*Federal Circuit Bar Journa*l, Vol. 11, No. 1 (August, 2001), pages 1-21

CONTINUING PATENT APPLICATIONS AND PERFORMANCE OF THE U.S. PATENT OFFICE

Cecil D. Quillen, Jr. and Ogden H. Webster

ABSTRACT

The United States is unique in permitting patent applicants to refile their patent applications as continuation and continuation-in-part applications claiming the benefit of the filing date of a prior application and restart the examination process all over again. Data provided by the USPTO concerning continuing application filings for its fiscal years 1993-1998 reveal that 28.4% of the utility, plant, and reissue (UPR) applications filed in those years were not new or original applications, but were continuing applications claiming the benefit of the filing dates of previously filed applications. Analysis of the data for continuing applications for the USPTO's fiscal years 1993-1998 in conjunction with the USPTO Annual Report statistics for the same fiscal years shows that the number of UPR applications allowed in fiscal years 1995-1998 was 95% of the number of original UPR applications filed in fiscal years 1993-1996. Comparable Allowance Percentages for the European and Japanese Patent Offices were calculated to be 68% and 65%, respectively. A study of the cohort of German patent applications claiming a 1977 priority date had found that only 41.7% of the 1977 German applications became patents. The Grant Rate (allowances divided by total disposals, i.e., the sum of allowances and abandonments) for the USPTO for its fiscal years 1993-1998, corrected for continuing applications, ranges from 87% to 97%, depending on the extent to which prosecution of abandoned applications was continued in refiled applications. Reported Grant Rates for 1995-1999 for the European and Japanese Patent Offices (averaged) are 67% and 64%, respectively. Policy questions resulting from the lack of rigor by the USPTO in its examination of patent applications are discussed.

Continuing Patent Applications and Performance of the U.S. Patent and Trademark Office

Cecil D. Quillen, Jr. & Ogden H. Webster*

Introduction

The United States is unique in permitting patent applicants to refile their patent applications as continuation and continuation-in-part (CIP) applications, claiming the benefit of the filing date of a prior application, while restarting the examination process all over again. Published Annual Report statistics for the U.S. Patent and Trademark Office (PTO),[1] however, do not report the number of continuing applications filed.[2] Nor do they report patent application filings and abandonments in a manner that reflects the number of such continuing applications.[3] Thus, it is not possible from the PTO Annual Report statistics to determine the effect of continuing application filings on the performance of the PTO.

---

* Mr. Quillen is the former General Counsel of Eastman Kodak Company, where he was a Senior Vice President and member of the Board of Directors. He is presently a Senior Advisor at Cornerstone Research, an economic consulting firm. Mr. Webster is a former Assistant General Counsel of Eastman Kodak Company, where he was the Chief Patent Counsel. The authors are grateful for comments and suggestions by John Barton, Dietmar Harhoff, Jeff Hawley, Robert Hunt, Brian Kahin, Mark Lemley, Josh Lerner, and Rosemarie Ziedonis. The views and opinions expressed herein are those of the authors, and should not be attributed to Eastman Kodak Company, Cornerstone Research, or to those who offered comments and suggestions. Errors are the authors' alone.

[1] The PTO's Annual Reports for its fiscal years 1993–2000 are available online at http://www.uspto.gov/web/offices/com/annual/index.html (last visited Aug. 15, 2001).

[2] The term "continuing applications" includes continuation, CIP, and divisional applications which claim the priority filing date of an earlier filed nonprovisional U.S. application.

[3] *See* the Summary of Patent Examining Activities, which is Table 1 of the Statistical Tables of the PTO Annual Reports for its 1994-2000 fiscal years, and Table 5 of the Statistical Tables in the fiscal year 1993 Annual Report, all accessible through http://www.uspto.gov/web/offices/com/annual/index.html. *See also infra* tbl. 1, "B—USPTO Annual Report Data From USPTO Website."

There are, however, two performance measures that can be estimated using the PTO's Annual Report data in conjunction with continuing applications data provided by the PTO. These measures are the Allowance Percentage and the Grant Rate. The Allowance Percentage is simply the number of applications allowed divided by the number filed, with appropriate corrections to take into account the number of the applications filed that are continuing applications. Allowance Percentages can be determined, in a more refined calculation, with a time-lag allowance to approximate the time required for examination by the PTO. Allowance Percentages can also be calculated for the European Patent Office (EPO) and Japanese Patent Office (JPO) using data available on their respective websites.[4] The Allowance Percentage may be regarded as an indication of the rigor of the examination process. The higher the Allowance Percentage, the less rigorous the examination process; the lower the Allowance Percentage, the more rigorous the process.

The Trilateral Website reports Grant Rates for the EPO, the JPO, and the PTO. Grant Rate is defined on the Trilateral Website as "the number of applications that were granted during the reporting period, divided by the number of disposals in the reporting period (applications granted plus those abandoned)."[5] The Grant Rates reported for the PTO, however, are not corrected for continuing applications. Corrected Grant Rates for the PTO have been calculated using the continuing applications data provided by the PTO in conjunction with the PTO's Annual Report data. The Grant Rate can also be regarded as an indication of the rigor of the examination process. The higher the Grant Rate, the less rigorous the examination; the lower the Grant Rate, the more rigorous the examination.

---

[4] The data available from the websites of the EPO and the JPO do not separately report a count of divisional applications (which are permitted by both) and it is not known whether such applications are or are not included in the reported statistics. More refined estimates of Allowance Percentages and Grant Rates for the EPO and JPO could be made if such information were available. Also, one of the commenters noted that voluntary divisional applications in the EPO and JPO can be much like U.S. continuation applications when the claims of the voluntary divisional and parent applications are substantially the same. The authors have no information as to how common this abuse of the EPO and JPO may be. The EPO's website is http://www.european-patent-office.org (last visited Aug. 15, 2001). The JPO's website is http://www.jpo.go.jp (last visited Aug. 15, 2001).

