


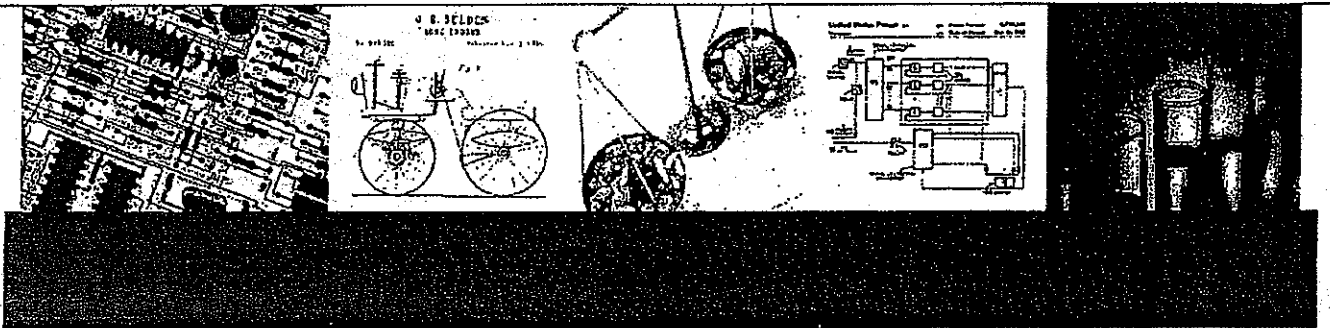
EXHIBIT 1

Excerpts of Administrative Record

FEDERAL TRADE COMMISSION 

To Promote Innovation: The Proper Balance of Competition and Patent Law and Policy

A Report by the Federal Trade Commission
October 2003



b. Analysis

Critics of current disclosure requirements in particular industries typically argued that the Federal Circuit has an erroneous view of the predictability of the art or the skill of the PHOSITA.¹⁵² They observed that these variables change over time as industries develop and mature, and they suggested that the patent system has not always kept current in its assessments.¹⁵³ They directed their criticisms toward the *application* of the disclosure requirements, not toward any fundamental problem inherent in the basic standards.

The role of disclosure requirements in shaping patent breadth and the consequences of that breadth for potential market power and cumulative innovation make the nature and effective application of the disclosure requirements a matter of significant competitive concern. Accurate, up-to-date assessments of the predictability of the art and of the abilities of the PHOSITA in evolving industries are

disclose enough to allow practice of the invention without some work); Barr 2/28 at 756 ("I've actually never met an engineer that learned anything from a patent.").

¹⁵² See, e.g., Burk 3/30 at 133 (seeing an underestimate of the difficulty of writing software) and 7/10 at 155 (same); Rai 4/10 at 106 (Federal Circuit thinks everything in biotech is "incredibly unpredictable").

¹⁵³ See, e.g., Burk 3/20 at 111-12 ("courts developing standards that might have applied 5, 10, 15 or even 20 years ago") and 7/10 at 198-99 (courts have not kept up with growing predictability of some biotech techniques); Kesan 4/10 at 120 (software has become more complex since the early cases governing enablement); see also Kunin 7/10 at 192-93 (increasing complexity of software inventions may have reduced the predictability); Burk & Lemley, 17 BERKELEY TECH. L. J. at 1199-1201 (explaining how reliance on precedent rather than the particulars of each case may lead to outdated conceptions of the PHOSITA's level of skill).

important elements for achieving efficiency goals and harmonizing the patent and antitrust regimes.

C. Other Doctrines that Affect Patent Breadth

Other doctrines, beyond the disclosure requirements, also set and interpret the scope of a patent's claims and thus affect patent breadth. This section highlights two of these doctrines. The first is the use of "continuing applications" – that is, "continuations" – to redefine the scope of a patent's claims. The second is the application of the doctrine of equivalents in interpreting claims. Both can significantly affect competition.

1. Continuations and the Formulation of Claims

a. Hearings Record

The patent system has long struggled with problems that flow from delay and secrecy in handling patent applications. Until recently, patent applications were not public information. Years might pass between the filing of an application and the issuance of a patent. An applicant's competitors may have invested substantially in the interim in designing and developing a product and bringing it to market, only to learn, after the patent finally issues, that they are infringing someone else's claims. At that point, redesign might be prohibitively expensive, and the newly announced patentee might be in position to extract large

royalties.¹⁵⁴ Such a scenario raises the potential for what some panelists have termed "a hold-up."¹⁵⁵

A statutory change that now requires all patent applications (other than those filed only in the United States) to be published 18 months after filing¹⁵⁶ may have considerably eased this problem with unanticipated "submarine" patents.¹⁵⁷ A PTO panelist indicated that 90% of current applications are so published.¹⁵⁸ Several panelists anticipated that the new publication rule would help substantially with submarine concerns,¹⁵⁹ although some indicated dissatisfaction with the remaining 18-month delay¹⁶⁰ and with excepting from publication patents filed only domestically.¹⁶¹

Another potential hold-up problem remains, however. Through the use of claim amendments during the prosecution process, a patent that states broader claims than those

published at 18 months can still emerge.¹⁶² To maintain the filing date of the original application, the original specification must contain support for the new claims.¹⁶³ If that is the case, the applicant may enlarge or otherwise modify the scope of its claims during the examination process.¹⁶⁴ The potential for anticompetitive hold-up increases the longer it takes for the broader claims to emerge. By filing one or more continuing applications¹⁶⁵ the applicant may extend the prosecution period – and the potential for working mischief by broadening claims – for years.

Panelists explained that continuations can serve legitimate functions when the applicant, or the applicant's attorney, has in

¹⁵⁴ See, e.g., Stallman 4/9 at 18-19 (describing unknowing infringement of patents kept secret during the application period as "stepping on . . . a land mine"); Barr 2/28 at 675-76.

¹⁵⁵ See, e.g., Shapiro 11/6 at 15-16, 176.

¹⁵⁶ 35 U.S.C. § 122(b)(1). Applications that are filed only domestically, however, need not be made public. 35 U.S.C. § 122(b)(2)(B).

¹⁵⁷ See also *supra* Ch. 1(III)(A)(2)(a).

¹⁵⁸ John Love 2/28 at 647.

¹⁵⁹ See, e.g., *id.*; Kohn 2/27 at 429; Gable 3/20 at 118-19; Casey 4/9 at 32.

¹⁶⁰ See Oehler 2/26 at 254 ("18 months can seem like an eternity when you're caught in the middle of it trying to answer 'am I free to operate'").

¹⁶¹ See *infra* at Ch. 5(II)(C)(4).

¹⁶² See, e.g., Katsh 4/10 at 193; Barr 2/28 at 676.

¹⁶³ 35 U.S.C. § 120. Similarly, novelty requirements prevent issuance of a patent on inventions "known or used by others in this country . . . before the invention thereof by the applicant for a patent," and the prohibition on derivation in theory bars issuance of a patent to one who "did not himself invent the subject matter sought to be patented . . ." 35 U.S.C. §§ 102(a) and (f). See MERGES & DUFFY, PATENT LAW & POLICY: CASES AND MATERIALS at 398-403, 437-39.

¹⁶⁴ See, e.g., Merges 2/26 at 156-58; Chen 2/28 at 718; Rai 4/10 at 135-36.

