993) (explaining that the disclosure requirements and the definiteness

the relationship between the disclosure and the claims, serving “the dual function in the patent system of ensuring adequate disclosure of the claimed invention and of preventing claims broader than the disclosed invention.”<sup>107</sup> The enablement requirement demands that “[t]he scope of the claims must be less than or equal to the scope of the enablement” to “ensure that the public knowledge is enriched by the patent specification to a degree at least commensurate with the scope of the claims.”<sup>108</sup> It calls for an assessment as to whether a person of ordinary skill in the art, relying on the disclosure, can make and use the invention as claimed without “undue experimentation.”<sup>109</sup> Definiteness focuses on whether the claim language, understood in view of the disclosure (and, conceivably, extrinsic evidence), provides adequate notice of what is claimed.<sup>110</sup> Under the *Nautilus* standard, “[A] patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.”<sup>111</sup>

Little of this translates neatly to modern design patent law. While the design patent document is primarily visual, the enablement and definiteness inquiries in utility patent law rely largely on linguistic analysis. Whereas the claim is the disclosure in the design patent document, the claim is inherently presumed to be distinct from the disclosure in the utility patent law’s enablement and definiteness tests.<sup>112</sup>

The PTO and the courts have not dealt with these deeper problems head on. Instead, they have largely gotten by through the simple artifice of combining the enablement and indefiniteness analyses, reasoning that because the required pro forma claim incorporates the disclosure,

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requirement were placed in separate paragraphs of § 112 to “emphasize the distinction between the description and the claim”).

107. *MagSil Corp. v. Hitachi Glob. Storage Techs., Inc.*, 687 F.3d 1377, 1380–81 (Fed. Cir. 2012); see also Timothy R. Holbrook, *Possession in Patent Law*, 59 SMU L. REV. 123, 123–76 (2006) (questioning the theoretical and practical bases for the teaching function of enablement, and arguing that enablement is an inquiry into possession).

108. *Sitrick v. Dreamworks, LLC*, 516 F.3d 993, 999 (Fed. Cir. 2008) (quoting *Nat’l Recovery Techs., Inc. v. Magnetic Separation Sys., Inc.*, 166 F.3d 1190, 1195–96 (Fed. Cir. 1999)).

109. See *In re Wands*, 858 F.2d 731, 737 (Fed. Cir. 1988) (listing factors to be weighed in determining whether experimentation was undue).

110. The claim construction inquiry serves similar objectives. See *Media Rights Techs., Inc. v. Capital One Fin. Grp., Inc.*, 800 F.3d 1366, 1371 (Fed. Cir. 2015) (noting that claim construction and indefiniteness issues may be “intertwined”).

111. *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2124 (2014). Previously, the Federal Circuit had confined definiteness challenges to cases in which the claim language was “insolubly ambiguous.” See, e.g., *Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 1347 (Fed. Cir. 2005).

112. Enablement regulates scope by relating the claims to the disclosure. Definiteness analysis calls for the claims to be read in light of the disclosure.

any determination of the scope of protection sought by the claim is also a determination of the subject matter that must be enabled by the disclosure. Hence, if the appearance and shape or configuration of the design for which protection is sought cannot be determined or understood due to an inadequate visual disclosure, then the claim, which incorporates the visual disclosure, fails to particularly point out and distinctly claim the subject matter the inventor(s) regard as their invention . . . Furthermore, such disclosure fails to enable a designer of ordinary skill in the art to make an article having the shape and appearance of the design for which protection is sought.<sup>113</sup>

This approach has generated relatively little controversy in modern design patent litigation. The few reported decisions that present enablement/definiteness issues generally involve significant drafting errors. For example, the verbal disclosure in a design patent (limited though it may be) might include language that conflicts with the drawings.<sup>114</sup> The drawings may be incomplete<sup>115</sup> or, as in the case of the bedspring design shown in cross-section below, arguably incomprehensible.<sup>116</sup>

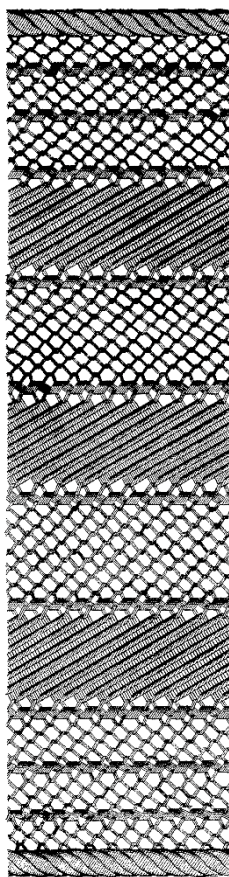
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113. MPEP, *supra* note 8, § 1504.04.

114. *See, e.g.,* Eclectic Prods., Inc. v. Painters Prods., Inc., No. 6:13-CV-02181-AA, 2015 WL 930045, at \*3 (D. Or. Mar. 2, 2015) (invalidating design patent where claim referred to an “applicator cap” but drawings omitted any cap, an inconsistency that created “uncertainty about the claim’s meaning” and resulted in a failure “to provide notice of what is claimed”).

115. *See, e.g.,* Philco Corp. v. Admiral Corp., 199 F. Supp. 797, 799–807 (D. Del. 1961) (finding disclosure inadequate where drawings of television cabinet did not show the back of the cabinet).

116. *See* James E. Tompkins Co. v. N.Y. Woven Wire Mattress Co., 159 F. 133, 133–35 (2d Cir. 1907) (invalidating the patent on prior art grounds but noting that the drawings might present an indefiniteness problem because it was unclear whether the relative number or the dimensions of the stripes would change when the design as depicted was scaled up for actual use); *see also* Seed Lighting Design Co. v. Home Depot, No. C 04-2291 SBA, 2005 WL 1868152, at \*9 (N.D. Cal. Aug. 3, 2005) (finding an indefiniteness problem where inventor himself testified he could not tell from drawings whether the base depicted in the drawings was a flat disk or rounded dome).

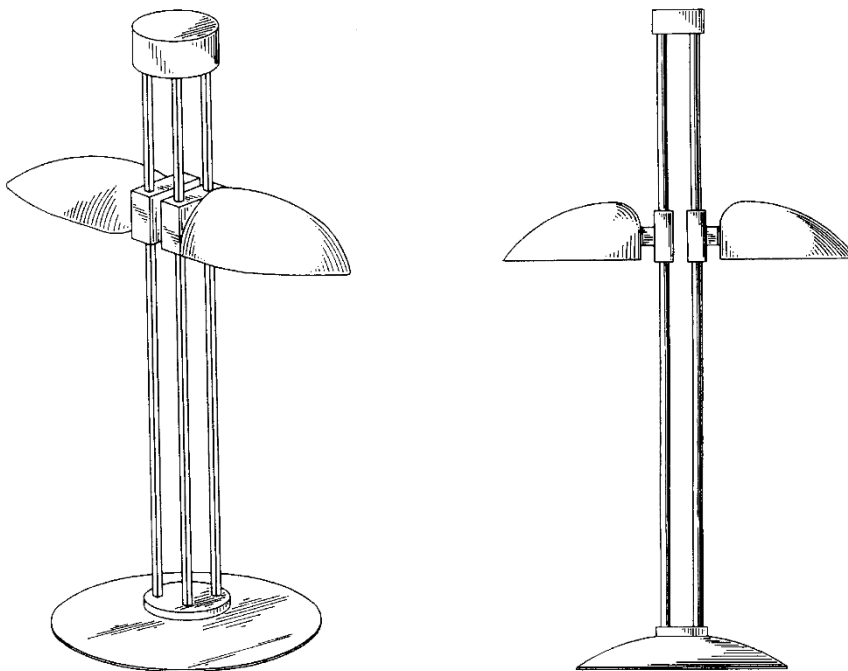
FIGURE 7: DRAWING FROM U.S. DESIGN PAT. NO. D37,649