[5] European Patent Office, Japanese Patent Office, & United States Patent Office, 1999 TRILATERAL STATISTICAL REPORT, *at* http://www.uspto.gov/web/tws/tsr99/annex.htm. The Trilateral Website is also accessible through the European and Japanese Patent Office websites.

Calculations from data provided by the PTO concerning continuing application filings for the PTO's fiscal years 1993–1998 show that 28.4% of the utility, plant, and reissue (UPR) applications filed in those years were not new or original applications, but were continuing applications claiming the benefit of the filing dates of previously filed applications.[6] Analysis of the PTO's Annual Report statistics for UPR applications for the fiscal years 1993–1998 in conjunction with the data provided by the PTO for continuing UPR applications for those fiscal years, where a two-year lag is incorporated to approximate the time required for examination, reveals that the number of UPR applications allowed in fiscal years 1995–1998 was 95% of the number of original UPR applications filed in fiscal years 1993–1996.[7] Comparable Allowance Percentages for the European and Japanese Patent Offices were calculated to be 68%[8] and 65%[9] respectively. Additionally, a study of the cohort of German patent applications claiming a 1977 priority date determined that only 41.7% of the 1977 German applications became patents.[10]

The Grant Rate[11] for the PTO in fiscal years 1993–1998, corrected for continuing applications, ranges from 80% to 97%, depending on the extent to which prosecution of abandoned applications was prolonged in continuing applications.[12] In contrast, reported Grant Rates for the European and Japanese Patent Offices from 1995–1999 (averaged) are 67% and 64% respectively.[13]

---

[6] *See infra* tbl. 1, "A—Continuing Applications Data Provided By USPTO."

[7] *See infra* tbl. 2, "A—Percentage of Original Applications Allowed."

[8] *See infra* tbl. 3, "European Patent Office—Patents Granted as Percentage of Applications Filed."

[9] *See infra* tbl. 4, "Japanese Patent Office—Applications Allowed (Registration Decisions) as Percentage of Examinations Requested."

[10] *See* Dietmar Harhoff, Frederick M. Scherer & Katrin Vopel, *Citations, Family Size, Opposition and the Value of Patent Rights* (forthcoming 2001) [hereinafter Harhoff] (unpublished manuscript at 27, available upon request at harhoff@bwl.uni-muenchen.de). A slightly older version of this paper is available at http://emlab.berkeley.edu/users/bhhall/harhoffetal99.pdf (last visited Aug. 15, 2001).

[11] The Grant Rate is calculated by dividing the allowances by total disposals, where disposals are the sum of allowances and abandonments. This definition is provided on the Trilateral Website. *See supra* note 5.

[12] *See infra* tbl. 6, "Corrected Grant Rates for the U.S. Patent and Trademark Office," and *infra* tbl. 7, "Summary."

[13] *See infra* tbl. 7, "Grant Rates—Applications Allowed As Percentage Of Net Disposals."

I. Continuing Applications

There are three types of continuing patent applications[14] available in the U.S. pursuant to the patent statutes: continuations, CIPs, and divisionals.[15] Continuation and CIP applications are unique to the U.S., and permit patent applicants to refile their patent applications and restart the examination process with a newly filed patent application claiming the benefit of an earlier filing date.

A continuation application is a second application for the same invention claimed in a prior copending nonprovisional application that claims the benefit of the filing date of the prior application.[16] Since the second application is for the same invention as the prior application, the prior application is normally abandoned after the second application is filed.[17] The continuation application may be filed as a Continued Prosecution Application (CPA) pursuant to Rule 53(d),[18] and the request for a CPA is treated as

[14] There is no official PTO definition for the term "continuing application." *See* PATENT & TRADEMARK OFFICE, U.S. DEP'T OF COMMERCE, MANUAL OF PATENT EXAMINING PROCEDURE § 201.07 (7th ed. 1st rev. 2000) [hereinafter M.P.E.P.]. The term is used herein to mean a U.S. patent application that claims the benefit of the filing date of an earlier filed nonprovisional U.S. patent application. The term "original application" as used herein means a U.S. patent application that does not claim the filing date of an earlier filed nonprovisional U.S. application. This is different from the definition of "original application" in the PTO's Manual of Patent Examining Procedure. *See* M.P.E.P., *supra*, at § 201.04(a).

[15] *See* 35 U.S.C. § 120 (Supp. V 2000); 35 U.S.C. § 121 (1994 & Supp. V 2000). Section 120 is the statutory basis for continuation and CIP applications. Section 121 is the basis for divisional applications. More recently, 35 U.S.C. § 132 was amended to require the Director of the Patent and Trademark Office to adopt regulations providing for the continued examination of patent applications at the request of an applicant, after payment of a prescribed fee. 35 U.S.C. § 132 (1994 & Supp. V 2000). Such regulations were adopted effective August 16, 2000. *See* Request for Continued Examination Practice and Changes to Provisional Application Practice, 65 Fed. Reg. 50,092 (Aug. 16, 2000) (to be codified at 37 C.F.R. pt. 1).

[16] M.P.E.P., *supra* note 14, at § 201.07.

[17] The authors have been told that in some circumstances it is possible to file a continuation application without immediately abandoning the parent application, and for the unabandoned parent application subsequently to mature into a patent, even though the continuing application and the parent application (which subsequently becomes a patent) are for the same invention. It is not possible to tell the number of such patents, if any, from the PTO data. To the extent there may be such patents, the Allowance Percentages and Grant Rates, as calculated in Tables 2 and 6 respectively, could be affected. *See infra* tbl. 2, tbl. 6.