¹⁶⁵ The filing may take various forms. It may involve a new application, which might take the form of a "continuation application," retaining the original written disclosures and the original filing date; a "continuation-in-part," which adds some new matter to the disclosures and loses the original filing date insofar as its claims rely on the new matter; or a "divisional," which carves out what had been a separate invention within the original application while retaining the original filing date. See 35 U.S.C. §§ 120-21; 37 C.F.R. § 1.53(b); Chambers 2/8 (Patent Session) at 101-02. Alternatively, the filing may involve a request for continued examination, which works to extend the examination of the original application. 37 C.F.R. § 1.114. For ease of exposition, this discussion will refer to all of these variants, including those portions of continuations-in-part that maintain the original filing date, as "continuing applications" or "continuations."

essence missed its own product in the initial application¹⁶⁶ or when the applicant and examiner need to maintain an extended dialogue.¹⁶⁷ Several panelists expressed concern, however, regarding the use of continuation practice in ways harmful to competitors. They explained that some applicants keep continuations pending for extended periods, monitor development of the market, and modify their claims to ensnare competitors' products after sunk costs have been incurred.¹⁶⁸ One panelist voiced the further worry that continuations could be used to undercut standard setting organizations' disclosure rules.¹⁶⁹ None of the testimony offered justification for the use of continuation practice to broaden claims to cover competitors' subsequent products and to exploit the consequences of their subsequent sunk investments. As American Intellectual Property Law Association

¹⁶⁶ See Barr 10/30 at 146; Chambers 2/8 (Patent Session) at 103; Telecky 2/28 at 720-21 (finding nothing wrong with "chang[ing] your mind as you see the art, and as you think about it, as to what your invention is," as long as the claims are supported by the disclosure). *But see* Poppen 2/28 at 692 ("an inventor ought to know what his invention is and shouldn't have to wait to see what everybody else is doing").

¹⁶⁷ See Armbrecht 3/19 at 68-69; *cf.* Myrick 10/30 at 179-80 (explaining possible use of continuations to correct the prosecution history).

¹⁶⁸ See, e.g., Poppen 2/28 at 687-88; Mar-Spinola 2/28 at 715-16; Quillen 3/19 at 70-71; McCurdy 3/20 at 37; Rai 4/10 at 136; Barr 10/30 at 79, 146; Myrick 10/30 at 178 (warning that divisionals may be similarly used to "game the system"), 180; Cecil D. Quillen Jr. & Ogden H. Webster, *Continuing Patent Applications and Performance of the U.S. Patent and Trademark Office*, 11 FED. CIR. BAR J. 1, 6 (2001). See generally Barr 10/30 at 181-82 (continuations a problem).

¹⁶⁹ See Stoner 10/30 at 145-46 (noting that continuations might be used "to spring a new patent claim on firms that are producing pursuant to a standard" absent a controlling disclosure requirement).

President Ronald Myrick summarized, "[T]he continuation practice we have today is not good. It's out of control."¹⁷⁰

b. Analysis

Implications for Competition and Innovation Continuation practice can allow opportunistic behavior, such as post-filing modification of patent claims to capture competitors' products or processes that would not have infringed the original claims. Such opportunistic behavior can disrupt competitive activity. It wastes inventive resources that a competitor could have redirected, had it fully known the scope of an applicant/patentee's claims. It imposes redesign costs that might have been avoided if the competitor had had greater lead time. It fosters high royalties, inflated by a competitor's exposure to operational disruption from injunctive relief after sunk investments have been made. It magnifies potential competitors' risks and reduces their incentive to develop substitutes for the patentee's invention. Moreover, competitors' uncertain ability to predict from the written description at 18 months what the patentee ultimately will claim limits any opportunity to anticipate and avoid this exposure. Such behavior wastes resources, raises costs and risks, and potentially deprives consumers of the benefits of

¹⁷⁰ Myrick 10/30 at 177; *see also* Myrick 10/30 at 180 (use of continuation practice as marketplace develops to capture what was never in the applicant's mind "an exceedingly troublesome thing"). Such conduct, however, may not give rise to an offense under patent law. *See, e.g., Kingsdown Medical Consultants, Ltd. v. Hollister Inc.*, 863 F.2d 867, 874 (Fed. Cir. 1988) (holding that amending a claim to cover a competitor's product learned about in the course of the prosecution process was not in itself evidence of deceitful intent relevant to charges of inequitable conduct and stating, *in dictum*, that it was not "in any manner improper"), *cert. denied*, 490 U.S. 1067 (1989).

innovation and competition.¹⁷¹

Suggestions for Reform of Continuation Practice Patent reform efforts have long focused on how to remedy the opportunistic broadening of patent claims to capture competitors' products. The 1967 President's Commission on the Patent System determined that "it is desirable that claims never be broadened after publication," but concluded that it might be impossible to enforce an all-inclusive prohibition.¹⁷² The Hearings suggest that the same types of concerns persist and will likely remain a problem in the future unless changes are implemented.¹⁷³ Suggestions for dealing with the problems identified in continuation

¹⁷¹ For a general discussion of hold-up problems raised by unanticipated patents see Carl Shapiro, *Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard-Setting*, in 1 INNOVATION POLICY AND THE ECONOMY 119 (Adam Jaffe et al. eds., 2001). Indeed, the Commission's complaint in a pending administrative proceeding cites continuations as an element contributing to broader, alleged anticompetitive conduct involving claim modifications during a patent applicant's participation in standard-setting activities. *Rambus Inc.*, No. 9302 at ¶¶ 37-38, 47-69 (Complaint June 18 2002), available at <http://www.ftc.gov/os/adjpro/d9302/020618adminemp.pdf>.

¹⁷² REPORT OF THE PRESIDENT'S COMMISSION ON THE PATENT SYSTEM, reprinted in TO PROMOTE THE PROGRESS OF THE USEFUL ARTS, SUBCOMM. ON PATENTS, TRADEMARKS AND COPYRIGHTS OF THE SENATE COMM. ON THE JUDICIARY, 90TH CONG., 1ST SESS. 39 (1967). The President's Commission recommended imposing time limits on continuing applications. *Id.* at 26.

¹⁷³ Although some panelists suggested that a 1995 change in patent term – from 17 years after issuance to 20 years after filing – limits the ability to prolong examinations, see, e.g., *Telecky 2/28* at 721 and *Detkin 2/28* at 729, other testimony indicated that 20 years was more than enough time to abuse continuation practices. See *Poppen 2/28* at 693. Moreover, some predicted that the use of continuations to broaden or otherwise add to literal claims will increase, given current trends toward narrowing the doctrine of equivalents (discussed *infra* in Ch. 4(II)(C)(2)). See, e.g., *Mossinghoff 10/30* at 144-45; *Myrick 3/19* at 48; *Thomas 10/30* at 105-06.

practice include extending and making greater use of the doctrine of prosecution laches,¹⁷⁴ imposing time limits on broadening claims,¹⁷⁵ and creating intervening rights to protect competitors who become exposed to infringement claims by virtue of continuations.¹⁷⁶

Analysis Any of the remedies listed above could address competitive concerns. A remedy, however, should protect legitimate uses of continuing applications, as well as deter anticompetitive uses of continuations. Creating intervening or prior user rights¹⁷⁷ would most directly cure

¹⁷⁴ The Federal Circuit has approved a PTO rejection of patent claims on grounds that the applicant had forfeited his right to a patent under the doctrine of prosecution laches by filing twelve continuations over a period of eight years without advancing the prosecution of his application. See *In re Bogese II*, 303 F.3d 1362 (2002); see also *Chen 2/28* at 718-19 (PTO exploring possibilities for rejecting applications based on prosecution laches). The doctrine of prosecution laches also potentially provides a defense to an infringement action when the patentee has engaged in unreasonable and prejudicial delay in securing the patent's issuance. See *Symbol Technologies, Inc. v. Lemelson Med., Educ., & Research Found.*, 277 F.3d 1361 (Fed. Cir.), cert. denied, 123 S. Ct. 113 (2002).

