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Emergence of Essential Patents in Technical Standards:  
Implications of the Continuation and Divisional Application Systems  
and the Written Description Requirement<sup>1</sup>

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Abstract

The present paper looks into the intersection between technical standard development activities and patenting activities from the perspective of patent prosecution. Specifically, attention is paid to the tendency that the obtainment of patents related to technical standards is often done through the utilization of the systems allowing patent applicants to file new applications (collectively called continuing applications under the US patent system) enjoying the benefit of the filing dates of earlier-filed patent applications. After presenting some empirical evidence to show the tendency (in other words, the relevance of the continuing application system to patenting technical standards), this paper focuses upon the written description requirement as an important factor affecting the patentability of such continuing applications.

In this paper, I make concrete proposals for the enhancement of the capacity of the written description requirement to suppress the abusive use of the continuing application system to cover technical standards as well as competitors' products and processes, without prejudice to innovative inventors' opportunities to mine their original disclosure in patent specifications for the exclusive rights they deserve. These proposals of mine include the reduction of burden of proof, to the patent challenger's side, of incompliance of a claim in a continuing application with the written description requirement, when certain conditions are met, and some examples of ways to achieve such reduction of burden of proof.

This paper also presents comparative review of the continuing application systems under the European and Japanese patent systems as well as the US patent system. Based upon the review, relevant international harmonization considerations are discussed as well.

Keywords: patent, prosecution, technical standards, continuing application, continuation, division, CIP, priority right, earlier filing date, written description requirement, support, implicit and inherent disclosure, burden of proof, burden of production, prima-facie evidence, functional claim, omission of an element, international harmonization

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## 1. Introduction

As the role of technical standards has been assuming increasing importance both as technological innovation platforms and as facilitators for socio-economic development, it has become a major issue to eliminate potential conflicts between the expected widespread use of technical standards and exclusivity originating from patents relevant to such standards. In this general context, attention is being paid in recent years to interaction between technical standard development activities and patenting activities, that is to say, the process for acquiring patents relevant to technical standards. Whether or not a patent eventually constitutes a group of patents essential to a technical standard could make a big difference in the value of that particular patent. Given the situation, nobody would object to the notion that some sorts of built-in mechanisms should be in existence both in the standard development procedure and in the patent system for maintaining fairness among stakeholders through effective prevention of any fraudulent or unfair obtainment of essential patents in technical standards.

The issue is what kinds of acts should be considered to be such fraudulent or unfair obtainment of essential patents and how they can be prevented. In this regard, two areas are conceived in which such consideration should be made: one is the area of standard development procedure and the other is that of patent prosecution. With regard to the former area, intensive discussions have come to be made, with particular focus being upon intellectual property rights policies and rules of standard-setting organizations<sup>3</sup>. The discussions have further been evoked by recent developments of actual cases including the controversial Rambus case<sup>4</sup>, which will be mentioned later. As for discussions from the viewpoint of the latter area of consideration (patent prosecution), however, they seem to be almost non-existent<sup>5</sup>. The reason would be that no special norms and rules could be envisaged for the handling of technology-standard-related patent applications, different from those for the other applications. This is true. Having said that, I would attach importance to looking into the interaction between technical standards and patents from the viewpoint of patent prosecution, as it may lead to measures for better prevention of potential conflicts at the source. More specifically, I consider it to be of significant importance to contemplate measures to prevent, without prejudice to the strong protection of truly innovative ideas, such an unfair act as using a pending patent application to obtain a patent, with knowledge of developments in standard-setting process, for subject matter that had not been recognized by the inventor at the time of filing the application and that covers technology designated later as a technical standard. In my view, preventing such an act can be achieved through the proper use, by the patent office and the courts, of the written description requirement as provided for in Section 112, first paragraph of the US Patent Law, 35 U.S.C., whose counterpart in Europe and Japan is the support requirement as set forth in Article 84 of the European Patent Convention and Section 36 (6) (i) of the Japanese Patent Law. The idea behind that is

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<sup>3</sup> For example, see Mark A. Lemley, *Intellectual Property Rights and Standard-Setting Organizations*, 90 *Calif. L. Rev.* 1889 (2002).

<sup>4</sup> For the implications of the Rambus case on standard-setting organizations' policies, see Nicos L. Tsilas, *Toward Greater Clarity and Consistency in Patent Disclosure Policies in a Post-Rambus World*, 17 *Harv. J. Law & Tec* 475 (2004). The author discusses the intellectual property rights policies of standard-setting organizations in light of the Rambus case and proposes core patent disclosure provisions for the betterment of such policies.

<sup>5</sup> The following paper has recently been published exploring various possibilities to suppress the abuse of the continuation application system (although not from the viewpoint of prosecution for patenting technical standards): Mark A. Lemley, Kimberly A. Moore, *Ending Abuse of Patent Continuations*, 84 *B.U. L. Rev.* 63 (2004). Reference is made to this work later in the present paper.

simple: that is, we have to make sure that patent protection should be granted to subject matter that is shown, through proper disclosure in the specification, to have been actually invented at the time of filing, and the legal obligation to ensure that is the written description requirement. With regard to the written description requirement itself, attention is drawn to the fact that a complex debate, mentioned later, is emerging. In this sense, too, it would be worthy to look into the requirement, with particular emphasis upon its implications on the technical-standard-related patent prosecution. It is also noted that what the patent system allows applicants to do in the field of prosecution would have implications on what the intellectual property rights policies and rules of standard-setting organizations should be. Further, betterment of practices on the patent prosecution side would work on parties outside standard-setting organizations.

In light of the aforementioned background consideration, this paper focuses on the written description requirement, taking into account its relevance to the process of patenting technical standards. In part 2, a general tendency is presented that the obtainment of patents related to technical standards is often done through the utilization of the systems to enjoy the benefit of earlier filing dates, namely, the continuation, divisional, and continuation-in-part application systems. Comprehensive comparison is also drawn of these applications with counterparts under the European and Japanese patent systems. In part 3, explanation is made about the written description requirement and its relationship with the entitlement of the benefit of earlier filing dates. Analysis is attempted to enumerate several circumstances where the written description requirement could be of critical importance, having in mind the introduction of new or rewritten claims, which could happen during the process of patenting technical standards. Reference is made to some illustrative cases there. Recent controversy concerning the written description requirement is mentioned and my observation in that respect is presented. In part 4, concrete proposals are made to suppress the abuse of patent system flexibility to cover technical standards or competitors' product or processes after filing. The proposals include the reduction of burden of proof for compliance with the written description requirement where new or rewritten claims are introduced in a continuing application. The international harmonization factor is also considered in view of the European and Japanese patent systems as well as a relevant provision in the draft Substantive Patent Law Treaty being discussed at a forum of the World Intellectual Property Organization (WIPO). Lastly, conclusive words are presented.