[18] 37 C.F.R. § 1.53(d) (2000). However, these are being phased out and any continuation applications filed after May 29, 2000 must be filed as a Request for Continued Examination

a request to expressly abandon the prior application as of the filing date of the CPA. The same result can be achieved with the recently adopted Request for Continued Examination (RCE), which commences the patent examination process anew, without requiring the filing of a new continuing application or abandonment of the prior application.[19] You simply file your request, pay the appropriate fees, and continue prosecuting the same application.[20]

A continuation in part (CIP) application is an application filed during the lifetime of an earlier copending nonprovisional application, which claims the benefit of the filing date of the earlier application. However, a CIP repeats some substantial portion or all of the earlier application, but usually adds matter not disclosed in the earlier application.[21] A CIP application may be for the same invention claimed in the earlier application, or it may be for a different invention that was disclosed in the earlier application. If the CIP application claims the same invention as the earlier application, the earlier application would normally be abandoned after the CIP application is filed. A CIP application cannot be filed as a CPA pursuant to Rule 53(d) because, by definition, it contains new matter.[22]

A divisional application is a later application for an independent and distinct invention carved out of an earlier filed copending application. The divisional application claims only subject matter disclosed in the copending parent application, and claims benefit of the filing date of the earlier application.[23] A divisional application, like a continuation application, can be filed as a CPA under Rule 53(d), and the filing of the divisional is also treated as a request to expressly abandon the earlier parent application as of the filing date of the CPA.[24] A divisional application may be filed in response to a restriction requirement pursuant to 35 U.S.C. § 121,[25] or an applicant may denominate a continuing application voluntarily filed as a divisional application.[26]

By filing a continuation, CIP, or the newly authorized RCE, the patent applicant can avoid a final decision by the PTO as to the patentability of the

---

(RCE). *See* 35 U.S.C. § 132(b); Request for Continued Examination Practice and Changes to Provisional Application Practice, 65 Fed. Reg. at 50,092.

[19] *See* 35 U.S.C. § 132(b).

[20] M.P.E.P., *supra* note 14, at § 201.07.

[21] M.P.E.P., *supra* note 14, at § 201.08.

[22] 37 C.F.R. § 1.53(d).

[23] M.P.E.P., *supra* note 14, at § 201.06.

[24] 37 C.F.R. § 1.53(d).

[25] 35 U.S.C. § 121 (1994 & Supp. V 2000).

[26] The latter such application is referred to herein as a "voluntary divisional."

claims of his or her patent application, and continue seeking a patent as to that subject matter. Since such continuing applications, including the new RCE, can be filed as a matter of right, the PTO cannot force a final decision as to the patentability of the subject matter sought to be patented. A determined applicant can refile his or her application time-after-time without limit,[27] and thus place the PTO in a position where the only way it can dispose of the application is to allow it. The ability to refile time-after-time also enables an applicant to maintain pending patent applications for the purpose of redrafting their claims to ensnare innovations commercialized by others after the filing date of their original application.[28] Patents granted on such continuing applications and containing such redrafted claims are a frequent source of the "hold-up" problem.[29]

Annual Report statistics for the PTO report total application filings, total allowances, and total abandonments.[30] However, the Annual Report statistics do not separate continuing applications, or distinguish between continuing application filings and original application filings.[31] Nor do these statistics indicate how many of the inventions of applications reported as

[27] Allison and Lemley, in analyzing a random sample of 1000 utility patents issued in the U.S. in the two-year period from June, 1996 through May, 1998 determined that, on average, the number of U.S. applications in a priority chain, counting the application on which the patent was granted, was 1.50. Some patents, however, claimed priority based on as many as nine different applications. *See* John R. Allison & Mark A. Lemley, *Who's Patenting What: An Empirical Exploration of Patent Prosecution*, 53 VAND. L. REV. 2099 (2000), *available at* http://www.vanderbilt.edu/Law/lawreview/vol536/lemley.pdf.

[28] This is one of the evils associated with the so-called "submarine patents." Another evil, the postponement of patent issuance and expiration by the repeated filing of continuing applications, has largely been ameliorated by the statutory amendment which measures the twenty year patent term from the earliest U.S. filing date claimed. *See* 35 U.S.C. § 154(a)(2) (1994). The ensnarement problem remains, but could be eliminated by abolishing continuing applications altogether.

[29] The "hold-up" problem can arise when an applicant redrafts patent claims in an effort to extend their coverage to products not originally covered that were commercialized by others after the claimed filing date. Continuing applications are frequently filed for exactly this purpose. *See* CARL SHAPIRO, *Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard-Setting*, 1 INNOVATION POLICY AND THE ECONOMY (forthcoming 2001), *available at* http://www.haas.berkeley.edu/~shapiro/thicket.pdf.

[30] *See* the Summary of Patent Examining Activities which is Table 5 of the Statistical Tables in the fiscal year 1993 Annual Report and Table 1 of the 1994–2000 Annual Reports, all accessible through http://www.uspto.gov/web/offices/com/annual/index.html.

[31] *See supra* notes 2 and 14 for the definition of "original application" as used herein.

abandoned were in fact made the subject of continuing applications. Therefore, the Annual Report statistics for total application filings are easily misinterpreted to overstate the number of new or original applications filed, since many of the reported application filings are not new applications at all, but are refilings of continuing applications claiming the same invention as earlier applications. The statistics also overstate the number of applications abandoned because they do not take into account the fact that many of the inventions of applications reported as abandoned were in fact made the subject of continuing applications.[32] Thus, estimates of the composition of the workload of the PTO or of the effectiveness of the PTO in its patent examination activities based on the statistics published in the PTO Annual Reports may be misleading because of the failure of the PTO Annual Reports to disclose data relating to continuing applications.

However, in 2000, in response to requests made in 1998 and repeated in 1999, Ms. Danita Ingram of the PTO provided data for filings of continuing UPR applications for the PTO's fiscal years 1993–1998.[33] These data reveal information about the composition of the PTO workload, and, in conjunction with data published in the PTO's Annual Reports for UPR applications for the same fiscal years, the data also permits estimates of the effectiveness of the PTO in examining patent applications. The continuing applications data provided by the PTO and the related data for the same years taken from the Annual Reports posted on the PTO's website are summarized in Table 1.[34]

Calculations from the continuing applications data provided by the PTO show that a total of 1,227,143 UPR applications were filed with the PTO in its fiscal years 1993–1998, and that 348,798 (28.4%) of them were continuing applications; either continuations, CIPs, or divisionals.[35] Effectively, more than one-fourth of the applications filed with the PTO during these fiscal years, and hence the workload of the PTO, related to subject matter previously before the PTO, thus, requiring Examiners to repeat work they

[32] "Abandoned" as used here means abandoned in the sense that the applicant is no longer seeking a patent on the subject matter of the abandoned application.