¹⁷⁵ See *Poppen 2/28* at 692-94 (suggesting barring broadening of claims 18 months after filing); *Chen 2/28* at 718 (18-month limit on broadening claims "an interesting idea . . . one way to promote some level of certainty"); cf. *Katsh 4/10* at 139 (suggesting a time limit on continuations).

¹⁷⁶ See *Myrick 10/30* at 180-81 (suggesting "intervening rights or some such thing that would protect the later entrant in the marketplace against these patents that show up so tardily").

¹⁷⁷ Analysts have not always distinguished these terms with consistency. For present purposes, we use "prior user rights" to refer to absolute defenses against infringement actions and "intervening rights" to refer to protections that, in whole or in part, depend on a court's weighing of the equities, as exemplified, respectively, by provisions in 35 U.S.C. § 273(b) and 35 U.S.C. § 252, discussed below.

potential competitive problems without interfering with legitimate needs for continuations, reducing business uncertainty without increasing costs of error. Such rights should shelter inventors and users that infringe a patent only because of claim amendments following a continuation, provided that the sheltered products or processes are developed or used (or the subject of substantial preparation for use) before the amended claims are published.¹⁷⁸ This would protect third parties from hold-ups derived from any extended period of secrecy made possible by continuations, while allowing the patent to be enforced against those who would have infringed a properly described pre-continuation claim¹⁷⁹ or who had timely opportunity to gain knowledge of the amendments.

Protections sheltering the legitimate expectations and investments of third parties affected by late-date claim amendments have substantial precedent. Limited intervening rights already are available under 35 U.S.C. § 252 to third parties who infringe a patent because of a broadening of claims through post-grant reissue, a procedure that, in cases of "error without any deceptive intention," allows certain claim amendments *after* a

¹⁷⁸ Whether amended claims are published upon the filing of continuations depends upon the specific continuation format used and the way that amendments are presented, and often is "[a]t applicant's option." See 37 C.F.R. § 1.215; American Inventor's Protection Act of 1999 Questions and Answers § C (Eighteen-Month Publication), available at <http://www.uspto.gov/web/offices/dcom/olia/aipa/infoexch.htm>.

¹⁷⁹ The phrase "properly described claim" refers to claims that satisfy the written description requirement of 35 U.S.C. § 112. The intervening or prior user right would not be defeated by a pre-continuation claim that exceeds the applicant's written description.

patent has issued.¹⁸⁰ The intervening rights proposed herein would provide protection to third parties similarly confronted with late-date claim amendments *during* the course of the prosecution process. The courts, however, have applied existing intervening rights narrowly¹⁸¹ and likely would need to broaden them to confer meaningful protection in light of investments made or business commenced by the third party and the likely costs and full economic consequences of any redesign to avoid infringement. Regarding prior user rights, Congress in 1999 enacted such protections to shelter some third parties from infringement claims based on business method patents.¹⁸² More broadly, the 1992 Advisory Commission on Patent Law Reform, in conjunction with a separate recommendation to determine patent priority on a first-to-file basis, proposed conferring prior user rights on those who "in good faith" use, or make

¹⁸⁰ See 35 U.S.C. § 251.

¹⁸¹ See, e.g., *Shockley v. Arcan, Inc.*, 248 F.3d 1349, 1361 (Fed. Cir. 2001) (refusing to consider intervening rights in view of defendant's unclean hands from willful infringement); *Seattle Box Co. v. Industrial Crating and Packing, Inc.*, 756 F.2d 1574 (Fed. Cir. 1985) (leaving unanswered whether intervening rights would have been available for anything more than bundles made from pre-reissue inventory); J. Christopher Carraway, *The Uncertain Future of Enforcing Patents that Have Been Broadened through Reissue*, 8 FED. CIRCUIT B.J. 63, 68, 74 (1998) ("The grant of equitable intervening rights is extremely rare, however, most likely out of discomfort with allowing a party to continue to infringe a patent. . . . Although one who has designed around the original claims may be protected from paying damages on any pre-reissue activity, . . . equitable intervening rights to continue production of the originally noninfringing product are almost universally denied, thereby destroying investments made in creating and building the market for the product.").

¹⁸² See 35 U.S.C. § 273(b) (sheltering those who reduced a business method to practice at least a year before the patent application and used the method before the effective filing date).

substantial preparation for using, an invention before the filing date of a subsequently issued patent.¹⁸³

Recommendation. Accordingly, the Commission recommends the enactment of legislation to protect from infringement claims a third party who reduces to practice, uses, or makes substantial preparation for using a process, machine, manufacture, or composition of matter ("product or process") prior to first publication of a claim covering that product or process in a continuing application, provided that no parent application¹⁸⁴ contained a properly described claim covering the product or process prior to the third party's reduction to practice, use, or substantial preparation for use.¹⁸⁵

¹⁸³ ADVISORY COMMISSION ON PATENT LAW REFORM, A REPORT TO THE SECRETARY OF COMMERCE 11, 21 (1992) (Recommendation I-A), available at <http://world.std.com/obi/USG/Patents/overview>.

¹⁸⁴ "Parent application" is used broadly here to encompass all predecessors in a string of continuing applications.

¹⁸⁵ The Hearing record does not permit assessment of the extent to which reissue proceedings have been used to broaden patents to cover competitors' products after the competitors have made their sunk investments, nor does it explore the justifications for broadening reissue. It nonetheless appears that reissue in some instances may be used like continuations "to encompass activity by a competitor." See United States Patent and Trademark Office 21st Century Strategic Plan, *Permit Assignees to File Broadening Reissue 1* (April 2, 2003), at <http://www.uspto.gov/web/offices/com/strat21/action/rl1fp55.htm>. To the extent that reissue poses, or develops in a way that poses, comparable competitive problems to those raised by continuations, corresponding protections, including a possible broadening of existing intervening rights, ought to be considered.

2. Doctrine of Equivalents

a. Hearings Record

Several panelists addressed claim interpretation issues under the doctrine of equivalents.¹⁸⁶ The doctrine of equivalents "protects [a patent holder] against efforts of copyists to evade liability for infringement by making only insubstantial changes to a patented invention."¹⁸⁷ It does so by allowing a claim to be construed to cover more than its literal language, thereby extending patent breadth.¹⁸⁸ The answer to the question of when changes are "only insubstantial" thus can become an important determinant of patent breadth.