## 2. Overview of the systems to enjoy the benefit of earlier filing dates (continuing applications) and their relevance to the emergence of essential patents in technical standards

### 2-1. Comparative overview of continuing application systems in the US, Europe, and Japan

The US patent system provides patent applicants with three kinds of applications that can enjoy the benefit of earlier filing dates, collectively called continuing applications<sup>6</sup>: these are the continuation, divisional, and continuation-in-part (CIP) applications. The European and Japanese patent systems offer more or less similar types of applications, with some differences, in particular, between the CIP system of the US, which is available to applicants so long as the "parent" application is pending, and the European and Japanese systems based on priority right claims with the 12-month time limit from the earliest filing date whose benefit is sought until the filing date of the later application. Here in this

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<sup>6</sup> See 37 C.F.R. 1.53 (b)

sub-part of the present paper, I take a comparative overview of continuing applications in the three patent systems, as a basis for subsequent discussions, with particular emphasis upon US patent system's direct linkage between eligibility of the later continuing application for the earlier filing dates and requirements for description in the specification of the earlier application.

Tables 1 and 2 in the Appendices 1 and 2 summarize characteristics of continuing applications, in the United States, Europe, and Japan, which does not allow and allow, respectively, the introduction of new matter to the substantive body of the application (claims, the specification, and drawings).

(1) Continuing applications not allowing the introduction of new matter

As for the first type of continuing applications, which does not allow the introduction of new matter, shown in the Table 1, the filing of those applications, either under the US, European, or Japanese systems, is made for the purpose of introducing a set of new claims to applications and have them examined as part of the later, new applications, except for simple division of applications where existing claims are divided into two groups, one in the new application and the other remaining in the parent application<sup>7</sup>. As will be explained later, this purpose of the introduction of new claims is often sought in the case of applications related to technical standards. No significant difference is observed among the first type of continuing applications under the US, European, or Japanese systems, in their basic characteristics and statutory requirements, with the only major departure from the common ground being the stricter time limit for filing divisional applications in Japan<sup>8</sup>. Under the US and European systems, a continuing application of this type can be filed during the pendency of the earlier application, and therefore, such filing can be made in response not only to examiner's opinion or decision to refuse the earlier application but also to the examiner's notification of his/her intention to grant a patent<sup>9</sup>, with the latter case being likely if the applicant wants to have a set of new claims more favorable to the applicant (than those of the earlier application being granted a patent) examined by the patent office<sup>10</sup>.

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<sup>7</sup> Under the European patent system, this sort of simple division has greater significance, in comparison to that under the US and Japanese systems, due to stricter rules in Europe concerning the unity of invention and the allowance of plurality of independent claims in a category of invention in one European patent application. According to Rule 29 (2) of the Implementing Regulations to the Convention on the Grant of European Patents, a European patent application may contain more than one independent claim in the same category (product, process, apparatus, or use) *only* if the subject matter of the application involves one of the following: (a) a plurality of inter-related products; (b) different uses of a product or apparatus; or (c) alternative solutions to a particular problem, where it is not appropriate to cover these alternatives by a single claim.

<sup>8</sup> In October 2004, a recommendation was made, by the Patent Strategy Planning Issues Working Group (Chair: Professor Sadao Nagaoka, Hitotsubashi University) of the Patent System Subcommittee of the Intellectual Property Committee of the Industrial Structure Council, an advisory body for the Ministry of Economy, Trade and Industry (METI) of the Government of Japan, that the time limit for division of patent applications under the Japanese Patent Law be relaxed so as to allow applicants to file divisional applications within a certain time periods from the decisions to grant patents or to refuse applications as well. See pages 17 and 18 of the Working Group's report on the recommended courses of revision of the systems of amendment and divisional application, published in October 2004 (in Japanese).

<sup>9</sup> In the US, the PTO examiner sends a Notice of Allowance to the applicant prior to the issuance of a patent. Under the European patent system, the Examining Division of the European Patent Office is to inform the applicant of the text based on which it intends to grant the patent and request the applicant's approval of the text.

<sup>10</sup> Under the US patent system, an applicant may request continued examination of the application, in

The underlying basic principle is common to the US, European, and Japanese patent systems: the later application can enjoy the benefit of the earlier filing date insofar as the invention claimed in the later application is disclosed somewhere in the entirety of the earlier application as filed (either the original claims, specification, or drawings). This principle itself would be highly reasonable in light of the very fundamental notion of patent monopoly granted in exchange for full disclosure.

An issue to be considered here is such disclosure to which extent in the earlier application as filed would be sufficient for the eligibility of the later application for the benefit of the filing date of the earlier application. In this context, I would like to underline the fact that direct reference to requirements for description in the specification is made only in the US statute, among the three, with regard to the requirements for enjoyment of the benefit of earlier filing dates, as shown in the following:

- United States

“An application for patent for an invention disclosed *in the manner provided by the first paragraph of section 112 of this title* in an application previously filed in the United States, ... shall have the same effect, as to such invention, as though filed on the date of the prior application, ... ” (35 U.S.C. 120, first sentence; emphasis added)

Note: The first paragraph of 35 U.S.C. 112 provides for requirements for the specification, which consist of, according to courts’ interpretation, three separate requirements, namely, the written description, enablement, and best mode requirements.

- Europe

“A European divisional application must be filed directly with the European Patent Office ... It may be filed only in respect of subject-matter which does not extend beyond the content of the earlier application as filed; in so far as this provision is complied with, the divisional application shall be deemed to have been filed on the date of filing of the earlier application and shall have the benefit of any right to priority.” (Article 76 (1) of the Convention on the Grant of European Patents (European Patent Convention; EPC))

- Japan

“An applicant for patent may divide a patent application comprising two or more inventions into one or more new patent applications ... ” (Section 44 (1) of the Japanese Patent Law)

Therefore, while all of the two national laws and a regional convention require the disclosure, in the earlier application, of the invention(s) claimed in the later application for the enjoyment of the benefit of the earlier filing date, only the US patent law explicitly states, in its text, how the invention(s) should have been disclosed in the earlier application – in the manner provided by the first paragraph of Section 112 of the law. Here lies a direct linkage in the US statute between the enjoyment of the benefit of the earlier filing date and requirements for the specification including the written description requirement, which will be explained later in detail.