Or the drawings may be inconsistent with one another—an assertion that the court accepted in a case involving the lamp designs shown below (Figure 8).<sup>117</sup>

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117. *Seed Lighting Design Co.*, 2005 WL 1868152, at \*8–9 (granting the defendant’s summary judgment for invalidity on a combination of enablement and indefiniteness grounds). In addition to the ambiguities in the drawings of the base—as shown in Figure 8—the court also found discrepancies with other drawings that related to the shades and disk situated above the rods. *Cf. Weber-Stephen Prods. LLC v. Sears Holding Corp.*, 145 F. Supp. 3d 793, 795–806 (2015) (noting inconsistencies in the drawings but declining to grant a motion for summary judgment on indefiniteness); *Times Three Clothier, LLC v. Spanx, Inc.*, No. 13 Civ. 2157(DLC), 2014 WL 1688130, at \*7–9 (S.D.N.Y. Apr. 29, 2014) (invalidating two design patents for indefiniteness where a reasonable jury could find that the inconsistent features in the drawings were inconsequential to the overall impression of the design).

FIGURE 8: DRAWINGS FROM U.S. DESIGN PAT. NO. D407,519  
Showing Discrepancies in the Lamp's Base (flat or domed)



Perhaps these are easy cases on their facts, but they leave underlying conceptual questions unresolved. Some are formal questions, such as whether it is possible to speak meaningfully about a “disclosure” enabling a “claim” when the claim expressly incorporates the disclosure. A number of decisions—some quite old—demonstrate that the ambiguities of the enablement/definiteness requirements allow abundant room for arguments that seem to have little to do with the adequacy of the disclosure, instead reflecting questions about subject matter eligibility and early obviousness requirements.<sup>118</sup>

For example, in *F. G. & W. F. Niedringhaus*,<sup>119</sup> the applicants had claimed a pattern that allegedly imparted a “beautifully-mottled appearance representing granite” to enameled iron ware.<sup>120</sup> The application included a photograph that evidently only showed the “outline” of the design and a written description that attempted to explain that the applicants had created a design “of ornament or pattern, to be

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118. See *supra* notes 49–67 and accompanying text (making a similar observation about cases that nominally address the propriety of verbal disclosures in design patents).

119. *F. G. & W. F. Niedringhaus*, 1875 Dec. Comm’r Pat. 22.

120. *Id.*

printed, painted, or otherwise placed on or worked into the various articles of enameled iron ware made and sold by us.”<sup>121</sup> The Commissioner upheld the examiner’s rejection for a defective disclosure,<sup>122</sup> but his analysis questioned the “patentability” of applying a peculiar granite-like color through an ordinary enameling process to iron ware, a rationale that may reflect qualms about subject matter eligibility or obviousness.<sup>123</sup>

Some cases decided near the beginning of the modern era of visual disclosures reflect similar ambiguities. In *Stirling*,<sup>124</sup> the Court of Customs and Patent Appeals (“C.C.P.A.”) affirmed the Patent Office’s rejection of a claim to a wallpaper design that had been created by creasing the paper, filling the creases with ink, and then photographing and moving the paper successively to achieve a desired effect.<sup>125</sup> The court reasoned that it would be “a virtual impossibility” for persons of ordinary skill to reproduce the design exactly, even if they followed the precise process that the designer had used.<sup>126</sup> Although this is the modern rhetoric of enablement (and/or indefiniteness),<sup>127</sup> the rejection that the C.C.P.A. was affirming was for “lack of patentable invention,”<sup>128</sup> a formulation that could be understood as a theory of subject matter eligibility<sup>129</sup> or of patentability over the prior art.

In another case involving a wallpaper design, shown below in Figure 9,<sup>130</sup> the court invalidated the design patent in suit on the ground that the design was not capable of reproduction if construed to encompass any wallpaper produced by the designer’s method and having “a cloud effect of visionary depth.”<sup>131</sup>

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121. *Id.*

122. *Id.* at 23 (expressing dismay that the disclosure was so “clearly deficient” as to requirements for “clearness, exactness, and particularity,” and asserting that compliance with those requirements was especially important for designs, “which must of necessity be something fixed and determined”).

123. See *In re Niedringhaus’ Application*, 2 MacArth. 149, 155–57 (D.C. 1875) (on appeal from lower court’s rejection of patent application, emphasizing obviousness).

124. *In re Stirling*, 18 C.C.P.A. 1071, 1071–75 (1931).

125. *Id.* at 1072.

126. *Id.* at 1074.

127. See also *In re Shetterly*, 18 C.C.P.A. 1169, 1171 (1931) (invoking *Stirling*; concluding that the design at issue was not “definite” because reproducing it would be “difficult, if not impossible”).

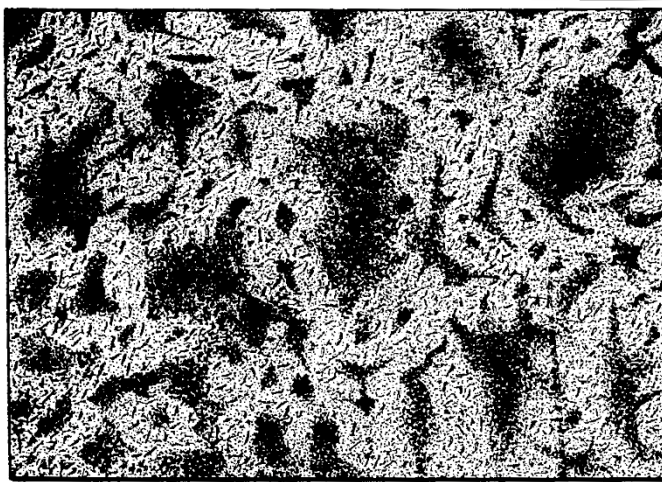
128. *Stirling*, 18 C.C.P.A. at 1072.

129. *Id.* at 1074 (commenting that the design “resulted haphazardly from certain movements or operations purely mechanical in their nature”). Alternatively, one might argue that the language invokes the principle of possession, which might tie to the written description requirement. *Id.* at 1073–75 (questioning whether there had been a conception in the patent law sense).

130. *Harmon Paper Co. v. Kimberly Clark Co.*, 289 F. 501, 501–09 (E.D. Wis. 1922).

131. *Id.* at 508.

FIGURE 9: DRAWING FROM U.S. DESIGN PATENT NO. D5,4152



One could read this as a case about the commensurate scope problem—i.e., disclosure was not enabling because an ordinary designer could not have produced at least a representative number of designs within the broad asserted scope of the claim. But the court's language suggests an alternative rationale: a concern that the patentee was attempting to capture an entire design style through an impermissibly broad construction.<sup>132</sup> This doctrinal ambivalence matters if it betrays uncertainty about the animating principles, as we think it might.