Some panelists favored the doctrine of equivalents as a means to protect patentees from imitators who might otherwise escape infringement by tinkering in trivial ways with patented products or

¹⁸⁶ Other discussion dealt with literal claim interpretation, in particular the effects of the ruling in *Markman v. Westview Instruments, Inc.*, 517 U.S. 370 (1996), that claim interpretation is a matter of law, not fact. Although panelists noted that the ruling had been expected to increase certainty by vesting interpretation issues in judges rather than juries, see e.g., T.S. Ellis 7/11 at 113 (finding that certainty has increased) and Barr 10/30 at 185, some observed that achieving certainty has now been delayed until appeal of the trial judge's conclusions. See, e.g., Weinstein 2/27 at 451; Katsh 4/10 at 103-04; Kunin 7/10 at 37; Banner 10/30 at 182-83; see also Kimberly A. Moore, *Are District Court Judges Equipped to Resolve Patent Cases?*, 12 FED. CIRCUIT B.J. 1, 32 (2002) (advocating statutory reform that would permit "[e]xpedited appeals of a limited number of claim construction issues"). Neither the Hearing record nor the academic literature permits a sorting of competitive consequences.

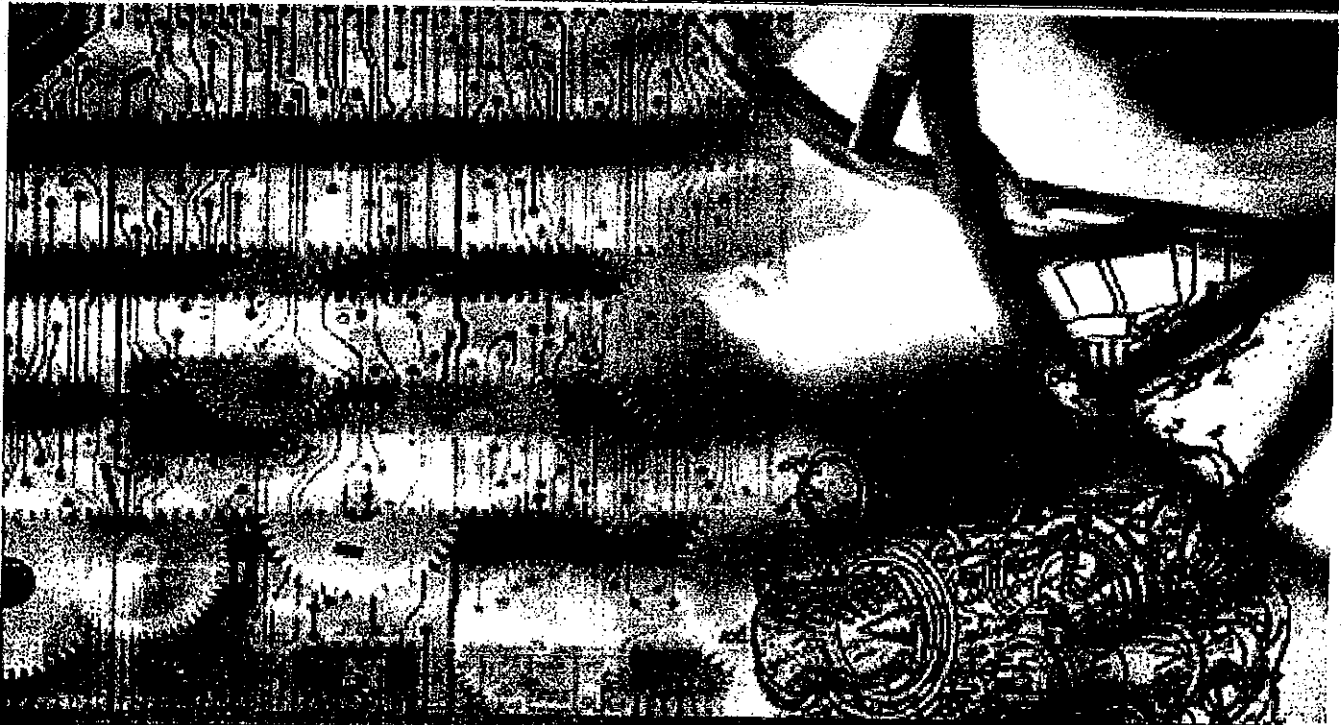
¹⁸⁷ See *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd.*, 535 U.S. 722, 727 (2002).

¹⁸⁸ See, e.g., Sung 2/8 (Patent Session) at 128; Wamsley 7/10 at 14; *Festo*, 535 U.S. at 731-32; HARMON, PATENTS AND THE FEDERAL CIRCUIT § 6.3(a)(ii) at 343.

A Report by a Panel of the

NATIONAL ACADEMY OF PUBLIC ADMINISTRATION

for the U.S. Congress and the U.S. Patent and Trademark Office



US Patent and Trademark Office: Transforming To Meet the Challenges of the 21st Century

August 2005

NATIONAL ACADEMY OF
PUBLIC ADMINISTRATION

A Report of the

**NATIONAL ACADEMY OF
PUBLIC ADMINISTRATION**

*for the United States Congress and the
United States Patent and Trademark Office*

August 2005

**U.S. PATENT AND TRADEMARK
OFFICE: TRANSFORMING TO
MEET THE CHALLENGES OF THE
21ST CENTURY**

Panel

Thomas H. Stanton, *Chair**
Marilyn Goodyear*
Bernard Ross*
Daniel L. Skoler*
Charles Van Horn

* *Academy Fellow*

One reason for the gap between applications received and FAOMs issued is that staffing levels for examiners did not keep pace with application growth. For example, examiners increased from 1,681 in 1990 to 2,905 in 2002 (73 percent, at a time that applications rose 79 percent), and from 3,538 to 3,681 from 2002 to 2004 (4 percent, when applications grew 7 percent). While examiner numbers grew in total during this period, there was high attrition and the growth in staff was often not in tandem with application growth. (These issues are discussed in Chapters 2 and 4.)

At this juncture, the recent increase in the number of USPTO staff cannot quickly influence pendency, since new examining staff go through intense classroom and on-the-job training before they can be fully productive. Over time, additional resources will make a difference in FAOM pendency, but in the short term, new examiners require that more experienced staff take time away from production to train them.

As applications have increased, the number of claims accompanying the applications (which describe how the invention differs from prior art) have increased, as has the volume of material submitted with them (information on prior art, which the applicant believes may be relevant to patentability). This increases the complexity of the application and can increase the time it takes to search prior art and examine the application properly.

INFORMATION TECHNOLOGY TO SUPPORT PATENT OPERATIONS

To respond to the growth in work and adapt to advances in information technology, Congress authorized funds¹⁷ for USPTO to create databases to search prior art in patent and non-patent literature, provide information to the public on issued patents and applications, and create an electronic application filing system. USPTO has one of the largest enterprise storage systems for e-government¹⁸ in the nation. However, it has had little success in creating an e-filing system for patents that stakeholders are willing to use; Trademark applicants filed electronically 73 percent of the time in FY 2004, while patent applicants did so only 1.5 percent of the time. Stakeholders say this is because the system is complicated to use and unique to USPTO.

USPTO developed an image-based application processing system (IFW), completed in August 2004, through which contractors scan all applications and then examiners review them on a

¹⁷ In 1980 (in P.L. 96-517) Congress directed the Commissioner of Patents and Trademarks to report to Congress within two years on a plan to identify and develop computerized data and retrieval systems to be applied to all aspects of PTO operations. This was after USPTO had spent tens of millions to develop a series of internal information systems that did not get past the development stage. The then-PTO set a goal to have fully electronic patent searching by 1987, and did not achieve this until 2000, after spending hundreds of millions more than anticipated. While some other system development has gone more smoothly, Congress has become wary of USPTO IT system projections.