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accordance with 37 C.F.R. 1.114, by filing a submission, such as an amendment to the written description, claims, or drawings, as well as a fee. The request for continued examination (RCE) causes the PTO to withdraw the finality of any office action (e.g., final rejection) and consider the submission, but does not create any new application. In this sense, making a RCE is distinct from filing a continuation, divisional, or continuation-in-part application, and the RCE is not discussed in the present paper.

Under the European patent system, the test for eligibility for the earlier filing date is done by asking, without explicit reference to requirements for description of the specification, whether there is any addition, in the invention claimed in the later application, beyond the content of the earlier application as filed. Namely, the test questions whether there is any new matter introduced to the *claims* of the later application. This is seen in the text of Article 76 (1) of the EPC referred to in the above, and further in the *Guidelines for Examination in the European Patent Office* as revised in December 2003 (the “EPO Examination Guidelines”)<sup>11</sup>. The test for requirements for description in the claims and specification of the divisional application is made separately for the divisional application itself, not in relation with the earlier (or parent) application. In Japan, situations are the same with those in Europe. Implications of this somewhat unclear difference between the US on one hand and Europe and Japan on the other will be discussed later.

## (2) Continuing applications allowing the introduction of new matter

With regard to the second type of continuing applications, which allows the introduction of new matter, shown in the Table 2, the filing of those applications is made when there is some need for enriching disclosure itself, instead of introducing a set of new claims within the scope of the initial disclosure of the earlier application. The motivation for such addition of new matter to the initial disclosure could be to add improvements developed since the filing date of the earlier application, to overcome the problems of insufficient disclosure in the earlier application, or, in some cases, just to add information, such as testing data, which is desirable but not necessary for supporting claims. Needless to say, introduction of a set of new claims to the later application is allowed. As for requirements for the enjoyment of the benefit of the earlier filing date, the principle is again that the later application can enjoy the benefit of the earlier filing date insofar as the invention claimed in the later application is disclosed somewhere in the entirety of the earlier application as filed (either the original claims, specification, or drawings). Therefore, those claims in the later application that define inventions already disclosed in the earlier application as filed can enjoy the benefit of the earlier filing date, while those claims in the later application that rely on the new matter introduced to disclosure in the later application cannot enjoy such benefit. The situation is the same for this second type as that for the first type, in which the manner of such disclosure in the earlier application is provided for, in the US statute, directly referring to requirements for description in the specification, i.e., the requirements as provided for in the first paragraph of Section 112 of 35 U.S.C.

The CIP application system under the US patent system is highly distinctive among the US, European, and Japanese patent systems in that a CIP application can be filed so long as the earlier application is pending<sup>12</sup> while the European and Japanese continuing applications

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<sup>11</sup> “The claims of a divisional application need not be limited to subject-matter already claimed in claims of the parent application. However, under Art. 76 (1), the subject-matter may not extend beyond the content of the parent application as filed. If a divisional application as filed contains *subject-matter additional to* that contained in the parent application as filed and the applicant is unwilling to remedy this defect by removal of that additional subject-matter, the divisional application must be refused under Art. 97 (1) due to non-compliance with Art. 76 (1).” (EPO Examination Guidelines, Part C, Chapter VI, 9.1.4 “Examination of a divisional application”; emphasis added) No reference is made, either in Article 76 (1) of the EPC or in the relevant part of the EPO Examination Guidelines as shown in the above, to the requirements for description in claims and the specification as provided for in Articles 83 and 84 of the EPC.

<sup>12</sup> Section 120 of the US patent law provides, with no distinction between the first type and the second type of continuing applications, that the later application must be filed “before the patenting or abandonment of

of this type are based on priority right claims that can be made only within the 12-month period from the earliest filing date whose benefit is sought<sup>13, 14</sup>. This flexibility of CIP applications in the US is in exchange for the shorter patent term ending, in principle, upon the expiration of the 20-year period counted from the earliest filing date, not from the actual filing date of the later application. Therefore, if a CIP application is filed long after the earliest filing date whose benefit is sought, the term of the patent granted on the CIP application is shortened accordingly. Another sort of demerits of filing a CIP application long after the earliest filing date, although it is a potential risk rather than a definite demerit, is that many intermediate documents may exist disclosing relevant inventions and published between the date of filing of the earlier application and that of the later application, and that such inventions disclosed in these documents may constitute the prior art for inventions defined by those claims of the later application which are not eligible for the earlier filing date. It is noted that such intermediate documents may include the publication of the earlier application itself. Further, supposing that patenting activities have been done in countries other than the US as well, such intermediate documents may also include the publications of the corresponding family applications filed outside the US claiming Paris-Convention priority rights based on the earlier application<sup>15</sup>. (If, on the contrary, an application is filed only in the US and a request is made by the applicant to the United States Patent and Trademark Office (PTO) that the publication be not made, the application is not published by the PTO.) Where the publication of the earlier application takes place, a one-year grace period is available for the later application in the US<sup>16</sup>; the consequence is that, while the later application is not affected by the publication of the earlier application if the publication took place within the one-year grace period prior to the filing date of the later application, the publication of the earlier application may cause an invention claimed in the later application to lose novelty or non-obviousness if the filing date of the later application is not within the one-year grace period and the invention is found not to be eligible for the benefit of the earlier filing date. Still further risk that may be involved in filing a CIP application is that, if the applicant filed a CIP application adding new matter in response to examiner's rejection of the parent application, under Section 112, for the lack of support of claim(s) by disclosure in the parent application, the applicant is considered to have admitted the lack of support<sup>17</sup>.

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or termination of proceedings on the first application or on an application similarly entitled to the benefit of the filing date of the first application.”

<sup>13</sup> In Europe and Japan, where the first-to-file principle governs the patent system, the 12-month period may be interpreted to be a period in which any incompleteness of disclosure, which may result from the pressure to file as soon as possible, can be remedied.