[33] The later request, which was addressed to the Commissioner of Patents, was treated by the PTO as a Freedom of Information Act Request, as it apparently is required to do. It was forwarded to the Office of the Solicitor For Response under the Freedom of Information Act (FOIA). *See* FOIA Request No. 00-044.

[34] *See infra* tbl. 1; *see also supra* note 1 for web site information.

[35] *See infra* tbl. 1, "A–Continuing Applications Data Provided By USPTO."

had already done, or could have done. But the PTO collected filing and other examining fees for all of these continuing applications, so the PTO could well regard such applications as moneymakers despite the increased workload they impose on the agency.[36] The number of new or original applications, i.e., the total number of UPR applications filed less the total number of continuing applications, was calculated to be 878,345.[37]

Relevant data from the Annual Reports are also summarized in Table 1.[38] The data for "Total UPR Applications Filed," "UPR Applications Allowed," and "UPR Applications Abandoned"[39] were taken from the Summary of Patent Examining Activities included with the Annual Reports for fiscal years 1993–1998.[40] Because the continuing applications data[41] furnished by the PTO lumped utility, plant, and reissue applications together, the data from the PTO Annual Reports is similarly presented in order to provide comparable data sets.[42]

In the Annual Reports, total application disposals are the sum of applications allowed and applications abandoned.[43] But as previously noted, the Annual Reports do not indicate the extent to which the subject matters sought to be patented in the abandoned applications were not in fact abandoned, but were made the subject of continuing applications. As a result, the Annual Report data overstates the number of applications effectively abandoned by counting as abandoned those whose subject matter

[36] Patent examiners may also like continuing applications because the abandonment of the prior parent application counts as a disposal, which enhances their performance rating. The first Office Action in the continuation application (which also provides a count) is easy to do, because of the Examiner's prior work on the now abandoned parent application. And the newly refiled application promises a further disposal (and performance rating enhancement) when it is subsequently patented or abandoned.

[37] *See infra* tbl. 1, "A—Continuing Applications Data Provided By USPTO" (total original applications calculated).

[38] *See infra* tbl. 1, "B—USPTO Annual Report Data From USPTO Website."

[39] *Id.*

[40] *See* the Summary of Patent Examining Activities which is Table 5 of the Statistical Tables in the fiscal year 1993 Annual Report and Table 1 of the 1994–2000 Annual Reports, all accessible through http://www.uspto.gov/web/offices/com/annual/index.html.

[41] *See infra* tbl. 1, "A—Continuing Applications Data Provided By USPTO."

[42] *See infra* tbl. 1, "B—USPTO Annual Report Data From USPTO Website."

[43] *See* Table 1 of the Statistical Tables from the PTO Annual Reports for fiscal years 1994–2000 and Table 5 of the Statistical Tables of the fiscal year 1993 PTO Annual Report, all accessible through http://www.uspto.gov/web/offices/com/annual/index.html.

was sought to be patented in subsequent continuing applications. Similarly, the PTO Annual Report data, by including continuing applications seeking to patent subject matter that had already been considered by the PTO in the count of total applications filed, also overstates the number of new or original applications filed.

An estimate of the consistency of the continuing applications data provided by the PTO and data presented in the PTO's Annual Reports—specifically a comparison of Total UPR Applications Filed as reported in each—is set forth in Table 1.[44] The data for continuing applications provided upon request by the PTO showed 1,227,143 applications, and the data presented in the Annual Reports showed 1,233,959 applications. Thus, the data are remarkably consistent, with the only difference between the two numbers being 6,816 applications (0.6%).[45]

II. Allowance Percentage Results

Combining the PTO data from the two sources[46] permits an estimate[47] of the selectivity of the PTO in examining patent applications, expressed as the percentage of applications allowed, i.e., the number of applications allowed divided by the number of applications filed. Table 2 sets forth three such determinations of Allowance Percentages for the PTO: the first[48] based on the number of original UPR applications filed as the divisor, the second[49] based on the divisor being the sum of the original UPR applications and the divisional applications,[50] and a third[51] using the sum of the original applica-

[44] *See infra* tbl. 1, "C—Data Comparison—Application Filings from USPTO Provided Data and USPTO Annual Reports."

[45] *Id.*

[46] The PTO's Annual Reports and the continuing applications data provided by the PTO.

[47] A definitive determination of the Allowance Percentage, as opposed to an estimate, would require a cohort study of original applications filed over a period of several years that followed all of the original applications and all of the continuing applications descended from them until the last of the applications had been patented or abandoned. Harhoff et. al. have done a cohort study for all German patent applications having a 1977 filing date. *See* Harhoff, *supra* note 10.

[48] *See infra* tbl. 2, "A—Percentage of Original Applications Allowed."

[49] *See infra* tbl. 2, "B—Percentage of Original Plus Divisional Applications Allowed."

[50] This is based on the assumption that the divisional applications are for independent and distinct inventions that had not previously been examined by the PTO.

[51] *See infra* tbl. 2, "C—Percentage of Original Plus Divisional Plus Continuation-In-Part Applications Allowed."

tions, divisional applications, and CIP applications as the divisor.[52] Table 2 also sets forth the more refined determinations for each of the foregoing, which includes Allowance Percentages calculated using a two-year lag to approximate the time required for the PTO to examine patent applications.[53] These calculations establish an estimate of an upper and lower bound for the selectivity of the PTO in its examination activities, as measured by Allowance Percentages.