Even if taken at face value as enablement/indefiniteness decisions, these cases leave unanswered a tricky overarching question: What exactly should a design patent disclosure enable an ordinary designer to make? Early decisions suggested that design patentees might be required to disclose the *article* that was associated with the design in sufficient detail "to enable those skilled in the art to *make the article* without being forced to resort to conjecture."<sup>133</sup> But this would seem to suggest that (1) a design patent's disclosure is directed to persons having ordinary skill in manufacturing the article (whereas it is accepted that the disclosure is directed to the ordinary designer)<sup>134</sup> and (2) that

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132. *Id.* (worrying that design patentees might appropriate the "mahogany effect" of stained woodwork, the "stippling" effect of wall painting, and many other design effects). In utility patent cases, the written description requirement sometimes has been invoked to strike down claims to mere concepts. See *infra* Part II.B. (discussing how that requirement applies to designs).

133. *Ex parte Salsbury*, 38 U.S.P.Q. (BNA) 149 (Com'r Pat. & Trademarks 1938) (emphasis added); see also *Ex parte Saunders*, 119 U.S.P.Q. (BNA) 258 (Pat. Bd. App. 1958) (commenting that a design patent application must give an enabling disclosure of the "configuration and appearance of the article," but reversing the rejection on the ground that the disclosure was adequate).

134. See, e.g., MPEP, *supra* note 8, § 1504.04 (referring to a "designer of ordinary skill").

disclosure must contain whatever technical teachings the ordinary artisan would require in order to manufacture the article.

Indeed, the Board's decision in *Ex parte Sweeney*<sup>135</sup> may illustrate the consequences of pursuing such an approach. The rejected design patent application at issue disclosed a marbled pattern applied to tiles, and, like many of the other cases discussed in this Section, the Board affirmed on the ground that the disclosed design was incapable of being exactly reproduced.<sup>136</sup> But the *pattern* surely could have been photographed and replicated.<sup>137</sup> The Board's problem was that ordinary artisans familiar with "floor tile forming procedures and tile laying practices" would be unable to "carry out the disclosed pattern," because the pattern was a matter of "random occurrence" that did "not repeat even within the numerous tiles" shown in the drawings, and the tile alignment was also so "random" that "[n]o floor laid in such fashion would exactly duplicate the pattern."<sup>138</sup>

To the extent that cases like *Sweeney* suggest that design patents should be subjected to an enablement-to-make analysis that extends to making the associated article, those cases are surely wrong. They heedlessly equate design patent disclosures with those of utility patents, squarely contrary to the established modern norm that design patent disclosures are meant to convey only visual information.<sup>139</sup> Indeed, virtually no modern design patent disclosure—e.g., for car body designs, mobile phones, household appliances—would be likely to survive such a standard.

There is no indication that the courts or the PTO are poised to adopt a technical enablement-to-make standard. The law has moved in the opposite direction. For some types of designs, the PTO no longer requires that applicants even depict the appearance of the associated article.<sup>140</sup> Partial claiming is also permitted.<sup>141</sup> The lesson of *Sweeney* is largely negative: enablement-to-make, applied to design patents, cannot reasonably mean enablement to make the associated article.

The enable-to-make standard in the visual era could mean that the designer must disclose the technique used to achieve the design's appearance. But this, too, may be problematic. Suppose that a designer

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135. 123 U.S.P.Q. (BNA) 506, 1959 WL 6354 (B.P.A.I. 1959).

136. *Id.* at \*3.

137. The patentee had so argued, but the Board complained that the patentee could not say which area was to be taken as representative of the claimed design. *Id.*

138. *Id.*

139. See *supra* notes 4–10 and accompanying text (analyzing cases that actually forbid the inclusion of the same technical details that cases like *Sweeney* seemed to demand).

140. See *Du Mont & Janis*, *supra* note 90, at 114–21.

141. MPEP, *supra* note 8, § 1503.02.

claims a novel rug pattern design. Must the designer disclose details about the weaving technique that renders the novel appearance? Design patents, restricted as they are to visual information, tend to disclose no such details, and we know of no modern case requiring any such disclosure.

In sum, enablement/indefiniteness should not be dismissed as a dead letter in modern design patent law. The modern cases leave higher-level questions unanswered, and the reliance on utility patent rhetoric generates ambiguities. The problem here is a common one in design patent law: utility patent rhetoric has been borrowed without careful attention to the differences between utility patent disclosures and design patent disclosures. The enablement-to-make standard, applied vigorously, would risk inviting the PTO and the courts to require disclosure of detailed technical information in the service of a teaching function that design patent disclosures are not intended to perform. While we know of neither judges nor patent examiners who seem poised to deploy such a standard, its presence in the case law should give us pause about whether the role of the disclosure in design patents is well understood.

### *B. The Described Design*

In utility patent law, the enablement and written description requirements overlap in some cases,<sup>142</sup> but the Federal Circuit has concluded that the two requirements are separate.<sup>143</sup> Like the enablement requirement, the written description requirement regulates scope: it plays “a vital role in curtailing claims . . . that have not been invented, and thus cannot be described.”<sup>144</sup> The “essence” of the written description requirement, the Federal Circuit has said, “is that a patent applicant, as part of the bargain with the public, must describe his or her invention so that the public will know what it is and that he or she has truly made the claimed invention.”<sup>145</sup> Subsumed within this scope-regulating function of the disclosure (or at least closely related to it) is the role of the disclosure in policing possession—the disclosure must demonstrate to persons of ordinary skill in the art that the inventor was in possession of the claimed invention as of the application date.<sup>146</sup>

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142. *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1352 (Fed. Cir. 2010) (en banc).

143. *Id.* at 1344 (ruling that § 112 contains separate enablement and written description requirements).

144. *Id.* at 1352.

145. *Abbvie Deutschland GmbH & Co., KG v. Janssen Biotech, Inc.*, 759 F.3d 1285, 1298 (Fed. Cir. 2014).

146. *Vasudevan Software, Inc. v. MicroStrategy, Inc.*, 782 F.3d 671, 683 (Fed. Cir. 2015).

Like enablement/indefiniteness, the written description requirement might seem to be a fringe issue in modern design patent law, but when it does arise, it seems bereft of any coherent animating principle. The written description requirement has surfaced in design patent cases only in the context of drawing amendments that are alleged to imperil claims to priority. The leading decision is *In re Daniels*.<sup>147</sup> The applicant had claimed a design for a “leecher”<sup>148</sup> adorned with leaf ornamentation as shown below (left), in an application filed on the inventor’s behalf by the American Inventors Corporation.<sup>149</sup> While the application was pending, the FTC charged American Inventors with operating a deceptive invention promotion scheme, alleging that American Inventors systematically filed design patent applications on utility patent subject matter without informing their clients of the differences between the regimes, often adding decorative matter to the disclosed subject matter to facilitate allowance.<sup>150</sup> Daniels evidently became aware of this and retained new patent counsel, and the new lawyer filed a second application depicting the leecher design without the leaf ornamentation, as shown below (right),<sup>151</sup> and designated the second application a continuation of the first. Daniels apparently needed to rely on the filing date of the parent application in order to avoid intervening prior art,<sup>152</sup> and this presented a written description issue: Did the drawings in the parent application including the leaf ornamentation provide written description support for the drawings in the child application, which lacked the ornamentation?

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147. 144 F.3d 1452 (Fed. Cir. 1998).