<sup>14</sup> The US patent system has the provisional application system, which allows the applicant to claim a priority right to file a non-provisional (ordinary) application based on a provisional application within the one-year period from the filing date of the provisional application. The provisional application system is out of the scope of this paper and is not dealt with further.

<sup>15</sup> The Paris Convention for the Protection of Industrial Property (of March 20, 1883, as last revised on July 14, 1967) entitles any person who has duly filed a patent application in one of the countries of the Union (formed by countries party to the Convention), or his/her successor in title, to enjoy, for the purpose of filing in the other countries, a right of priority during 12 months from the date of filing of the first application. (Articles 4A to 4C of the Convention)

<sup>16</sup> In Europe and Japan, publication of an application takes place after the expiry of the 18-month period from its filing date (or the earliest filing date whose benefit is sought, or the priority date based on a foreign application filed in a member of the Paris Convention, if any), or earlier than the expiry of the 18-month period at the request of the applicant, and the grace period system is either virtually non-existent (in Europe) or limited in length and scope (in Japan; the length is 6 months and the application of the “exception to the lack of novelty” provision (Section 30) in its patent law is limited to certain circumstances specified in the provision).

<sup>17</sup> If a patent issued on such a CIP application is litigated later, the patentee would be barred from arguing



Having in mind the aforementioned potential risks and patent term curtailment accompanying CIP applications, I would be able to say that the greater flexibility of the CIP system in the US in terms of time limit for filing would be attractive to strategy-oriented applicants<sup>18</sup>.

From the historical point of view, it is worth noting that the US patent law used to provide that the term of patent was 17 years from the date of grant. The provision was changed to the one limiting the patent term to, in principle, 20 years from the date of filing (in the case of continuing applications, from the earliest date of filing whose benefit is sought, as already mentioned), as a result of international harmonization under the Agreement on Trade-Related Aspects of Intellectual Property Rights (the TRIPS Agreement)<sup>19</sup>, a part of the WTO agreements entering into force on January 1, 1995. Now, only patents resulting from applications filed before June 7, 1995 can enjoy the patent term greater of the aforementioned 20-year period or the 17-year period from grant. In this sense, the benefits of continuing applications in the US have been reduced in comparison with those in the pre-TRIPS situations.

### (3) Summary

In sum, an underlining common principle governing both of the two types of continuing applications, either in the US, Europe, or Japan, is that their claims defining inventions disclosed in the earlier applications as filed can enjoy the benefit of the filing dates of the earlier applications, and in the US statute, it is expressly provided that such disclosure of the inventions must have been made in the manner to satisfy requirements for the specification as stated in the first paragraph of Section 112 of the US patent law. Under the European and Japanese patent systems, the test to determine eligibility for the earlier filing date is done by asking, without explicit reference to requirements for description of the specification, whether there is any addition, in the invention claimed in the later application, beyond disclosure in the earlier application as filed. Due to relative statutory clarity of the US patent system in terms of requirements of disclosure of invention in the earlier application for eligibility of the later application for the benefit of earlier filing dates, hereinafter, I will mainly focus on situations in the US first, and then consider the European and Japanese systems later before conclusion.

#### 2-2. Relevance of continuing applications to the emergence of essential patents in technical standards

As seen in the previous sub-part, the continuing application systems, either in the US, European, or Japanese patent systems, allow applicants to introduce a set of new claims to applications and have them examined by the patent office as part of the later, new applications. In addition, as far as the first type of continuing applications not allowing the introduction of new matter are concerned, the applicant can file a continuing application at any time so long as the earlier application (parent application) is pending, either under the US or European

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that claim(s) in question was/were entitled to the benefit of the earlier filing dates, due to estoppel.

<sup>18</sup> In comparison with the continuation application system explained earlier, the CIP system seems to be less frequently used to obtain patents related to technical standards, as suggested by several cases mentioned in the following sub-part 2-2.

<sup>19</sup> Article 33 of the TRIPS Agreement provides that the term of protection available shall not end before the expiration of a period of twenty years counted from the filing date. Although this provision does not specify any ceiling (upper limit) to the patent term, the provision makes it clear that the minimum period of 20 years should be computed from the date of filing.

systems (with some stricter time limitations under the Japanese system). The same applies to a CIP application in the US, the second type of continuing application allowing the introduction of new matter, although claims relying on new matter have a risk of being found to lack novelty or non-obviousness based on intermediate publications potentially including the publication of the parent application itself or its foreign family applications. Further, there is no limitation with respect to the cumulative number of continuations or divisions – thus, a child application may be a basis for a grandchild application, and so on. Taking advantage of these characteristics, a strategy-oriented applicant would tend to utilize continuing applications (all of the three kinds of continuing applications in the US and divisional applications under the European and Japanese patent systems) to obtain a patent with claims covering within their scope the competitors' products or processes or the technical standards that the applicant has come to learn after the filing date of his/her first application. To this end, if the initial application contains or has the likelihood to contain disclosure having some intersection with the competitors' products or processes or the technical standards that have gone public since the filing date of the initial application, it is an advantage of the applicant to prolong the entire prosecution process of a family of applications and to have at least one continuing application pending before the patent office. Further to the advantage of prolonging the entire prosecution process, possible tactical motivations for filing a continuing application include:

- (a) To have the parent application granted a patent relatively expeditiously while at the same time starting another prosecution process with a child application with claims broader in scope or those targeting at competitors or technical standards;
- (b) To fight against examiner's rejection of the parent application with broad claims by submitting arguments or appealing the final rejection to the Board of Patent Appeals and Interference of the PTO (or its European or Japanese counterparts) while making a "spare" child application; and
- (c) Simply to make a fresh start with a child application to remove restrictions to amendments to the parent application<sup>20</sup>.

Among the three, the most important would be (a), with respect to patenting technical standards.

Considering the extension or prolongation of the prosecution process and the introduction of a set of new claims, both of which are made possible through the use of the continuing application system, we would be able to foresee that patents granted on continuing applications would be frequently involved in litigations and technical standards. We would be able to say safely that this is the case.