Based on the number of original applications in fiscal years 1993–1998, the number of applications allowed in those years was 82% of the number of original applications filed.[54] When the two-year lag to approximate the time required for examination is introduced, the number of allowed applications in years 1995 through 1998 rises to 95% of the number of original applications filed in 1993–1996.[55]

When the divisor is the sum of the original applications and divisional applications, the overall Allowance Percentage is 75%.[56] With the two-year lag, the Allowance Percentage is 86%.[57] When the divisor is the sum of the original applications, divisional applications, and CIP applications, the Allowance Percentages are 69% and 78% respectively.[58]

Calculations of Allowance Percentages for the EPO and for the JPO were also made based on available data. The determinations for the EPO are in Table 3.[59] These data are taken from Table 7.6 of the statistical data on the EPO website.[60] Specifically, these calculations are based on the total number

---

[52] This implicitly assumes, contrary to fact, that only continuation applications represent a renewed effort to patent material that has already been examined.

[53] *See infra* tbl. 2. The Trilateral Website reports Pendency Examination in months for the EPO, JPO, and PTO. European Patent Office, Japanese Patent Office, & United States Patent Office, 1999 TRILATERAL STATISTICAL REPORT, *at* http://www.uspto.gov/web/tws/tsr99/annex.htm [hereinafter TRILATERAL REPORT]. The two-year lag represents the average pendency reported for U.S. applications, rounded to the nearest year.

[54] *See infra* tbl. 2, "A—Percentage of Original Applications Allowed." Allison and Lemley did not determine what percentage of applications studied actually issue as patents. *See* Allison & Lemley, *supra* note 27.

[55] *See infra* tbl. 2, "A—Percentage of Original Applications Allowed."

[56] *See infra* tbl. 2, "B—Percentage of Original Plus Divisional Applications Allowed."

[57] *Id.*

[58] *See infra* tbl. 2, "C—Percentage of Original Plus Divisional Plus Continuation-In-Part Applications Allowed."

[59] *See infra* tbl. 3, "European Patent Office—Patents Granted as Percentage of Applications Filed."

[60] 1999 EPO ANN. REP. tbl. 7.6, *at* http://www.european-patent-office.org/epo/an_rep/1999/pdf/fulldoc.pdf.

of European applications filed from inception of the EPO in 1978 through 1999 and the number of European patents granted over the same time period.[61] The overall Allowance Percentage for the EPO is 60% and, with a two-year lag, the Allowance Percentage is 68%.[62]

The determinations for the Japanese Patent Office are set forth in Table 4, based on data for the years 1988 through 1999.[63] These data are available on the JPO website.[64] The English language version of the website[65] includes data for Patent Applications, Examination Requests, Registration Decisions, and Patents Registered for the years 1989–1999. The 1989–1998 data are in the 1999 JPO Annual Report and 1990–1999 data is contained in the 2000 JPO Annual Report.[66] Data for 1988 through 1997 are available on the Japanese language version of the website.[67] The Overall Allowance Percentages were determined based on the number of examination requests, because of the large number of Japanese patent applications that are permitted to lapse without examination, and on the number of registration decisions (allowances) reported. The overall Allowance Percentage for the JPO for the 1988–1999 time period is 57%.[68] With a two-year lag, the Allowance Percentage is 65%.[69]

Dietmar Harhoff, Frederick M. Scherer, and Katrin Vopel, in their study titled *Citations, Family Size, Oppositions and the Value of Patent Rights*,

---

[61] *Id.*

[62] *See infra* tbl. 3, "European Patent Office—Patents Granted as Percentage of Applications Filed." For the EPO, like the PTO, the two-year lag represents the average pendency in months as reported on the Trilateral Website, rounded to the nearest year. For the JPO, the only reported value is twenty-four months for 1995, so two years was used as well for Japan.

[63] *See infra* tbl. 4, "Japanese Patent Office—Applications Allowed (Registration Decisions) as Percentage of Examinations Requested."

[64] Japanese Patent Office, http://www.jpo.go.jp./indexj.htm (Japanese Version) (last visited Aug. 15, 2001).

[65] Japanese Patent Office, http://www.jpo.go.jp (English Version) (last visited Aug. 15, 2001).

[66] The 1999 and 2000 JPO Annual Reports can both be accessed through the Reports link following the Statistics, Documents link at the JPO Home Page, http://www.jpo.go.jp/. The 2000 JPO Annual Report is also directly accessible from the JPO Home Page.

[67] Japanese Patent Office, http://www.jpo.go.jp./indexj.htm (Japanese Version) (last visited Aug. 15, 2001).

[68] *See infra* tbl. 4, "Japanese Patent Office—Applications Allowed (Registration Decisions) as Percentage of Examinations Requested."

[69] *Id.*

performed a cohort analysis for all German patent applications claiming a 1977 priority date.[70] In Table 4 of the Harhoff paper, the authors report that 41.7% of such applications were initially granted as patents.[71] This number represents the percentage of applications granted based on all German applications claiming a 1977 priority date, and thus is most nearly comparable to the two-year lag Allowance Percentages for the PTO, the EPO, and the JPO. This value is certainly consistent with the reputation for rigor established by the German Patent Office (GPO).

The Allowance Percentages calculated for the EPO, the JPO, and the PTO, and the data for the 1977 German cohort are included in the Summary in Table 7.[72] It is apparent from these Allowance Percentage data that the PTO is by far the least selective of the patent offices analyzed in this study.

III. Grant Rates

Grant Rates for the EPO, JPO, and PTO, as reported on the Trilateral Website,[73] are summarized and averaged in Table 5.[74] The average of the Grant Rates reported for the PTO on the Trilateral Website for 1995–1999 is 68%,[75] which is virtually the same as the uncorrected Grant Rate for the PTO over the 1993–1998 period (66%), as calculated in Table 1.B.[76] Thus, it is apparent that the Grant Rates reported for the PTO on the Trilateral Website have not been adjusted or corrected to take into account the effect of continuing applications filed, and hence, may be misleading.