¹⁸ A storage architecture in which data items can be retained in separate files but linked together to allow greater flexibility in organizing, comparing and rapidly retrieving information. For USPTO—which has massive amounts of data that relate to topics as diverse as patent statistics, content of issued patents or published applications, and the patent classification system—it is essential that staff and the public be able to interrelate the information quickly with a minimum set of complex and saved queries.

What the numbers alone cannot show is the reason for variations. The dot-com bust accounted for some decline in computer architecture software and information security between 2001-2002, and the recovery in these industries precipitated the growth between 2003-2004. While surges in applications in biotechnology have not been as substantial as in other areas, FAOM pendency has increased more because of difficulties in recruiting, training, and retaining staff in these competitive fields.

USPTO routinely responds to changes in application volume by moving staff from one art area to another within a TC. In FY 2001, TCs for computers and information security and communications were formed. In FY 2002, business method patents—many of which are computer software-related—moved to a different TC. However, these adjustments do not affect total workload.

Table 2-2 shows FY 2005 pendency as of April 1, 2005. Pendency has increased since FY 2004 in six of the seven TCs. For example, in TC 1600, from FYs 2004-2005, FAOM pendency rose from 19.2 to 21.6 months, while in TC 2100 it grew less, but remains high at 34 months.

Table 2-2. FY 2005 Pendency as of April 1, 2005

TC	Number of months
1600—biotechnology & organic fields	
• FAOM pendency	21.6
• Total pendency	30.4
1700—chemical and materials engineering	
• FAOM pendency	19.2
• Total pendency	28.4
2100—computer architecture software & information security	
• FAOM pendency	34.0
• Total pendency	41.9
2600—communications	
• FAOM pendency	31.0
• Total pendency	41.2
2800—semiconductors, electrical & optical system components	
• FAOM pendency	14.6
• Total pendency	24.3
3600—transportation, electronic commerce, construction, agriculture, licensing & review	
• FAOM pendency	17.1
• Total pendency	25.6
3700—mechanical engineering, manufacturing & products	
• FAOM pendency	16.3
• Total pendency	24.7

Source: USPTO

Increased Complexity in Patent Applications

Individual applications have become more complex because of increases in the (1) number of claims in each application and (2) the amount of prior art cited. This increased complexity could explain why pendency rates for some TCs increased although the total number of applications

may have declined or increased slightly. In addition, USPTO is receiving more applications for inventions in complex technologies, which also increases the complexity of examiners' work.

- The average number of claims per patent application from 1998-2002 increased from 18.4 to 23.5,⁸⁰ and to 23.6 in 2004. TC and art unit directors believed that the increase in the number of claims posed the most significant challenge they faced in processing patent applications. One study of the patent process concluded once the number of claims in an application exceeds 12.5, each additional claim adds 1.67 days to the processing time.⁸¹ Some of the increase in claims may be attributed to the Supreme Court's decision in the *Festo* case,⁸² which encouraged inventors to include a larger number of claims in the applications with the goal of having at least some of the claims survive the examination process without an amendment.
- Seven percent of all applications represent about 25 percent of the patent claims. USPTO believes that complexity of analysis is directly related to the number of claims presented and that large numbers of claims affect examiners' ability to conduct the high-quality of examinations that [inventors] should expect from the patent system.⁸³
- The amount of prior art has increased but the increase has not been quantified. Some of this is a function of a society in which people invent more (as shown in the overall increase in applications) and write more (as reflected in the number of books being published and web pages constructed). Patent examiners must go beyond patent literature to sources such as papers presented at conferences, news articles, and web pages, whether the latter are formal sites for corporations or blogs. The amount of prior art to review does not necessarily correlate with the length of the application. A 20-page application could have 15 pages of detailed references that the examiner must review.

The December 2004 Omnibus Appropriations Act authorized additional fees if applicants submit applications that have more than 100 pages, more than three independent claims, or more than 20 combined independent and dependent claims. These additional fees could reduce the complexity of applications in the long term.

⁸⁰ U.S. Department of Commerce, Office of Inspector General, *USPTO Should Reassess How Examiner Goals Performance Appraisal Plans, and The Award System Stimulate and Reward Examiner Productivity*, IPE-15722, September 2004, pg. 17.

⁸¹ Mark A. Lemley and Kimberly A. Moore, *Ending Abuse of Patent Continuations*, UC Berkeley, Public Law and Legal Theory Research Paper Series (No. 140), and George Mason Law and Economic Research Paper (No. 03-52), pp. 74-75.

⁸² *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.* (2002) The Supreme Court ruled that when a patent owner submits an amendment to a patent application that narrows the original claim, the patent applicant may be barred from suing for infringement, but not absolutely barred from suing for infringement. The Court ruled that patent owner should have the opportunity to overcome a presumption of being barred from suing by demonstrating that at the time of the amendment a person skilled in the art could not have reasonably been expected to draft a claim that literally covered the invention of the accused.

⁸³ Under Secretary of Commerce's April 21, 2005 testimony before the Senate Committee on the Judiciary, Subcommittee on Intellectual Property, pg. 10.

Some stakeholders and customers recognize that USPTO faces significant challenges and that patent applicants and interested third parties also have a role in ensuring quality patents. A representative from a stakeholder organization said that "complaints about USPTO are not about the rank and file, and senior people in corporations and law firms recognize that USPTO could, if properly funded and managed, do a good job." Two senior corporate officials representing stakeholder organizations said patent quality would be enhanced if there was a process through which those who are interested in a published application could submit prior art, possibly using an electronic tool.¹¹⁵

Periodically, some TCs convene meetings with their customers to discuss mutual areas of interest or controversial topics.¹¹⁶ In one such meeting, two customers¹¹⁷ noted that applicants should consider ways to reduce stress on examiners, such as limiting the number of claims in an application and submitting narrower issues for review. Similarly, during April 2002 joint Federal Trade Commission/Department of Justice hearings on patent quality, a law firm representative noted that more of the examination burden needs to be shifted to the applicant, such as helping the examiner understand the invention quickly so he/she can conduct a quality search. In a recent meeting on patent reform, former Commissioner Q. Todd Dickinson reminded attendees that "the Patent Office does not write applications. People who do so need to ensure that they manage the quality of what comes into the system."¹¹⁸

As the Panel noted in Chapter 1, concerns about the patent system and patent quality have persisted over time. Quality by its nature is difficult to measure and similar data may be subject to differing interpretations.

The next section discusses how USPTO measures quality and then how it is implementing initiatives to assess quality during the examination process rather than after a patent is issued.

USPTO'S QUALITY DATA

For the last 25 years, USPTO's patent quality measurement program focused on assessing whether the claims allowed in a patent meet the statutory criteria. This assessment occurs after USPTO notifies the applicant that it will allow their patent, but before the patent is published. Under this program, a reviewer determines whether an examiner made an error in at least one

¹¹⁵ This submission could occur when the application is published but before USPTO makes a final decision about allowing or rejecting a patent. Individuals and private firms would offer what they believe are examples of prior art that could affect decisions about patentability. Generally, patent attorneys the Academy staff spoke with did not favor this approach.

¹¹⁶ May 4, 2005 Business Methods TC Customer Partnership Meeting.

¹¹⁷ Carlos Villamar, Nixon Peabody LLP and Bijan Tadayan, ContentGuard, Inc.

¹¹⁸ Remarks made at the June 9, 2005 Conference on Patent Reform held at the National Academy of Sciences, in Washington, DC.