148. Evidently a device for trapping leeches. *Id.* at 1454.

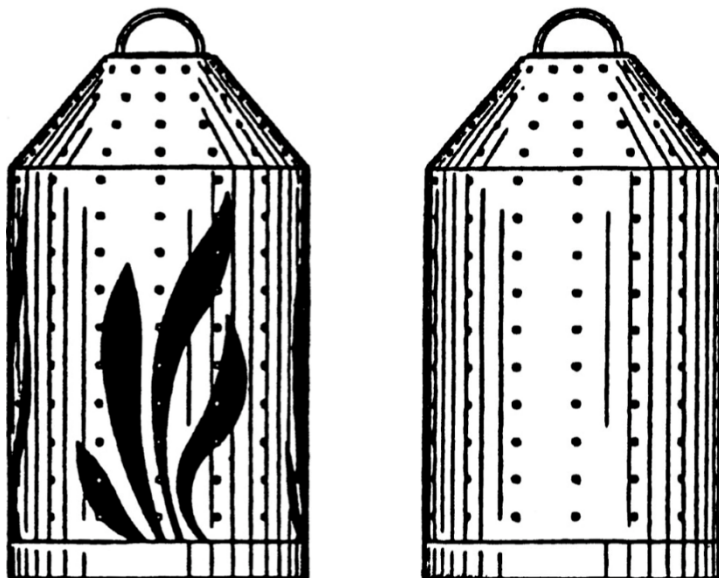
149. *Id.*

150. *Id.*

151. *Id.* at 1454–55.

152. *Id.* at 1455.

FIGURE 10: DRAWINGS FROM U.S. DESIGN PATENT APPLICATIONS  
SERIAL NOS. 07/902,055 AND 29/020,787



The Federal Circuit held that it did. The court viewed the test for sufficiency of the written description as “the same, whether for a design or a utility patent,”<sup>153</sup> although that could only be true at a relatively high level of generality. According to the court, the written description inquiry for design patents was “simply to determine whether the inventor had possession at the earlier date of what was claimed at the later date,” and this was to be carried out by looking at what was visible in the drawings, because it was the drawings of the design patent “that provide the description.”<sup>154</sup>

The court then applied its visibility test—with extraordinary generosity. The “article of manufacture” (by which the court apparently meant the body of the leecher) was “clearly visible in the earlier design application,” the court concluded.<sup>155</sup> The leaf ornamentation did not “obscure the design of the leecher, all details of which are visible in the drawings of the earlier application.”<sup>156</sup> It seemed important to the court that the change to the drawings involved surface ornamentation; it gave the court a basis for saying that the “leaf design” was a “mere indicium” that did not “override the underlying design.”<sup>157</sup> Thus, according to the

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153. *Id.* at 1456.

154. *Id.*

155. *Id.* at 1456–57.

156. *Id.* at 1457.

157. *Id.*

court, the drawings in the parent application demonstrated to the hypothetical designer of ordinary skill that, as of the parent application's filing date, Daniels had possession of "the later claimed design of that article."<sup>158</sup>

In current design patent law, the major doctrinal issue surrounding the written description requirement is whether to take the *Daniels* visibility test seriously as precedent. It might reasonably be read as a test of general application (reinforcing the message that § 112 compliance is a casual matter for design patents); as a test limited to the curious instance of amendments that remove superficial surface ornamentation from shape or configuration claims;<sup>159</sup> or as a case that should merely be written off as a judicial response to an especially sympathetic plaintiff. While the virtual absence of other significant decisions on the written description requirement for design patents has rendered the *Daniels* test the de facto foundation for analysis, it is not clear that *Daniels* has permanently put to rest other, potentially more aggressive approaches to the written description requirement, and sentiment in favor of such approaches periodically has manifested itself in case law and PTO proposals.

One such approach rests on the idea that design subject matter is unitary. It is taken as axiomatic that "[a] design claim covers the entire design as a whole" and that this protection "does not extend to any individual part or portion thereof."<sup>160</sup> The *Daniels* test, at least as applied in *Daniels* itself, arguably takes some liberties with the notion of unitary design by shrugging off the disappearing leaf ornamentation as "mere indicium."

While this is troubling, pressing the unitary design thesis to its ultimate extreme is also troubling. If design is truly unitary, then it might seem that *any* change to a drawing might implicate the written description requirement. According to the Federal Circuit in *Daniels*, it was just this sort of extreme reasoning that had animated the Board's decision, and that required reversal.<sup>161</sup>

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158. *Id.* The court also said that the subject matter of the later application is common to that of the earlier application, *id.*, but this seems to us more a conclusion than a rationale.

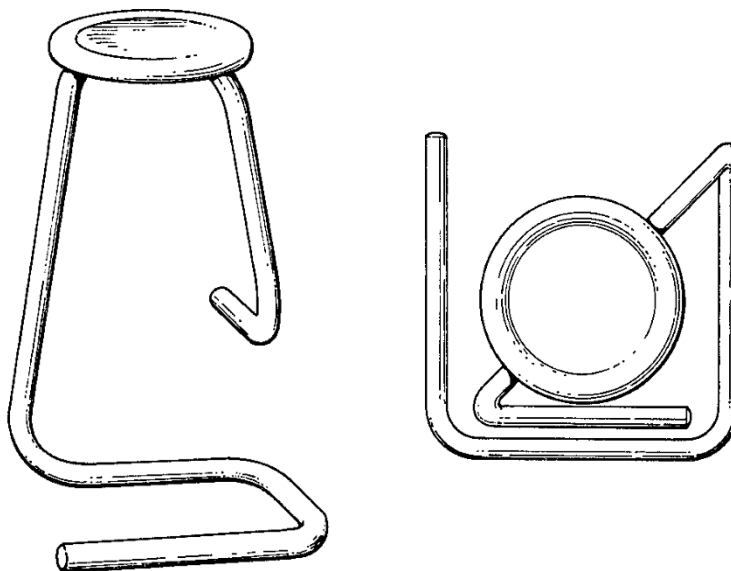
159. The MPEP endorses *Daniels* but also attempts to derive a general rule from it that juxtaposes undefined concepts of the "appearance" of a design and a design's "configuration": "An amendment which alters the appearance of the claimed design by removing two-dimensional, superimposed surface treatment may be permitted if it is clear from the application that applicant had possession of the underlying configuration of the design without the surface treatment at the time of filing of the application." MPEP, *supra* note 8, § 1504.04.

160. MPEP, *supra* note 8, § 1504.05; see *KeyStone Retaining Wall Sys., Inc. v. Westrock, Inc.*, 997 F.2d 1444, 1450 (Fed. Cir. 1993) (rejecting claim for infringement).

161. *Daniels*, 144 F.3d at 1457.

Yet in a prior case, *Salmon*,<sup>162</sup> the Federal Circuit had seemed to lean heavily on the notion of unitary design to explain why an applicant's claim to priority was defeated by a failure to comply with the written description requirement. In *Salmon*, the Federal Circuit had rejected an applicant's assertion that its claimed design for a stool having a round seat could trace priority back to an earlier application showing a stool design having exactly the same features, except with a square seat.<sup>163</sup> The drawings from the later application are shown below:

FIGURE 11: DRAWINGS FROM U.S. DESIGN PATENT No. D234,101



The court explained that the stool design claimed in the later application was not the “same design” as that claimed in the first application.<sup>164</sup> The court said that “[n]othing in the text of the application or the attached drawings even intimated that the square shape of the seat was not an integral element” of the design being claimed in the first application, nor did the text or drawings suggest that “the design consisted of only the tubular portion of the stool and not the seat.”<sup>165</sup> Substituting any other seat shape for the round shape constituted an

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162. *In re Salmon*, 705 F.2d 1579 (Fed. Cir. 1983).