Calculations that do correct the PTO Grant Rates for continuing applications are in Table 6.[77] And, as can be seen from this table, the corrected Grant Rates are quite different from the uncorrected Grant Rates. For

---

[70] *See* Harhoff, *supra* note 10.

[71] *Id.* (manuscript at 27).

[72] *See infra* tbl. 7, "Summary."

[73] 1999 Trilateral Stat. Rep. tbl. 4.4.2, *at* http://www.european-patent-office.org/tws/tsr99/44tri.htm; 1998 Trilateral Stat. Rep. tbl. 4.4.2, *at* http://www.european-patent-office.org/tws/tsr_98/tsr_4_4.htm; 1997 Trilateral Stat. Rep. tbl. 4.4.2, *at* http://www.european-patent-office.org/tws/tsr_97/chapter4.htm; 1996 Trilateral Stat. Rep. tbl. 4.4.2, *at* http://www.european-patent-office.org/tws/tsr_96/44tri.htm.

[74] *See infra* tbl. 5, "Grant Rates—Reported on the Trilateral Website."

[75] *See infra* tbl. 5, "Grant Rates—Reported on the Trilateral Website."

[76] *See infra* tbl. 1, "B—USPTO Annual Report Data from USPTO Website."

[77] *See infra* tbl. 6, "Corrected Grant Rates for the U.S. Patent & Trademark Office."

example, if it is assumed that all of the continuing applications represent a renewed attempt to patent the subject matter of their parent applications, then the number of net abandonments is the total number of abandonments less the total number of continuing applications filed. The overall Grant Rate for the 1993–1998 fiscal years on that assumption is 97%.[78]

If instead it is assumed that continuation and CIP applications, but not divisional applications, represent renewed efforts to patent the subject matter of their parent applications, the number of net abandonments is the total number of abandonments less the number of continuation and CIPs filed. The resulting overall Grant Rate for the 1993–1998 fiscal years is 87%.[79]

If it is assumed, contrary to fact, that only continuation applications represent a renewed effort to patent the subject matter of parent applications which are abandoned, then the number of net abandonments is the total number of abandonments less the number of continuation applications filed. The resulting overall Grant Rate for the 1993–1998 fiscal years in this case is 80%.[80]

These calculations establish an estimate of an upper and lower bound for the selectivity of the PTO in its examination activities, as measured by the Grant Rate. These results are also included in the Summary in Table 7.[81] It is apparent from these Grant Rate determinations, just as it was apparent from the Allowance Percentage determinations, that the PTO is far less rigorous in its examination of patent applications than is the EPO or the JPO.

Conclusion

From the foregoing, it is evident that examination of patent applications by the PTO is significantly less rigorous than is the examination of patent applications by the EPO, the JPO, or the GPO. Also, the likelihood of ultimately obtaining allowance of a patent application from the PTO is far higher than in the EPO, the JPO, or the GPO.

Thus a first policy question one must consider is whether this result is

[78] *See infra* tbl. 6, "A—Net Abandonments=Total Abandonments Less Total Continuing Applications."

[79] *See infra* tbl. 6, "B—Net Abandonments=Total Abandonments Less Continuation And Continuation-In-Part Applications."

[80] *See infra* tbl. 6, "C—Net Abandonments=Total Abandonments Less Continuation Applications."

[81] *See infra* tbl. 7, "Summary."

desirable or not, and, if not, what steps can be taken to ensure that the examination process in the PTO is made more rigorous. For example, should the PTO aspire to a level of rigor comparable to that of the European and Japanese Patent Offices? Or should it aspire to the even higher level of rigor of the GPO, as exemplified by the 41.7% Allowance Percentage for the 1977 cohort of German applications? And if a higher level of rigor is indicated, what changes to the patent statutes and PTO management practices will be required for its achievement?

In this regard, one question is whether it is desirable to perpetuate the system of continuing applications,[82] with the result that patent applicants can avoid a final decision as to the patentability of their applications by a succession of refilings and place the PTO in the position that it can rid itself of such applications only by allowing them. The inability of the PTO to rid itself of a determined applicant except by allowing his or her application may explain, at least in part, the high Allowance Percentages and Grant Rates that characterize the current PTO statistics.

Abolition of continuing applications would permit the PTO to improve its management processes by enabling it to obtain final decisions as to the patentability of pending applications and by eliminating the ability of applicants to reimpose the same work upon it by filing a sequence of continuing applications.[83] The consequent reduction in the PTO's workload—more than one-fourth of application filings are continuing applications—should make additional resources available. These resources, in turn, could be applied to the more thorough examination of original applications, or enable the PTO to reduce the size, and cost, of its examination staff. But legislation would be required to eliminate the statutory authority for continuing applications, including the recently adopted RCE.[84]

---

[82] One of the authors has elsewhere characterized continuation, CIP, and voluntary divisional applications as "one of the more bizarre features of U.S. patent law," and recommended their elimination. *See* Cecil D. Quillen, Jr., *Proposal for the Simplification and Reform of the United States Patent System*, 21 AIPLA Q.J. 189, 198 n.42 (1993).

[83] Abolition of continuing applications would also eliminate, or at least ameliorate, the hold-up problem. *See supra* note 29 for a discussion of the hold-up problem.

[84] In this regard, the PTO, even without statutory amendments to abolish continuing applications, could change its work practices so that Examiners are not credited with a disposal for abandoned applications which have been refiled, so that they no longer have an incentive to encourage filing of continuing applications.

On the other hand, if the lack of rigor by the PTO is appropriate and desirable, and we want a patent system in which the PTO ultimately grants a patent for virtually every original application, the question then becomes why maintain an examination system at all? Instead, why not have a simple registration system in which all original applications become patents, and the expense of the examination operations of the PTO is eliminated? Again, legislation would be required to eliminate the PTO's patent examining activities and move to a registration system.