Table 3-3. Knowledge, Skills, and Abilities-Related Initiatives in The 21st Century Strategic Plan

Initiative	Implementation status as of 4/30/05
Certification of Knowledge, Skills, and Abilities (KSAs) (see a-c below)	
a. Certification of KSAs Before Examiners Are Promoted to GS-13	Course on law and evidence under development; legal competency exam under development; work product reviews of each GS-12 examiner have been implemented throughout the examiner corps. (Chapter 4 provides more information on this initiative.)
b. Re-Certification of KSAs For Primary Examiners, Including Legal and Automation Training for Primary Examiners	Recertification program implemented in FY 2004 requiring that primary examiners be re-certified once every three years. Reviews of work products for one-third of primary examiners began during FY 2004. First-line supervisors were trained to increase the effectiveness of work product reviews. ¹²⁸
c. Interim Implementation of Examiner Pre-Employment Testing	Interim procedures were developed for incorporating and testing for English language proficiency as a formal pre-requisite for employment. USPTO is working with OPM to develop a revised pre-employment test for the long-term.

Source: Action papers for Transformation Initiatives, *The 21st Century Strategic Plan*; implementation status from USPTO officials.

Conclusions and Recommendations on Strategic Plan Quality Initiatives

High-performing organizations constantly struggle with how to use their limited resources efficiently while concurrently enhancing quality. Focusing on patent quality in the long term is important because a decision on a patent application has economic spillover effects to other businesses and, more broadly, to competition and innovation. The Panel believes that allocating resources to the TCs to perform quality reviews and retaining a centralized core group with a quality focus is a wise approach. By spending more time to ensure quality, USPTO may reduce inappropriate patents and the attendant litigation costs. However, the Panel recognizes that diverting resources from the examination function to quality reviews reduces the productivity of supervisory PEs. These examiners are required to (1) train new staff on the basics of the examination function, (2) monitor the work of experienced examiners, and (3) train and coach new and experienced staff on the results of quality reviews. Monitoring the impacts of quality reviews will be important in achieving an appropriate balance between quality and productivity in the long term.

The Panel also recognizes that the burden of quality does not rest with USPTO alone. Informed debate should continue in the patent community on the nature of the responsibilities and burden that individual patent applicants should accept. Patent applications that are hundred of pages long, encompassing dozens or even hundreds of claims, are an impediment to accurate and efficient examination, and

¹²⁸ USPTO Performance and Accountability Report: Fiscal Year 2004. pg. 17.

multiple filings of continuing applications do not necessarily support timely USPTO action or final resolution of patent rights.

The Panel generally supports USPTO's quality initiatives. The Panel has additional comments and specific recommendations for certain initiatives as follows:

Reviews of primary examiners work/recertifying primary examiners

The Panel believes this is a sound approach to ensuring that the most experienced and productive examiners do not unintentionally begin to do more cursory searches or examinations after spending several years working in a particular area. This initiative is linked with another strategic plan initiative for recertifying primary examiners every 3 years. The Panel recognizes these reviews may result in reductions in productivity.

The Panel recommends that after the initial recertifications are completed, USPTO examine opportunities for reducing the number of reviews and lengthening the three-year recertification cycle.

Second-pair-of-eyes review

The Panel believes this is a valuable tool for use in art units that experience higher levels of reopened cases. Incorporating the results of these reviews into training programs will help institutionalize quality in the patent process. However, the Panel recognizes the concerns regarding the effects on reduced productivity.

The Panel recommends USPTO monitor the results of these reviews to (1) ensure their implementation does not result in denying patents to deserving inventors and (2) identify the appropriate number of reviews that is needed to sustain quality without adversely affecting pendency.

Evaluate search quality as part of the reviews

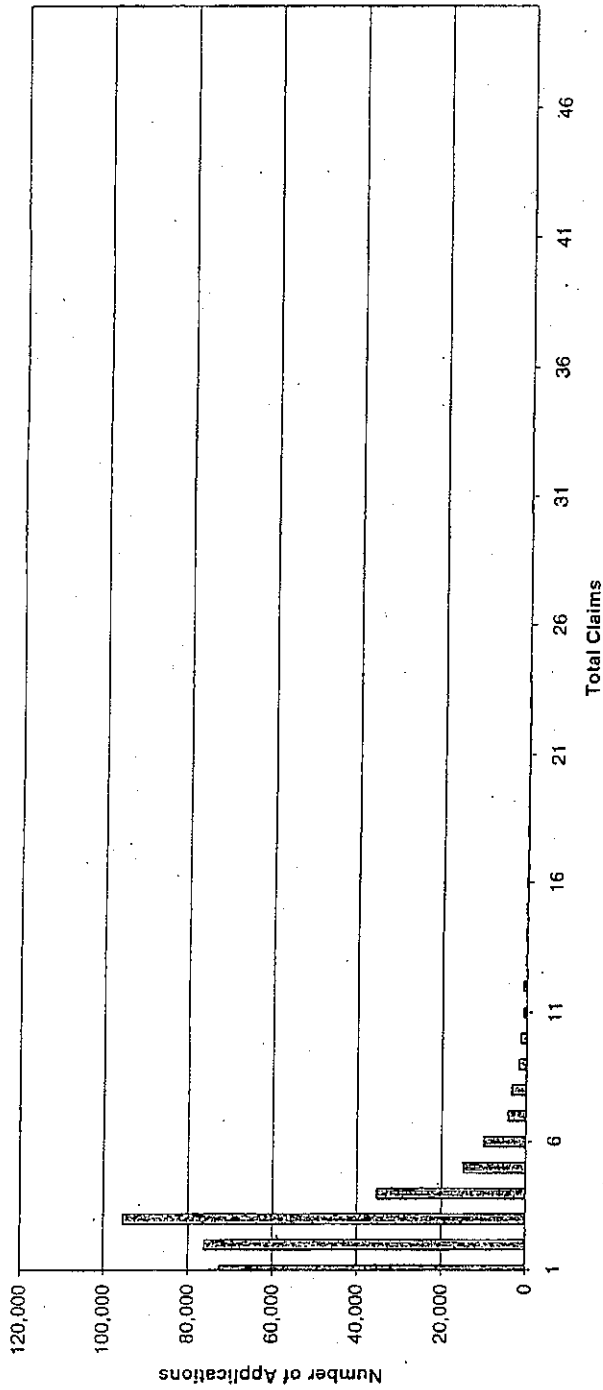
The key to issuing a quality patent is ensuring that the patent examiner's review of prior art was reasonable and complete. The Panel believes that assessing search quality as part of the expanded reviews is important.