163. *Id.* at 1582. The patentee had sought to have the second patent reissued to incorporate the claim to priority. *Id.* at 1580.

164. *Id.* at 1581–82. Both seat shapes had been depicted in solid lines, unfortunately for the applicant. See *infra* notes 173–174 and accompanying text for further discussion of the issue of partial claiming.

165. *Salmon*, 705 F.2d at 1581.

impermissible change of “configuration,” the court declared.<sup>166</sup> The court rejected the patentee’s argument that the shape of the seat was “immaterial” or that the round shape was a mere “obvious variation” over the square.<sup>167</sup> The court reasoned that all elements of a design are material because a design is a “unitary thing,”<sup>168</sup> although it also said that determining “whether particular differences in designs are sufficiently significant to produce different designs is largely a matter of aesthetics.”<sup>169</sup>

This drew a sharp dissent from Judge Nichols, who asserted that “[t]here is no reason, except judicial fiat, why a design, even if largely a matter of aesthetics, should not allow [for] immaterial variations.”<sup>170</sup> According to Judge Nichols, “The court is treating design as a mysterious black art it cannot understand, and will not learn, so cosmic significance may lurk in variations that would be irrelevant and immaterial to a tutored eye. If design is thus unknowable, design patents should not be litigated in judicial tribunals.”<sup>171</sup>

The *Daniels* court was aware of *Salmon* and attempted to distinguish it, albeit in entirely conclusory terms.<sup>172</sup> And perhaps there are ways to harmonize *Salmon* with *Daniels* or otherwise to minimize the effect of *Salmon* on the *Daniels* visibility test. One might argue that *Salmon* is an example of the rare situation in which the original drawing fails the visibility test. By virtually ignoring the ordinary designer as the interpretative lens for the analysis, perhaps the court in *Salmon* viewed *Daniels* as accommodating only the subtraction of minor visual elements from the drawings (i.e., where the addition or substitution of almost any visible element fails). Relatedly, one might point out that *Salmon* could be read as a story of applicant error concerning the conceptualization of the design—the applicant should have originally rendered the stool seat in broken lines to the extent that the design inheres only in the tubular support portion, a practice sometimes referred to as partial claiming.<sup>173</sup> Indeed, the PTO has previously chosen to read *Salmon* in this manner, as support for a general rule that “[a]n amendment that changes the

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166. *Id.* (quoting the Board with approval).

167. The latter argument has been rejected in utility patent law. *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1352 (Fed. Cir. 2010) (en banc).

168. *Salmon*, 705 F.2d at 1582 (quoting *In re Blum*, 374 F.2d 904, 907 (C.C.P.A. 1967)).

169. *Id.*

170. *Id.* at 1583 (Nichols, J., dissenting).

171. *Id.*

172. *In re Daniels*, 144 F.3d 1452, 1457 (Fed. Cir. 1998) (merely reciting that the earlier application did not provide a description of the later-claimed design).

173. See 37 C.F.R. § 1.152 (2016) (“Broken lines may be used to show visible environmental structure . . .”); *In re Zahn*, 617 F.2d 261 (C.C.P.A. 1980) (upholding the use of broken lines to show unclaimed but visible aspects of a design).

scope of a design by either reducing certain portions of the drawing to broken lines or converting broken line structure to solid lines” does not give rise to a written description problem because the “applicant was in possession of everything disclosed in the drawing at the time the application was filed and the mere reduction of certain portions to broken lines or conversion of broken line structure to solid lines is not a departure from the original disclosure.”<sup>174</sup>

On the other hand, *Salmon* could be seen as an exemplar of the reliance on unitary design and thus as the antithesis of the *Daniels* case. This is important because, notwithstanding *Daniels*, there have been some indications that the PTO might breathe new life into the written description requirement as applied to design patents.<sup>175</sup> In a public presentation in 2014, a PTO design specialist seemed to call for a written description requirement applicable to amended or later-added drawings in design patent cases that would inquire broadly into whether the “amended design looks different from the original,” or whether the amended design was “recognizable” by those of ordinary skill as the original design.<sup>176</sup> The PTO had also issued a Request for Comments on a new multi-factor approach for applying the written description requirement in design patent matters, although the PTO emphasized that the approach was intended to govern “rare” cases.<sup>177</sup> After vocal

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174. MPEP, *supra* note 8, § 1504.04.

175. The Federal Circuit’s decision applying the written description requirement in *In re Owens*, 710 F.3d 1362, 1368–69 (Fed. Cir. 2013), should not be taken as indicative of a trend towards more rigorous enforcement of the requirement, because *Owens* involves truly peculiar facts. In the case, the Federal Circuit upheld the denial of a claim to priority based on the written description requirement where the continuing application added a so-called “unclaimed boundary line” to the drawings where there had been no indication of any such boundary in the original drawings. *Id.* The case involved a design for a bottle, and the original drawings showed an undivided pentagonal front panel, whereas the continuing application added a boundary line to mark off a trapezoidal top portion of the front panel. *Id.* at 1368.

176. See Richard Stockton, *The Written Description Requirement in US Design Patent Prosecution: Background and Recent Developments*, BANNER & WITCOFF (Mar. 12, 2014), [http://bannerwitcoff.com/\\_docs/library/articles/R.%20Stockton.Written%20Description%20Recent%20Developments%20and%20Summary.pdf](http://bannerwitcoff.com/_docs/library/articles/R.%20Stockton.Written%20Description%20Recent%20Developments%20and%20Summary.pdf) [https://perma.cc/4SB9-3DBM]. Moreover, the presentation seemed to suggest that amendments converting solid lines to broken lines (or vice versa) were likely to change the overall appearance of the design, contrary to the view of *Salmon* taken in the MPEP.

177. Request for Comments and Notice of Roundtable Event on the Written Description Requirement for Design Applications, 79 Fed. Reg. 7,171, 7,172 (Feb. 4, 2014). The proposed factors included:

- (1) The presence of a common theme among the subset of elements forming the newly identified design claim, such as a common appearance;
- (2) the subset of elements forming the newly identified design claim share an operational and/or visual connection due to the nature of the particular article of manufacture (e.g., set of tail lights of an automobile);

critique, the PTO withdrew its first proposal and substituted a second,<sup>178</sup> discarding the formal multi-factor approach in favor of a “totality” of considerations approach, where the considerations include: (1) what the disclosure in the parent application (including drawings and any verbal disclosure) “reasonably conveyed to an ordinary designer at the time of the invention”; (2) “how an ordinary designer in the art would have designed the article that is the subject of the design claim”; and (3) “the nature and intended use of the article embodying the claimed design as identified by the title or description.”<sup>179</sup>

Whether the second proposed test differs materially from the first may be debated,<sup>180</sup> but it is difficult to square either test with the visibility test of *Daniels*. As a practical matter, that problem may be confined to a narrow band of cases (at least according to the PTO’s pronouncements), but this movement on the written description requirement is important for reasons that transcend the practical: it exposes continuing uncertainty about how to relate the disclosure in a design patent to the subject matter that design patents protect. In the absence of progress towards refining the concept of the design to be protected, the likelihood of extreme and unpredictable swings in the application of the written description requirement to designs is substantial.