A further question is whether the clear and convincing evidence standard applied in the courts for overcoming the statutory presumption of validity is appropriate, given the lack of rigor in the PTO examination process. Since a patent is granted for virtually every original application filed, might it not be more appropriate to apply a less rigorous standard, e.g., the preponderance of the evidence standard that prevailed before the advent of the Federal Circuit, or even regard the presumption as simply establishing the initial burden of going forward with evidence? Since the clear and convincing evidence standard is not mandated by statute, but instead was established by the Court of Appeals for the Federal Circuit, that court could, on its own, return to the preponderance of the evidence standard which it replaced, or adopt a different standard. Or Congress, through legislation, could change or abolish the clear and convincing standard, as it applies to patents.

It is the hope and intention of the authors that policy-makers (including judges), those concerned for innovation in the U.S., practicing attorneys, and officials responsible for management of the PTO will be aided by knowledge of the lack of rigor of the PTO in its examination activities as reported herein, and the consequent proliferation of U.S. patents resulting from that lack of rigor.

Table 1: United States Patent & Trademark Office Data

A – Continuing Applications Data Provided By USPTO

	1993	1994	1995	1996	1997	1998	Total
Total UPR Applications Filed	174,598	185,900	220,953	190,638	218,881	236,173	1,227,143
Continuations	28,339	32,041	39,448	28,975	32,563	32,811	194,177
Continuations-in-Part	12,889	13,912	15,914	10,469	10,574	10,639	74,397
Divisions	9,602	10,596	26,413	9,825	12,448	11,340	80,224
Total – Continuing Applications	50,830	56,549	81,775	49,269	55,585	54,790	348,798
Continuing Applications as Percent of Total	29.1%	30.4%	37.0%	25.8%	25.4%	23.2%	28.4%
Original Applications (Calculated)	123,768	129,351	139,178	141,369	163,296	181,383	878,345

B – USPTO Annual Report Data From USPTO Website

	1993	1994	1995	1996	1997	1998	Total
Total UPR Applications Filed (Calculated)	174,553	186,123	221,304	191,116	220,773	240,090	1,233,959
Disposals							
UPR Applications Allowed	104,351	107,221	106,566	121,694	135,240	143,045	718,117
UPR Applications Abandoned	60,763	64,932	66,460	58,358	61,367	60,102	371,982
Total UPR Application Disposals (Calculated)	165,114	172,153	173,026	180,052	196,607	203,147	1,090,099
Uncorrected Grant Rate (Calculated)	63%	62%	62%	68%	69%	70%	66%

C – Data Comparison – Application Filings From USPTO Provided Data and USPTO Annual Reports

	1993	1994	1995	1996	1997	1998	Total
Total UPR Applications Filed – PTO Provided Data	174,598	185,900	220,953	190,638	218,881	236,173	1,227,143
Total UPR Applications Filed – Annual Reports	174,553	186,123	221,304	191,116	220,773	240,090	1,233,959
Difference (Calculated)	(45)	223	351	478	1,892	3,917	6,816
						Percentage Difference (Calculated) =	0.6%

Table 2: USPTO – Applications Allowed as Percentage of Applications Filed

A – Percentage Of Original Applications Allowed

	1993	1994	1995	1996	1997	1998	Total
Total UPR Applications Filed (PTO Provided Data)	174,598	185,900	220,953	190,638	218,881	236,173	1,227,143
Total – Continuing Applications	50,830	56,549	81,775	49,269	55,585	54,790	348,798
Original UPR Applications Filed	123,768	129,351	139,178	141,369	163,296	181,383	878,345
UPR Applications Allowed – PTO Annual Reports	104,351	107,221	106,566	121,694	135,240	143,045	718,117

Percentage Allowed (1993–1998)			Percentage Allowed – Two Year Lag		
Total Applications Filed (1993–1998)	878,345	Percent	Total Applications Filed (1993–1996)	533,666	Percent
Applications Allowed (1993–1998)	718,117	82%	Applications Allowed (1995–1998)	506,545	95%

B – Percentage Of Original Plus Divisional Applications Allowed

	1993	1994	1995	1996	1997	1998	Total
Original UPR Applications Filed	123,768	129,351	139,178	141,369	163,296	181,383	878,345
Divisional UPR Applications Filed	9,602	10,596	26,413	9,825	12,448	11,340	80,224
Original + Divisional UPR Applications Filed	133,370	139,947	165,591	151,194	175,744	192,723	958,569
UPR Applications Allowed	104,351	107,221	106,566	121,694	135,240	143,045	718,117

Percentage Allowed (1993–1998)			Percentage Allowed – Two Year Lag		
Total Applications Filed (1993–1998)	958,569	Percent	Total Applications Filed (1993–1996)	590,102	Percent
Applications Allowed (1993–1998)	718,117	75%	Applications Allowed (1995–1998)	506,545	86%

Table 2: USPTO – Applications Allowed as Percentage of Applications Filed (Continued)

C – Percentage Of Original Plus Divisional Plus Continuation-In-Part Applications Allowed

	1993	1994	1995	1996	1997	1998	Total
Original UPR Applications Filed	123,768	129,351	139,178	141,369	163,296	181,383	878,345
Divisional UPR Applications Filed	9,602	10,596	26,413	9,825	12,448	11,340	80,224
Continuation-in-Part Applications Filed (CIPs)	12,889	13,912	15,914	10,469	10,574	10,639	74,397
Original + Divisional + CIP Applications Filed	148,252	155,853	183,500	163,659	188,315	205,360	1,044,939
UPR Applications Allowed	104,351	107,221	106,566	121,694	135,240	143,045	718,117

Percentage Allowed (1993–1998)			Percentage Allowed – Two Year Lag		
Total Applications Filed (1993–1998)	1,044,939	Percent	Total Applications Filed (1993–1996)	651,264	Percent
Applications Allowed (1993–1998)	718,117	69%	Applications Allowed (1995–1998)	506,545	78%

Table 3: European Patent Office – Patents Granted as Percentage of Applications Filed