As for continuing applications and litigations, according to the study by Lemley and Moore<sup>21</sup> using an original dataset comprising every patent issued from 1976 through 2000, while 23% of all patents granted during the period claim priority to one or more previously filed applications relying on 35 U.S.C. 120, those patents based on continuations represent 52% of all litigated patents. Although the aforementioned change in the patent term provided in the US statute did have an impact over the use of the continuing application system (the use of continuations dropped from some 30% of all applications in the mid-1990s

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<sup>20</sup> In the US, stricter restriction applies to amendments made after the issuance of examiner's final action for rejection. Similarly in Japan, stricter amendment restriction has to be followed after the examiner's final notification of reasons for refusal. By filing a continuing application, the applicant can effectively clear away these restrictions.

<sup>21</sup> See Lemley and Moore, *supra* note 5, at 69.

to some 20% by the late 1990s after the change), the latter rate is still well above its historic levels (the rate was approximately 12% in the late 1980s)<sup>22</sup>. While the utility rate of the continuing application system may further fall, to some extent, in the future as the influence of the transitional arrangements fade away, it is unlikely that the use will sharply decline to insignificance, in light of its importance in obtaining “useful” patents.

With regard to the relevance of continuing applications to patenting technical standards, the Rambus case is illustrative. Rambus Inc., a company developing memory technologies for semiconductor memory devices, filed a US patent application with the serial number 07/510,898 (the ’898 application) on April 18, 1990 concerning dynamic random access memory (DRAM). Thereafter, Rambus has filed numerous continuation and divisional applications, as well as foreign family applications, based on the single ’898 application. Its patenting activities in the US are summarized in Appendix 3<sup>23</sup>. In February 1992, Rambus joined JEDEC (Joint Electron Devices Engineering Council)<sup>24</sup>, a standard-setting organization associated with the Electronic Industries Association, which subsequently adopted a standard for synchronous dynamic random access memory (SDRAM) in November 1993. During its membership in JEDEC, Rambus disclosed to its committee a patent granted in September 1993 on a divisional application of the ’898 application, namely, US 5,243,703 (the ’703 patent). However, the ’703 patent was not a patent covering technologies relevant to standardization work. Then, Rambus attended its last JEDEC meeting in December 1995 and officially left JEDEC in June 1996. Soon after that, in December 1996, JEDEC started its work for the development of a standard for double data rate SDRAM (DDR-SDRAM), specifications of which came into being one year later and adoption of which took place in 2000. According to the Federal Circuit, “the JEDEC DDR-SDRAM standard ultimately incorporated four technologies that had been discussed in general before Rambus’s withdrawal in 1996.”<sup>25</sup> After leaving JEDEC, Rambus filed more continuation and divisional applications based on the ’898 application<sup>26</sup>. In late 2000, Rambus sued Infineon, a manufacturer of semiconductor memory devices (including SDRAM and DDR-SDRAM) and a member of JEDEC, for infringement of four of Rambus’s patents. All of these four patents, US 5,954,804 (’804 patent), 5,953,263 (’263 patent), 6,034,918 (’918 patent), and 6,032,214 (’214 patent) had been issued on continuation or divisional applications filed in or after 1997. Rambus alleged infringement of fifty-seven claims in the four patents. Infineon counterclaimed for fraud, alleging that Rambus committed fraud by not disclosing to JEDEC its patents and patent applications related to the SDRAM and DDR-SDRAM standards. The US District Court for the Eastern District of Virginia, after construing the claims, granted judgment as a matter of law (JMOL) of non-infringement in favor of Infineon. As for Infineon’s fraud counterclaims, the jury found that Rambus committed fraud during SDRAM and DDR-SDRAM standardization. Upon motion by Rambus for JMOL of no fraud, the court granted JMOL to set aside the DDR-SDRAM fraud verdict on the ground that Rambus left JEDEC before work “officially” began on the DDR-SDRAM standard, while denying JMOL on the SDRAM fraud verdict. The district

<sup>22</sup> Id. at 84 (citing a study by Graham and Mowery)

<sup>23</sup> Source: Takashi Yokota, 2004, *Patent study of the Rambus case*, Institute of Innovation Research, Hitotsubashi University, mimeo (in Japanese)

<sup>24</sup> The organization has been renamed “the JEDEC Solid State Technology Association.”

<sup>25</sup> See *Rambus Inc. v. Infineon Technologies AG, et al.*, 318 F.3d 1081, 65 USPQ2d (BNA) 1705 (Fed. Cir. 2003)

<sup>26</sup> Being continuation and divisional applications, these applications claiming the benefit of the filing date of the ’898 application in 1990 have substantially the same disclosure. There could be, however, an argument whether claims of these continuation and divisional applications are properly supported by the disclosure of the ’898 application.

court determined that the disclosure policy as practiced by JEDEC mandated its members to disclose patents and patent applications related to the work of JEDEC and found that Rambus misrepresented the patents that it had and omitted others from disclosure with regard to the SDRAM standardization. The district court's decision was cross-appealed to the Federal Circuit. The Federal Circuit's views were more favorable for Rambus. As for the infringement assertion, it ruled that the lower court, which found non-infringement, erred in its interpretation of the Rambus patent claims. The Federal Circuit also vacated the fraud holding, as it found that substantial evidence did not support the jury finding that Rambus had breached its duty to disclose to JEDEC patents and patent applications related to its standardization work. The court found that whether a patent or a patent application is related to a standard depends on patent claims rather than on the description. It held that Infineon failed to prove that there had been Rambus's patent or patent application claims, when Rambus was a JEDEC member, necessary to practice the SDRAM standard. It further held that disclosure was not required for a member's intention to file or amend patent applications. Separately from this alleged infringement case, the Federal Trade Commission (FTC) has filed an antitrust action against Rambus, which is still ongoing<sup>27</sup>. It is also noted that, unlike Infineon, a number of semiconductor manufacturers have concluded licensing agreements with Rambus with respect to technologies related to the SDRAM and DDR-SDRAM standards.