### *C. Restriction Practice and the Concept of Embodiments of a Design*

Restriction practice provides the final example of an effort to apply utility patent rules to design disclosures. It yields yet additional rhetoric, and potentially additional confusion, on what constitutes the protected subject matter in a design patent.

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(3) the subset of elements forming the newly identified design claim is a self-contained design within the original design;

(4) a fundamental relationship among the subset of elements forming the newly identified design claim is established by the context in which the elements appear; and/or

(5) the subset of elements forming the newly identified design claim gives the same overall impression as the original design claim.

*Id.* The “rare” cases included only those in which the amended drawings were directed at some subsidiary portion of the design depicted in the original drawings. *Id.*

178. See generally Request for Comments on the Application of the Written Description Requirement to Specific Situations in Design Applications, 81 Fed. Reg. 22,233 (Apr. 8, 2016).

179. *Id.* at 22,236.

180. See, e.g., Am. Intellectual Prop. Law Ass’n, *Comment Letter on Request for Comments on the Application of the Written Description Requirement to Specific Situations in Design Applications*, U.S. PAT. & TRADEMARK OFF. (June 14, 2016), [http://www.uspto.gov/sites/default/files/documents/designcomments\\_a\\_aipla\\_14june2016.pdf](http://www.uspto.gov/sites/default/files/documents/designcomments_a_aipla_14june2016.pdf) [<https://perma.cc/JXL9-URH2>] (arguing that the second test is objectionable for the same reasons as the first—it would increase uncertainty and cost, and would induce applicants to “front load” design patent disclosures with large numbers of embodiments to hedge against rigorous application of the written description requirement).

Any given utility patent is to be directed to only a single invention. But utility patents frequently disclose multiple embodiments of the invention being claimed.<sup>181</sup> This practice is permissible as long as the disclosed embodiments are all directed to the same invention. If two or more “independent and distinct” inventions are claimed in one application, the PTO is authorized to require the applicant to split the application into multiple pieces, each to be filed as an individual application.<sup>182</sup> The procedure is referred to as “restriction practice” and exists to prevent applicants from bundling multiple inventions together into one application as a strategy for avoiding filing fees. To determine whether disclosed embodiments are directed to independent and distinct inventions, the PTO determines (1) whether there is any disclosed relationship between them in design, operation, and effect (the independence inquiry) and, if not, (2) whether at least one is patentable (novel and nonobvious) over another.<sup>183</sup>

These general principles have been extended to design patent practice, but, as with the § 112 doctrines, the translation is not straightforward and the results are unpredictable. A threshold legal question is whether the inclusion of plural embodiments in a design patent would offend restrictions on eligible subject matter.<sup>184</sup> But the C.C.P.A. summarily rejected this argument long ago.<sup>185</sup>

Another key threshold question is primarily conceptual: Can one meaningfully speak of multiple “embodiments” of a single design for design patent purposes, especially given the fact that only designs, not design concepts, are eligible for design patent protection? For example, Pacific Coast Marine filed a design patent application directed to boat windshield designs that disclosed what Pacific Coast asserted were seven embodiments of a single design, depicted in the drawing figures below:<sup>186</sup>

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181. And, because utility patents may contain multiple claims, it is commonplace for a utility patent to include some claims that encompass the entire group of disclosed embodiments, and other claims that may be drawn more narrowly to individual embodiments.

182. 35 U.S.C. § 121 (2012).

183. MPEP, *supra* note 8, § 802.01.

184. *See* 35 U.S.C. § 171 (2012) (restricting eligible subject matter to any design for “an article of manufacture”).

185. *In re* Rubinfeld, 270 F.2d 391, 393 (C.C.P.A. 1959). The PTO took the position that § 171’s reference to “an” article of manufacture limited applicants to a single article in any given design patent application. *Id.* The C.C.P.A. dismissed this argument, pointing out that § 171 was no more limited to a single article by its language than was § 101, and it was already well-established that § 101 allowed for multiple embodiments of inventions to be disclosed in utility patents. *Id.*; *see also In re* Platner, 155 U.S.P.Q. (BNA) 222 (Comm’r Pat. 1967) (rejecting the argument that including plural embodiments in a design patent application renders the application per se indefinite).

186. *Pac. Coast Marine Windshields Ltd. v. Malibu Boats, LLC*, 739 F.3d 694, 697–99 (Fed. Cir. 2014); U.S. Patent. No. D555,070 (issued Nov. 13, 2007).

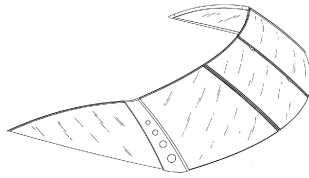
FIGURE 12: DRAWINGS FROM U.S. DESIGN PATENT APPLICATION SERIAL NO. 29/258,753

FIG. 1

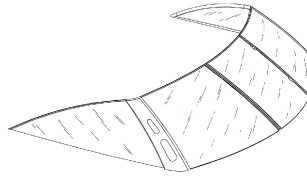


FIG. 10

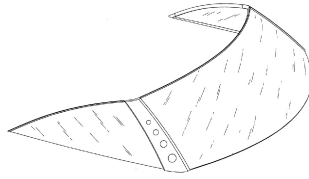


FIG. 7

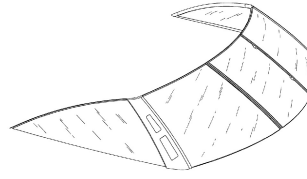


FIG. 11

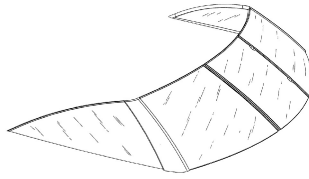


FIG. 8

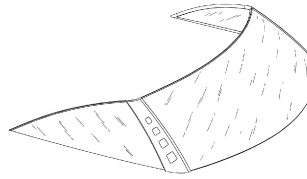


FIG. 12

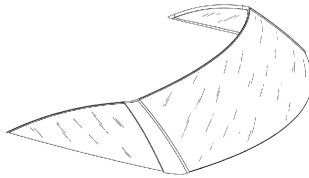


FIG. 9

As shown, the depicted windshields vary according to (1) the number of vent openings, (2) the shapes of the vent openings, and (3) the presence or absence of a center hatch. In what sense could these even conceivably be embodiments of a single design, rather than merely a group of independent and distinct designs?

At a conceptual level, the answer should be that not every change to a drawing results in a change to the overall visual impression conveyed by the drawing, and thus not every variation between drawings should result in a determination that the drawings depict independent and distinct designs. Attempting to operationalize that answer in design patent doctrine, the C.C.P.A. observed in *In re Rubinfeld* that under the standard for obvious-type double patenting, a designer cannot obtain

separate patents on designs that are obvious variations of one another.<sup>187</sup> Thus, the court reasoned, drawings that depict obvious or substantially similar variants ought to be permitted within a single design patent application (and, it follows, necessarily conceptualized as “embodiments” of a single “design”).<sup>188</sup>

The PTO has attempted to incorporate these principles into its rules for current restriction practice. The rules expressly permit plural embodiments of a design in a single design patent application, but caution that the disclosure should “make clear that multiple embodiments are disclosed and should particularize the differences between the embodiments.”<sup>189</sup> The rules also forbid the disclosure of more than one independent or distinct design. To determine distinctness (the usual issue in design patent practice), the PTO employs the design patent obviousness standard, testing whether any given purported embodiment in the design patent’s disclosure is in fact a mere obvious variant of another.<sup>190</sup> Purported embodiments that fail this test are treated as distinct designs that must be restricted out and protected, if at all, in a separate design patent application.