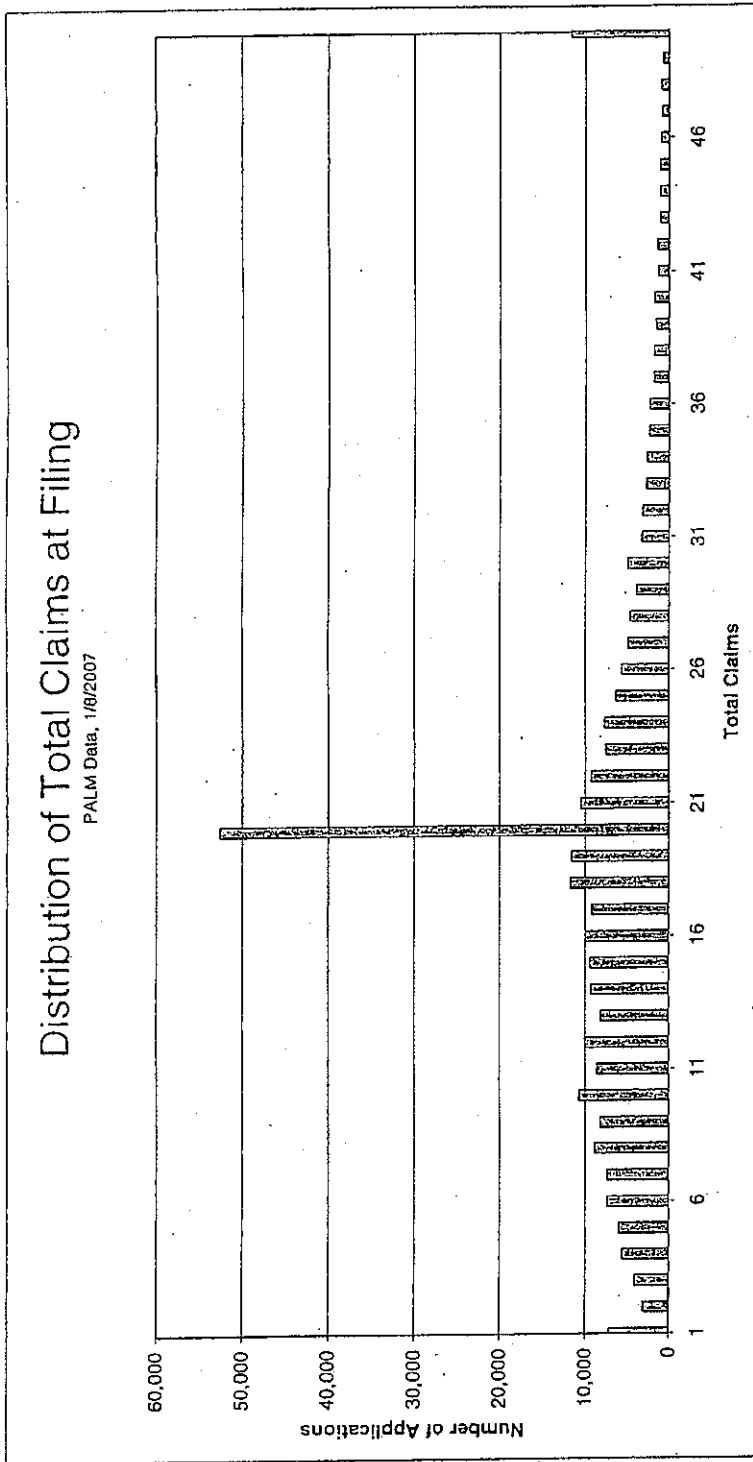
Survey practitioners on specific applications

This initiative has not been implemented because USPTO is waiting for OMB approval. This survey could be a useful tool for identifying examiner and USPTO strengths and weaknesses and deficiencies in practitioner information and understanding.

Distribution of Independent Claims at Filing

PALM Data, 1/6/2007





"To Promote The Progress of ...Useful Arts"

In An Age of Exploding Technology

REPORT OF
THE PRESIDENT'S COMMISSION
ON THE PATENT SYSTEM



WASHINGTON, D.C.
1966

For sale by the Superintendent of Documents, U.S. Government Printing Office,
Washington, D.C. 20402 - Price 65 cents

would be made available to all concerned within a reasonably short time. Early publication could prevent needless duplication of the disclosed work, promote additional technological advances based on the information disclosed, and apprise entrepreneurs of their potential liability.

An applicant would be permitted to abandon his application prior to the time for publication and retain the invention in secrecy. Alternatively, an applicant could have his application published promptly after filing, with or without abandonment, which would make his disclosure available earlier for prior art or interim liability purposes. However, the Commissioner could refuse such publication where the subject matter is nonstatutory, immoral, or the like.

In the case of an application which is given a notice of allowance, or in which an appeal is filed to the Board of Appeals, within the eighteen to twenty-four months after its earliest effective filing date, immediate publication would permit citation of prior art by the public (Recommendation No. XI).

Republication after a notice of allowance or the filing of an appeal would be required if amendments to the claims or specification are made after the first publication. Printing costs should not be increased substantially since republication could consist merely of a notice, published in the Official Gazette, with copies of the allowed claims prepared and made available to the public. When considered appropriate by the Commissioner, integrated copies of the specification and drawings could be prepared and made available.

VIII

This recommendation is intended to prevent the repetitive filing of dependent applications. It is designed to eliminate undue postponement of the publication of the scope of protection granted, bring the United States into accord with international practice, and permit more efficient Patent Office examination.

Unless a later filed application is:

1. A continuation application and is filed before the occurrence of any of the following events: (a) the abandonment of, (b) the allowance of all pending claims in, or (c) the filing of an appeal to the Board of Appeals as to any claim in, the original parent application; or
2. A continuation-in-part application and is filed before the publication of any of its parent applications; or
3. A divisional application filed (a) on one of the inventions indicated to be divisible in a restriction requirement and is filed during the pendency of the application in which the restriction was first required; or (b) during the pendency of the original parent application;

The later filed application shall not be entitled to the effective filing date of a parent application for matter disclosed in the parent, and the parent, if published, shall constitute prior art against the later filed application.

At present, an applicant may serially file continuing applications for an unlimited period of time and maintain his invention in secrecy. Such practice makes effective examination in the Patent Office more difficult and expensive, and indefinitely prolongs the time before the issuance of a patent and the resultant publication of the scope of protection granted.

Permitting an applicant to file a continuation application during the indicated portion of the pendency of his original parent application would provide some latitude for one who felt that inadequate opportunity existed in the parent case to reach a clear issue. At the same time, it would avoid needless effort in preparing examiner's responses to appeal briefs, as well as unduly prolonged prosecution of the same invention.

Requiring that a continuation-in-part application be filed before publication of the parent application, as would appear to

be required if the provisions of the present Council of Europe Treaty and proposed Common Market Patent System were observed, normally would allow both the parent and continuation-in-part applications to be examined contemporaneously, possibly by the same examiner. Further, the public would learn sooner of the scope of patent protection that ultimately might be obtained based on the invention disclosed in the parent application.

Providing that all divisional applications must be presented during the pendency of the original parent application, or the application in which restriction first was required, would shorten the period of public uncertainty as to the scope of patent protection that eventually may be granted on the subject matter disclosed in the parent application. On the other hand, the applicant would have ample opportunity to perfect an appeal or to file a petition that may affect the propriety of a restriction requirement.

IX

The Commission clearly favors a high quality immediate examination system if it can be maintained without a constantly increasing backlog. Nevertheless, it is recommended that:

Standby statutory authority should be provided for optional deferred examination.

Although this recommendation reflects the consensus of the Commission, a split exists among the members as to when and how such authority should be exercised.

One view favors optional deferred examination going into effect, on a pilot basis, as soon as appropriate legislation can be enacted. Proponents of this view feel that early experience with optional deferred examination is desirable, and that it can be obtained effectively only by instituting a pilot program as early as possible. For example, the pilot program could apply to applications filed within a given period of time or to applications concerned with some given subject matter.