Whether or not, from the viewpoint of the standard-setting organization's patent disclosure rules, Rambus has committed a fraud in relation to its duty to disclose to JEDEC its patents and patent applications while it was a JEDEC member, in the realm of patent prosecution, the Rambus case eloquently shows that the continuing application system is a powerful tool of patenting industrial standards. According to the Federal Circuit ruling, on one hand, it was not proven that Rambus had had patents or patent applications with claims necessary to practice the SDRAM standard while it was a JEDEC member. (The situation is more apparent for the DDR-SDRAM standard, as JEDEC's work to set the standard began after Rambus's official withdrawal from JEDEC, although the four technologies in question "had been discussed in general before Rambus's withdrawal," as mentioned earlier.) On the other hand, the Federal Circuit vacated the district court ruling that Infineon, the manufacturer of SDRAM and DDR-SDRAM, had not infringed Rambus's patents, which had been granted on continuing applications (continuation and divisional applications) filed, after Rambus's withdrawal from JEDEC, based on the '898 application filed back in 1990. It implies that the tactics of filing a continuing application to start another prosecution process with a new set of claims targeting at competitors or technical standards, with inputs since the first filing date whose benefit is sought, does actually work<sup>28</sup>.

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<sup>27</sup> See documents in the FTC's Docket No. 9302, which are available at the FTC's website <http://www.ftc.gov/os/adjpro/d9302/>

On February 24, 2004, FTC's Chief Administrative Law Judge issued his Initial Decision dismissing the FTC's complaint. The decision states that Complaint Counsel failed to prove the violations of federal antitrust laws alleged in the complaint.

<sup>28</sup> If some patents or patent applications related to standardization work are not disclosed to the standard-setting organization, the patentee, if it is a member of the organization, would have a risk of facing a fraud counterclaim, as Rambus has actually faced. At the same time, however, it would be worth noting that the Federal Circuit did not find the duty of the members of the standard-setting organization to disclose patents and patent applications with *claims* not reasonably related to its standardization work. Therefore, supposing that the claims of the parent application are not reasonably related to its standardization work, the non-disclosure of the parent application and the filing of a child application, after determination of some details of the standard, with claims redrafted to cover technologies adopted in the standard may be permissible. In addition, parties outside such an organization would not be bound by its disclosure

Heavy reliance on continuing applications in the technical-standard-related patent prosecution seems to be the norm rather than the exception, whether or not the Rambus case should be called an extreme case. According to the researches conducted by Tomiyuki Shimbo and Naotoshi Tsukada concerning the use of continuing applications for essential US patents for the DVD and MPEG-2 standards, respectively<sup>29</sup>, nearly 50% of these essential patents have been granted on continuing applications, which is significantly higher than the aforementioned overall average ratio of 23% calculated by Lemley and Moore. More specifically, as shown in Table 3 in Appendix 4, of the 161 essential patents for DVD players and disks belonging to the three-firm consortium, 76 patents or 47% are those based on divisional, continuation, or CIP applications. In addition, of those 76 essential patents based on continuing applications, 60 patents have been granted after the standard adoption. With regard to the MPEG-2 standard, as shown in Table 4 in the same Appendix, of the 85 essential patents belonging to the ten-firm consortium, 37 patents or 44% are those based on divisional, continuation, or CIP applications. Interestingly, these ratios are close to the 52% figure reported by Lemley and Moore as the share of patents based on continuations among all litigated patents existing in their dataset comprising every patent issued from 1976 through 2000.

The above studies empirically support the assumption that continuing applications are disproportionately relied upon in patent prosecution for patents essential for technical standards, and that such prosecution often takes place simultaneously with standard-setting work.

### 2-3. Discussion

For the sake of fairness, I would need to emphasize that redrafting of claims during patent prosecution to cover competitors' product or process or technical standards, even if the redrafting is inspired by information that the applicant obtained after the filing of the application, has nothing wrong by itself. As we have already seen, either under the US, European, or Japanese patent systems, the applicant is allowed to file a continuing application and introduce, on his/her own initiative, a set of new claims to the continuing application while benefiting from the earlier application date, so long as certain requirements are met including disclosure in the earlier application of the inventions specified by those new claims. (Similarly, amendment of claims in a single application is permitted.) Otherwise, a person who has made an innovative invention could result in getting nothing in exchange for his/her disclosure of the innovative invention just for poor initial claim drafting, even with the help of remedies such as the doctrine of equivalents.

At the same time, we would have to prevent the abuse of the flexibility that the patent system offers to applicants with respect to claim rewriting. In particular, it would be important to prevent the abuse of the continuing application system, using which applicants have a good chance to gain windfall, through the extension of patent prosecution, from the intersection between patent prosecution and others' activities including technical standard setting. If such abuse takes place in relation to technical standard setting, its implications could easily be industry-wide.

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policies.

<sup>29</sup> Tomoyuki Shimbo, 2004, *A patent study of DVD*, and Naotoshi Tsukada, 2004, *A patent study of MPEG-2*, both in the study of essential patents for technical standards, Institute of Innovation Research, Hitotsubashi University

What is implied by the consideration in the above would be, although this is a cliché itself, the need to hit an appropriate balance – a balance not only between the patentee and the public, but also between the flexibility needed in the patent system to ensure opportunities for mining the initial disclosure for effective protection of innovative inventions through claim redrafting if necessary, and the ability needed also in the same patent system to prevent abuse of that flexibility.

Then, what is the bottom line to achieve the balance? I would say that the solution lies in the proper use of the most important requirement for the eligibility of continuing applications for the earlier filing dates – namely, disclosure in the earlier application of the inventions defined in the claims of the later continuing application. This principle exists commonly in the US, European, and Japanese patent systems (although there is some difference in specifying the principle in laws and guidelines, as discussed), and stems from the very basic notion of the patent system as stated earlier: monopoly in exchange for disclosure. At the core of the aforementioned requirement of disclosure is the written description requirement, as provided in the first paragraph of Section 112 of the US patent law, which ensures that the invention defined later during prosecution had actually been invented at the time of filing.

Having the above in mind, I will give explanations to the written description requirement, focusing on its relevance to the continuing application system, and then proceed to further discussions and some proposals.

### 3. The written description requirement in the US statute and its relevance to continuing applications

#### 3-1. The written description requirement

In sub-part 2-1, we have seen that Section 120 of the US patent law provides that the inventions claimed in continuing applications must have been disclosed in the earlier applications as filed in the manner to satisfy requirements for the specification as stated in the first paragraph of Section 112 of the law, in order for the continuing applications to enjoy the benefit of the filing dates of such earlier applications. The first paragraph of Section 112 requires that the specification include the following<sup>30</sup>:

- A written description of the invention (the written description requirement);
- The manner and process of making and using the invention (the enablement requirement); and
- The best mode contemplated by the inventor of carrying out his/her invention (the best-mode requirement).