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988		
Applications Filed	3,598	11,006	17,495	22,421	25,318	28,132	33,094	33,748	36,783	39,961	44,755		
Patents Granted			484	3,346	5,428	9,656	13,311	15,117	18,472	17,144	19,749		
		1989	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**Total**
Applications Filed		49,282	52,361	45,648	46,052	42,709	41,374	40,651	41,077	45,441	48,547	50,236	799,689
Patents Granted		22,558	24,756	26,642	30,409	36,664	42,000	41,607	40,069	39,646	36,717	35,358	479,133

Percentage Granted (1978–1999)			Percentage Granted – Two Year Lag		
Total Applications Filed (1978–1999)	799,689	Percent	Total Applications Filed (1978–1997)	700,906	Percent
Patents Granted (1978–1999)	479,133	60%	Patents Granted (1980–1999)	479,133	68%

Table 4: Japanese Patent Office – Applications Allowed (Registration Decisions) as Percentage of Examinations Requested

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Total
Patent Applications	339,399	351,207	367,590	369,396	371,894	366,486	353,301	369,215	376,615	391,572	401,932	405,655	4,464,262
Examination Requests	100,111	116,625	128,172	146,008	152,853	223,546	144,051	167,923	186,415	205,300	208,392	217,389	1,996,785
Registration Decisions	50,542	57,566	50,457	66,637	70,361	77,310	81,664	97,677	195,846	122,386	129,443	135,412	1,135,301
Patents Registered	55,300	63,301	59,401	36,100	92,100	88,400	82,400	109,100	215,100	147,686	141,448	150,059	1,240,395

Percentage Allowed (1988–1999)			**Percentage Allowed – Two Year Lag**		
Examinations Requested (1988–1999)	1,996,785	Percent	Examinations Requested (1988–1997)	1,571,004	Percent
Registration Decisions (1988–1999)	1,135,301	57%	Registration Decisions (1990–1999)	1,027,193	65%

Table 5: Grant Rates – Reported On The Trilateral Website

	1995	1996	1997	1998	1999	Average
European Patent Office	67%	67%	68%	67%	64%	67%
Japanese Patent Office	63%		65%	65%	64%	64%
U.S. Patent & Trademark Office	63%	67%	69%	70%	71%	68%

Table 6: Corrected Grant Rates for the U.S. Patent & Trademark Office

A – Net Abandonments = Total Abandonments Less Total Continuing Applications

	1993	1994	1995	1996	1997	1998	Total
UPR Applications Allowed	104,351	107,221	106,566	121,694	135,240	143,045	718,117
Total UPR Applications Abandoned	60,763	64,932	66,460	58,358	61,367	60,102	371,982
Continuation Applications	28,339	32,041	39,448	28,975	32,563	32,811	194,177
CIP Applications	12,889	13,912	15,914	10,469	10,574	10,639	74,397
Divisional Applications	9,602	10,596	26,413	9,825	12,448	11,340	80,224
Total Continuing Applications	50,830	56,549	81,775	49,269	55,585	54,790	348,798
Net UPR Applications Abandoned	9,933	8,383	(15,315)	9,089	5,782	5,312	23,184
Net UPR Disposals	114,284	115,604	91,251	130,783	141,022	148,357	741,301
Grant Rate	91%	93%	117%	93%	96%	96%	97%

B – Net Abandonments = Total Abandonments Less Continuation And Continuation-In-Part Applications

	1993	1994	1995	1996	1997	1998	Total
UPR Applications Allowed	104,351	107,221	106,566	121,694	135,240	143,045	718,117
Total UPR Applications Abandoned	60,763	64,932	66,460	58,358	61,367	60,102	371,982
Continuation Applications	28,339	32,041	39,448	28,975	32,563	32,811	194,177
CIP Applications	12,889	13,912	15,914	10,469	10,574	10,639	74,397
Total- Continuation and CIP Applications	41,228	45,953	55,362	39,444	43,137	43,450	268,574
Net UPR Applications Abandoned	19,535	18,979	11,098	18,914	18,230	16,652	103,408
Net UPR Disposals	123,886	126,200	117,664	140,608	153,470	159,697	821,525
Grant Rate	84%	85%	91%	87%	88%	90%	87%

Table 6: Corrected Grant Rates for the U.S. Patent & Trademark Office (Continued)

C – Net Abandonments = Total Abandonments Less Continuation Applications

	1993	1994	1995	1996	1997	1998	Total
UPR Applications Allowed	104,351	107,221	106,566	121,694	135,240	143,045	718,117
Total UPR Applications Abandoned	60,763	64,932	66,460	58,358	61,367	60,102	371,982
Continuation Applications	28,339	32,041	39,448	28,975	32,563	32,811	194,177
Net UPR Applications Abandoned	32,424	32,891	27,012	29,383	28,804	27,291	177,805
Net UPR Disposals	136,775	140,112	133,578	151,077	164,044	170,336	895,922
Grant Rate	76%	77%	80%	81%	82%	84%	80%

Table 7: Summary

Allowance Percentages *(Applications Allowed as Percentage of Applications Filed/Examinations Requested)*	**Overall**	**Two Year Lag**
United States Patent & Trademark Office (1993–1998)		
Based on Original Applications	82%	95%
Based on Original + Divisional Applications	75%	86%
Based on Original + Divisional + CIP Applications	69%	78%
European Patent Office (1978–1999)	60%	68%
Japanese Patent Office (1988–1999)	57%	65%
German Patent Office (1977 Cohort)		41.7%

Grant Rates *(Applications Allowed as Percentage of Net Disposals)*	
United States Patent & Trademark Office (1993–1998)	
Based on Net Abandoned = Total Abandoned Less Total Refiled	97%
Based on Net Abandoned = Total Abandoned Less Continuations and CIPS	87%
Based on Net Abandoned = Total Abandoned Less Continuations	80%
Uncorrected Grant Rate (1993–1998)	66%
European Patent Office (1995–1999)	67%
Japanese Patent Office (1995, 1997–1999)	64%