None of this is quite as easy as it may sound. For example, to return to the boat windshield drawings, the PTO imposed a restriction requirement, identifying five designs, not just one, and grouping the seven depicted windshields in five groups as follows (the groupings being indicated by the Roman numerals):<sup>191</sup>

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187. 270 F.2d at 393–94. The court also invoked *Gorham Co. v. White*, 81 U.S. 511 (1871), for the proposition that the scope of a design patent is not limited to identical copies of the depicted design. *Rubinfield*, 270 F.2d at 393.

188. The C.C.P.A. also rejected older Commissioner’s decisions that had seemed to suggest that a design patent applicant should subdivide a design into essential and nonessential elements and provide drawings that depicted only the essential elements. *Rubinfield*, 270 F.2d at 394 (discussing *Ex parte Kahn*, 1905 C.D. 212, and *Feder v. Poyet*, 1899 C.D. 218).

189. MPEP, *supra* note 8, § 1504.05.

190. The PTO specifies:

[I]t must first be determined whether the embodiments have overall appearances that are basically the same as each other. If the appearances of the embodiments are considered to be basically the same, then it must be determined whether the differences are either minor between the embodiments and not a patentable distinction, or obvious to a designer of ordinary skill in view of the analogous prior art. If embodiments meet both of the above criteria they may be retained in a single application. If embodiments do not meet either one of the above criteria, restriction must be required.

*Id.* The PTO takes a harder line where the design patent application discloses a design that is composed of a combination of components, and also separately depicts individual components of the combination. *See id.* § 1504.06 (instructing examiners to apply the obviousness standard, but without looking to any additional “analogous” prior art, an analysis that may be more likely to yield a conclusion that one embodiment is not an obvious variant of another).

191. *Pac. Coast Marine*, 739 F.3d at 698.

FIGURE 13: EXAMINER'S GROUPINGS FROM U.S. DESIGN PATENT  
APPLICATION SERIAL No. 29/258,753

**GROUP I**

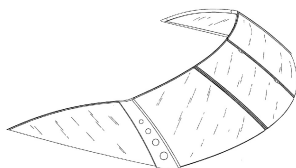


FIG. 1

**GROUP II**

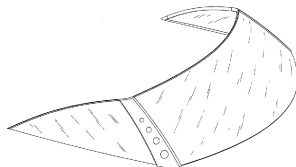


FIG. 7

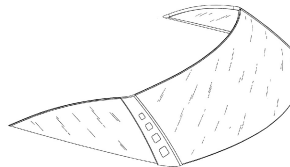


FIG. 12

**GROUP III**

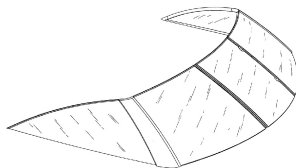


FIG. 8

**GROUP IV**

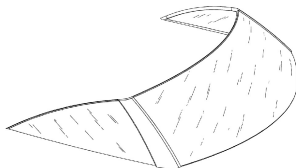


FIG. 9

**GROUP V**

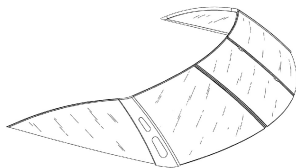


FIG. 10

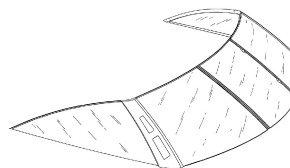


FIG. 11

Our point is not to quarrel with the examiner's groupings or to pick apart the underlying obviousness analyses. Rather, it is to suggest that there are difficult doctrinal and conceptual issues here below the surface that warrant discussion. One doctrinal issue is that of perspective: obviousness is determined from the perspective of the hypothetical ordinary designer, but infringement is determined from the

perspective of the ordinary observer.<sup>192</sup> It is not self-evident which perspective should govern the question of whether variations among drawings constitute embodiments of a single design. Second, the obviousness standard embedded in the PTO's analysis has never been squarely examined at the Federal Circuit or the Supreme Court to determine whether it satisfies the Supreme Court's expectations for obviousness analysis set forth in the *KSR* utility patent decision.<sup>193</sup>

Third, it is remarkably difficult to extract from the PTO's restriction practice any clear conception of what constitutes the design subject matter in a given design patent. In the *Pacific Marine* example, even accepting the PTO's restriction rules, a reasonable analysis might lead to a conclusion that there are seven designs—or one design—or five. Utility patent rhetoric, which draws on notions that there are such things as “embodiments” of designs, only lends further confusion to the analysis.

### CONCLUSION

Our analysis identifies three major challenges lying ahead for disclosure doctrine and theory in design patent law. First, design patent law must do a better job of developing rules that reflect the insistence on predominantly visual disclosure. But this is not merely an exercise in borrowing rules ad hoc from utility patent law, because the vast jurisprudence developed there for adequacy of disclosure is deeply infused with linguistic inquiries that take for granted that the technical disclosure will be rendered predominantly in writing. If this task proves too much for design patent law, it may be time to rethink the nearly exclusive reliance on visual information in design patent documents.

Second, design patent rules on disclosure must be framed in language that recognizes that the disclosure and the claim are not readily segregable in design patents. This is crucial because the rhetoric of utility patent disclosure doctrine takes as an article of faith that one can talk sensibly about a “description” separate of a “claim.”<sup>194</sup> Design patent rules are merely circular when framed in that same rhetoric.

Third, design patent law ultimately must arrive at a coherent notion of the protected subject matter. Modern design patent disclosure cases often seem inconsequential on the surface, but they often pose (and

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192. When *Rubinfeld* was decided, the perspective to be used for obviousness had not been settled definitively. See *In re Nalbandian*, 661 F.2d 1214, 1214 (C.C.P.A. 1981) (adopting the “ordinary designer” standard).

193. See *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398 (2007).

194. See, e.g., *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1347 (Fed. Cir. 2010) (en banc) (stating that “[c]laims define and circumscribe” while “the written description discloses and teaches”).

leave unanswered) difficult questions about the object of design patent protection, a fundamental question in any intellectual property regime.

## APPENDIX: EMPIRICAL METHODOLOGY

### *A. Sampling*

We collected the design patent numbers, grant dates, and class information used in this study through a series of Freedom of Information Act requests with the PTO. We removed withdrawn patents, yielding a population of 134,171 design patents.<sup>195</sup> We used this dataset to create a stratified random sample that was proportionally allocated by year of grant.<sup>196</sup> This approach was intended to ensure that our sample was not overly concentrated with newer patents, since patenting rates have grown tremendously over the years and our initial historical research indicated that we were likely to observe changes in the patents' disclosures over time. The resulting sample included 11,870 design patents and reflects about 8.85% of the total patents granted during this time period.