Although, among them, the first and second requirements are somewhat confusing from each other, the courts have established that the written description requirement is separate and distinct from the enablement requirement. Namely, an invention may be described without the disclosure being enabling (e.g., a chemical compound for which there is no disclosed or apparent method of making), and a disclosure could be enabling without describing the invention (e.g., a specification describing a method of making and using a paint composition

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<sup>30</sup> The first paragraph of Section 112 of 35 U.S.C. reads: “The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.” (emphasis added)

made of functionally defined ingredients within broad ranges would be enabling for formulations falling within the description but would not describe any specific formulation)<sup>31</sup>. Here, I referred to the three requirements provided for in the first paragraph of Section 112, including the written description requirement, in relation to Section 120 and as requirements for eligibility of continuing applications for the benefit of the filing dates of earlier applications. It is noted, however, that these requirements are not only for such eligibility but also for patentability of ordinary applications having no claims for the benefit of earlier filing dates. For example, the issue of the written description requirement arises in the context of whether new or amended claims, or even original claims, in an ordinary application are supported by the description of the invention in the application as filed. While focusing on the written description requirements in association with the aforementioned eligibility of continuing applications for the benefit of earlier filing dates, I will also deal with the requirement in the context of ordinary applications.

The most important policy objective of the written description requirement is to make the specification clearly convey the information that the applicant has invented the subject matter which is claimed. To satisfy the written description requirement, a patent specification must describe the claimed invention in sufficient detail that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention<sup>32</sup>. Therefore, the written description requirement is not met if the specification as originally filed does not support claims not originally in the application or the parent application.

Such possession of the claimed invention may be shown in a variety of ways including description of an actual reduction to practice. In a chemical case, the ways to demonstrate the possession include presenting structural chemical formulas that show that the claimed invention was complete. Although structural description is not always necessary, if an invention is described solely in terms of a method of its making coupled with its function and there is no described or art-recognized correlation or relationship between the structure of the invention and its function, the claimed invention as a whole may not be adequately described<sup>33</sup>. In other words, if an invention is described only from the viewpoint of how to make the invention and how the invention functions, the description is unlikely to meet the written description requirement unless there is a “clue” from the function to the structural feature of the invention either in the specification itself or in the general knowledge in the technical field at the time of filing, although such description may still be enabling<sup>34</sup>. Indeed, functional expressions are problematic. If functional expressions are used in a claim and the invented product is characterized, at least partially, by its functions or other non-structural properties rather than its structure (or materials used), the claim language may embrace various products having such functions or properties in an unpredictable manner. In such a case, even if a limited number of embodiments are disclosed with structural description in the specification, the entire scope of the claim may not be supported by the description in the specification due to the unpredictability, let alone the cases where no corresponding structural description exists in the specification as well.

I would like to underline, at the same time, that in the assessment of compliance with

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<sup>31</sup> *Manual of Patent Examining Procedure* (MPEP) (August 2001 as last revised in May 2004), 2161 (page 2100-163)

<sup>32</sup> *Id.* at 2163, I. (page 2100-164)

<sup>33</sup> *Id.* at 2163, I. (page 2100-166)

<sup>34</sup> The issue of relationship between the written description and enablement requirements will be discussed further in sub-part 3-4.

the written description requirement implicit disclosure is taken into account, as well as any relevant evidence showing the general knowledge in the art at the time of filing. Namely, to meet the written description requirement, each claim limitation must be expressly, implicitly, or inherently supported in the originally filed disclosure<sup>35</sup>. To establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is *necessarily* present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient<sup>36</sup>. It is noted here that having to consider the implicit/inherent disclosure makes the assessment of compliance with the written description requirement quite complicated. This forms a background of my proposals presented later in this paper.

What has been stated so far in this sub-part about the written description requirement in the US statute also applies in principle to the support requirement under the European and Japanese patent systems, except that the support requirement is not referred to in the EPC and the Japanese Patent Law as a requirement for eligibility of continuing applications for the benefit of the earlier filing date, as already discussed. Just for reference, I have drawn a schematic (Figure 2) in Appendix 5, visually explaining the common fundamentals of the written description requirement and the support requirement.

Incompliance of a claim of an application with the written description requirement in relation to its specification results in refusal of the application during prosecution and invalidation of the patent after grant. (This is also the case with the support requirement under the Japanese patent law; however, under the EPC, incompliance with the support requirement does not form a basis for opposition after grant, although it is a ground for refusal during prosecution, as will be discussed later.) Where the written description requirement is at issue in relation to the eligibility of a continuing application for the benefit of the earlier filing date under 35 U.S.C. 120, incompliance, of the invention sought to be claimed in continuing application, with the written description requirement vis-à-vis the original disclosure of the parent application results in the loss of such eligibility<sup>37</sup>, which can invalidate a patent granted on the continuing application if an intermediate publication made more than one year (the grace period) before the filing date of the continuing application causes the invention to lose novelty or non-obviousness. Therefore, even if a claim of a CIP application is supported by its specification with addition of new matter within the meaning of the written description requirement, provided that the claim is not supported by the original disclosure of the parent application whose benefit is sought, the claim is not eligible for the benefit of the parent application's filing date and thus may be invalidated by an intermediate publication, possibly including the publication of the parent application itself. Compliance with the written description requirement is a question of fact.

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<sup>35</sup> Id. at 2163, II, 3. (b) (page 2100-175) See also *Ralston Purina Co. v. Far-Mar-Co.*, explained in sub-part 4-1.