Error Rates by Claims at Filing					
# Claims	Total Cases	Total Errors Found	Error Rate	95% Confidence Level	
				Lower Limit	Upper Limit
FY05/FY06 Allowances and IPRs (exclude plant and design)					
<=25	12046	656	5.4%	5.0%	5.9%
26 - 39	3088	194	6.3%	5.4%	7.1%
40 - 49	970	65	6.7%	5.1%	8.3%
50 - 99	1109	88	7.9%	6.3%	9.5%
100 - 199	158	10	6.3%	2.5%	10.1%
200+	29	0	0.0%	n/a	n/a
FY05/FY06 Allowances Only (exclude plant and design)					
<=25	9026	350	3.9%	3.5%	4.3%
26 - 39	2205	113	5.1%	4.2%	6.0%
40 - 49	666	38	5.7%	3.9%	7.5%

DRAFT - for Management Discussions Only

A05059

*09OMB
Budget
Submission*

SUMMARY	FY 2006	ACTUAL DATA						
	7/31/07 12:15	09OMB.P15						
YEAR	2006	2007	2008	2009	2010	2011	2012	2013
EOY STAFF	4,779	5,395	5,970	6,487	6,953	7,374	7,751	8,090
PROF W-Y	4,444	4,788	5,380	5,992	6,471	6,907	7,299	7,658
# HIRED	1,193	1,200	1,200	1,200	1,200	1,200	1,200	1,200
# ATTRITED	510	511	580	643	699	749	793	835
Net Positions	683	561	491	557	501	451	407	365
OVERTIME(K)	15,031	17,520	25,265	28,565	31,500	34,325	37,035	39,670
OT HOURS	341,760	383,118	541,122	599,223	647,215	690,643	745,171	781,828
# BOY NEW	574,922	674,333	772,435	838,152	874,485	888,564	890,622	883,263
TOTAL D'TLS	13	20	20	20	20	20	20	20
AVG GRADE	11.59	11.52	11.53	11.6	11.73	11.84	11.94	12.05
RECEIPTS	419,760	440,748	458,158	481,065	505,119	530,375	556,893	584,738
RECEIPTS TO BE EXAMINED	419,760	436,341	453,576	476,255	500,068	525,071	551,324	578,891
REG PROD	298,937	313,578	354,766	403,063	446,038	480,256	512,626	542,417
TOT PROD	315,019	331,607	380,230	431,261	476,495	512,756	547,692	579,208
DISPOSALS	309,689	324,975	372,600	422,600	467,000	502,500	536,700	567,600
FIRST ACTS	320,349	338,239	387,859	439,921	485,990	523,012	558,684	590,817
PEND FA	22.6	23.7	26.9	27.5	27.6	27.6	27.8	27.7
PEND IS/AB	31.1	33.0	34.7	37.9	38.5	38.6	38.6	38.8
# SPE'S	365	415	460	500	535	565	595	621
#PATS PRD	164,115	160,500	175,757	199,793	222,096	240,463	257,279	272,728

1,200 Examiner Hiring Levels
 FY 07 Overtime 100 hours per examiner FTE
 Efficiency Gains:
 Patents Hoteling Program - 2% FY 08/13
 Examiner Lap Top Pilot - 3% nFY 08/13
 Flat Goal Pilot - .5% FY 08/13
 Calims, Continuations & IDS (Examiner Bonus Structure) - 1% in FY 08 / 2% FY 09/13

FY 07/13 Attrition rate 10%
 FY 07/13 Filing rate 5%
 Chap I reduction 25%-07/08/09 75%-10/13
 Chap II reduction 25%-10 50%-11/13

Adjusted for Complexity Factor

1% Application Abandonments from OIPE
 1% Application reduction for continuations

09OMB.P15 Patent Production Model assumptions

Fiscal Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015		
Receipts:													
UPR Filings growth @ 5% FY 07/13	364,228	419,760	440,748	462,789	485,925	510,221	535,732	562,519	590,644	620,177	651,186		
Less 1% for discontinued continuation				4,628	4,859	5,102	5,357	5,625	5,906	6,202	6,512		
UPR Filings		419,760	440,748	458,158	481,065	505,119	530,375	556,893	584,738	613,975	644,674		
Less Abandonment Rate 1% during initial		4,198	4,407	4,582	4,811	5,051	5,304	5,569	5,847	6,140	6,447		
UPR Filings TO BE Examined		415,562	436,341	453,576	476,255	500,068	525,071	551,324	578,891	607,835	638,227		
Examiner Hires:	959	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200		
Attrition rate:	10.6%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%		
Overtime hours per examiner		80	80	100	100	100	100	100	100	100	100		
Production Rates:													
Total complexity factor			-1.0%	-1.5%	-2.0%	-2.5%	-3.0%	-3.5%	-4.0%	-4.5%	-5.0%		
Efficiency Gains		0.0	0.0	2.0%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%		
	FY 04	FY 05	FY 06	Production Units per examiner per grade per fiscal year									
	Actual	Actual	Actual										
GS-5	25.4	24.1	25.1	25.1	24.8	25.2	26.0	25.8	25.7	25.6	25.5	25.3	25.2
GS-7	31.5	31.4	34.1	34.1	33.8	34.3	35.3	35.1	34.9	34.8	34.6	34.4	34.2
GS-9	50.4	45.3	49.9	49.9	49.4	50.1	51.6	51.4	51.1	50.9	50.6	50.4	50.1
GS-11	62.7	54.2	53.1	53.1	52.6	53.4	54.9	54.7	54.4	54.1	53.9	53.6	53.3
GS-12	68.3	67.1	65.6	65.6	64.9	65.9	67.9	67.5	67.2	66.9	66.5	66.2	65.9
GS-13	81	79.4	77.0	77.0	76.2	77.4	79.7	79.3	78.9	78.5	78.1	77.7	77.3
GS-14	91.5	89.8	87.9	87.9	87.0	88.3	91.0	90.5	90.0	89.6	89.1	88.7	88.3
GS-15	103.1	99.3	92.3	92.3	91.4	92.7	95.5	95.0	94.6	94.1	93.6	93.1	92.7
Patent Cooperation Treaty (PCT):													
PCT Chapter I PUs redirected (paralegal)													
Chap I reduction 25%-07 50%-08 75%-09/13													
Chap II reduction 25%-08 50%-09/13													
Total PCT PU savings	913	977	2,690	4,000	4,000	11,960	12,732	13,551	14,418	15,338	16,313		
Examiner PCT PUs	14,234	12,617	11,719	11,274	12,191	5,203	5,460	5,733	6,022	6,329	6,654		
Examiner FTE	158	144	133	128	139	59	62	65	68.5	72	76		
Examiner FTE lost/taken out of the examining corps:													
Part-time		44	44	44	44	44	44	44	44	44	44		
Quality Initiatives		12.7	0	0	11	22	27	28	28	28	28		
SP Quality Initiatives			19	39	34	34	34	34	34	34	34		
New Hire trainers		29	15	15	15	15	15	15	15	15	15		
CLE Training		2	4	6	8	10	12	14	14	14	14		
Exam Tech Training		20	3	6	9	11	13	15	15	15	15		
Allowance Rate		53.6%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%		

PT actual number based on 60% TOD
 Quality Initiatives \$5 hours per GS-12
 SP Quality Initiatives Target reviews, quality award, reclass, search strategy, and soft skills, FY 07 mid-year implementation
 New Hire trainers are additional over FY 06 level.
 CLE Training 2 FTE over base each year
 Exam Tech Training is 8 hours per examiner over FY 06 base.