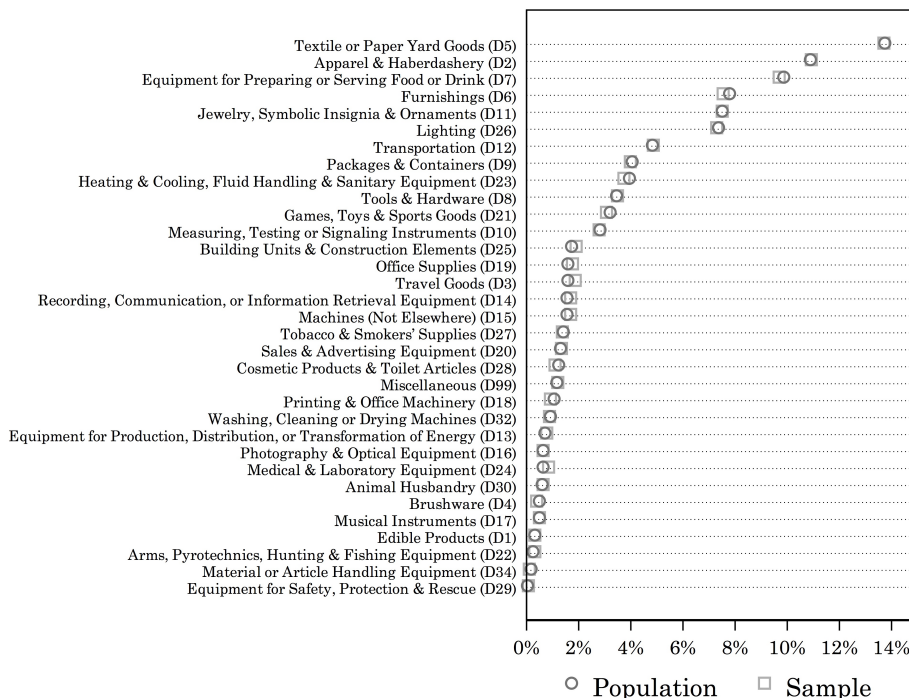
In addition to being proportionally allocated by year, the resulting sample is also representative of the most common design sectors patented during this era. Figure 14 below compares the parent class data from our sample with the population of all design patents granted over this period.

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195. Of these 134,171 non-withdrawn design patents, 90 were reissued. The design patents span from U.S. Patent No. D1 (issued Nov. 9, 1842) to U.S. Patent No. D134,277 (issued Nov. 3, 1842).

196. We set the range by issue dates because filing dates are unknown for the early patents in the dataset. For STATA users interested in reproducing the sample, we set the seed to 38846785, which was the serial number of a dollar bill found in one of the author's pockets that day.

FIGURE 14: SHARE OF DESIGN PATENTS GRANTED BY PARENT CLASS (1842 TO 1942)



As exemplified by the proximity of each class's markers in the figure, our sample's class composition tracks well with the population. Indeed, when comparing the sample and population targets, the thirty-three parent classes only varied from each other by about 0.086%, on average.<sup>197</sup> Based on the limited information available about the broader population of design patents, by randomly sampling via proportional allocation by year, our sample appears adequately representative of design patents granted over the regime's first century.

### B. Coding & Reliability

Because existing datasets, like those at the PTO, use low-quality digital scans of old design patents, we manually coded all of the disclosure-related metrics that were used in this study. To accomplish this, we collaborated with a group of research assistants at the Indiana University Maurer School of Law during the 2015–2016 school year that

197. Min=0.0043, Q1=0.0219, Q2=0.0612, Q3=0.1328, Max=0.2560. While the importance of these differences varies by relative quantity, even in classes with small compositions these differences were slight. For example, when comparing the twenty-one classes whose share of total patents granted was less than 2%, our sample only varies from the target population by about 0.0873% on average (Min=0.0067, Q1=0.0232, Q3=0.1328, Max=0.2560).

were in their second or third years of law school and enrolled in various intellectual property law courses.<sup>198</sup> All members of the group attended a series of informational meetings about the project and were given the same code book and examples prior to beginning. In addition, we met regularly with the group throughout the process to ensure uniformity. However, coders were not informed about our research hypotheses during the process.

Each student received an equal subset of design patents to code, which were assigned on a rolling basis by (grant) year to ensure an equal distribution of coders across the dataset's full timeline. About 10% of the sample was double coded to assess interrater reliability. Since some of the patents are incomplete—such as those missing drawings or a description—we rounded up and double coded 1,200 patents (i.e., 10.1% of the sample). Each of the core variables are discussed in further detail below. All were within acceptable interrater reliability norms.

### 1. Written Description (including Claims)

To assess the amount of verbal content found in design patents, coders first measured the length of each patent's written description (including claims). We opted for a length measurement over a simple word count analysis because of the poor quality of the scanned patents found in the Patent Office's full-image database, whose scanning artifacts artificially inflate their word counts. Our coders measured the length of each patent by hand, using Adobe Acrobat's "Distance Tool" to obtain a consistent calibration across all patents and coders. These measurements represent the height (inches) of the written content found below the patent's title and bibliographic information—i.e., the written description (including the claims).

Our coders measured these distances down to a hundredth of an inch. If a patent's description spanned more than one page, each page's measurements were added together. Since there was a high degree of heterogeneity in the captions—largely due to changes in the fonts and spacing over this time—our coders did not include the captions in their measurements. While we would have preferred to measure the length of written description separately from the claims, the Patent Office's two-column format made this impossible. The old patents also lacked uniform column widths and line references, which might have made this feasible.

We found that about 94% of the measurements in our double coded set were within 0.10 inches of those in our main sample (i.e., 1,124 of

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198. Special thanks to Jeffrey Furminger, Daniel Parks, Sarah Rounsifer, Betsy Tao, and Wenkai Tzeng.

1,200). Additionally, the intraclass correlation coefficient—which is bound between 0 and 1, where 1 indicates perfect correlation—was 0.97220, indicating the variable was highly reliable.

After measuring the length of each specification, coders also recorded whether each patent's specification was handwritten and the quantity of claims that it contained. Interrater reliability for both metrics was excellent: Of the 1,200 double coded patents, we observed a 100% match rate for both. Since we observed perfect agreement, the Cohen Kappa statistic—which ranges from 0 to 1, where higher values indicate that agreement is less likely to be attributable to chance, and is therefore more reliable—for both variables was a perfect 1.

## 2. Figures

To assess the amount of visual information found in design patents, we coded their quantity of figures and type of representation (i.e., photograph or drawing). While counting the number of figures in a design patent is quite easy today, this proved more difficult over the time horizon in our sample due to the lack of figure numbering, missing descriptions, and the poor quality of many of the old scanned patents (often making it difficult to distinguish some cross-sectional and side views from simple scratches on the scans).<sup>199</sup> Nonetheless, interrater reliability was high. Even if we include fonts—which are most likely to be miscounted—only 27 of the 1,200 double coded patents did not match the quantity of figures coded in our initial sample, resulting in a 98% rate of agreement. As another very strong indicator of its reliability, this variable's Cohen Kappa was 0.9661.<sup>200</sup>

Coders also indicated whether the figures appeared to be a photograph or drawing of the claimed design. The interrater reliability of our sample was high, resulting in a 97% rate of agreement with those in our double coded sample (1,169 of 1,200). Additionally, the Cohen Kappa statistic for this variable was 0.7423, indicating the strength of agreement was substantial.<sup>201</sup>

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199. See, e.g., U.S. Patent No. D950 (issued Oct. 13, 1857).

200. While the number of figures is technically a continuous variable, we have treated it as an ordinal variable here because of the observed lack of variability.

201. See J. Richard Landis & Gary G. Koch, *The Measurement of Observer Agreement for Categorical Data*, 33 *BIOMETRICS* 159, 165 (1977).