<sup>36</sup> Id. at 2163, II, 3. (b) (page 2100-176), citing *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d (BNA) 1949, 1950-51 (Fed. Cir. 1999)

<sup>37</sup> See 35 U.S.C. 120, explained in sub-part 2-1

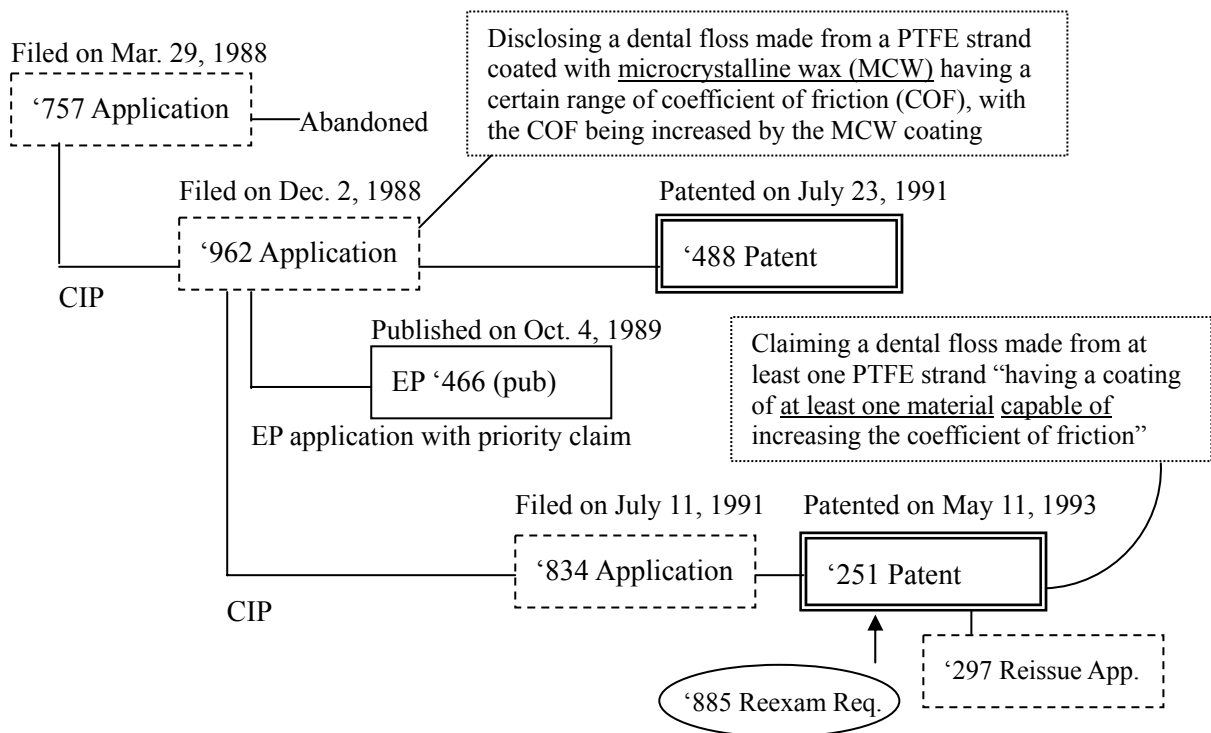


As has been explained in the present sub-part, when the issue of the written description requirement arises, the fundamental factual inquiry is whether the specification conveys with reasonable clarity to those skilled in the art that, as of the filing date sought, applicant was in possession of the invention as now claimed<sup>38</sup>. In recent years, the Federal Circuit has been using actively the written description requirement. In the following two sub-parts, several Federal Circuit cases are reviewed in which the written description requirement was at issue.

3-2. A recently decided case showing the relevance of the written description requirement to continuing applications as well as to a typical way to broaden claims relying on functional language

A recently decided Federal Circuit case, *In re John P. Curtis, James H. Kemp, and Jan-Joost Pabst*, 354 F.3d 1347, 69 USPQ2d (BNA) 1274 (Fed. Cir. 2004), is an illustrative case showing the relevance of the written description requirement to continuing applications (although the case itself is not related to technical standards).

Figure 1 Applications and patents in question in *In re Curtis* (Fed. Cir. 2004)



Note: Broken-lined, solid-lined, and double-lined boxes indicate applications, publications, and patents, respectively.

John P. Curtis, et al. (collectively "Curtis") filed US Patent Application No. 07/174,757 (the '757 application) claiming an improved dental floss made of expanded polytetrafluoroethylene (PTFE) filaments coated with microcrystalline wax (MCW) having a coefficient of friction (COF) between 0.08 and 0.25. The commercial acceptability of a dental floss depends on the COF of the material from which it is made; the ideal dental floss is made from a material that has a COF in a particular "sweet spot" such that it is neither too

<sup>38</sup> Supra note 31 at 2163.02 (page 2100-177)

sticky nor too slippery. The inventors' statements in the application include, "The MCW, surprisingly, adheres to the porous, high strength PTFE which without a coating has a very low COF . . . and when coated with MCW generally has a COF intermediate between prior art floss white and uncoated PTFE . . ." Thus, the '757 application discloses a dental floss made from a PTFE strand coated with MCW having a certain range of COF, with the COF being increased by the MCW coating, and contains the statement that the adhesion of MCW to PTFE to provide a COF within a desired range was surprising to the inventors.

Now, referring to Figure 1, Curtis filed on December 2, 1988, a CIP application ('962 application) based on the '757 application. The passage of the '757 application quoted above was also contained in the '962 application. The '962 application issued as the US 5,033,488 ('488 patent) in 1991. Curtis also filed a European counterpart application that was published as EP 335,466 (EP '466) on October 4, 1989. On July 11, 1991, Curtis further filed a second CIP application ('834 application), which ultimately issued as US 5,209,251 ('251 patent). The written description of '834 application (the second CIP) contains statements which are not found in the parent '962 application, including, among others, "It has been found that the polytetrafluoroethylene floss can be coated or otherwise treated with a friction coating, such as a wax, to increase the coefficient of friction to a level where the floss is easier to handle and does not slip through the fingers of the user as easily as the untreated floss." The disclosure of the '834 application also states that "water soluble coatings such as polyvinyl alcohol or polyethyleneoxide" are suitable alternative friction enhancing coatings. The '251 patent issued with claims directed to a dental floss made from at least one PTFE strand "having a coating of at least one material capable of increasing the coefficient of friction." Subsequently, a firm requested reexamination of the claims of the '251 patent (the '885 reexamination request), challenging their patentability on the ground that they are not supported by the parent disclosure found in the written description of the '962 application and that they are anticipated by EP '466, which was not before the PTO during prosecution of the '251 patent.

In the reexamination process<sup>39</sup>, Curtis, faced with examiner's rejection based on EP '466, attempted to remove EP '466 as prior art by claiming the benefit of the December 2, 1988 filing date of the '962 application pursuant to 35 U.S.C. 120. The examiner then determined that Curtis was not entitled to the earlier filing date because the disclosure in the parent '962 application did not enable a person of ordinary skill in the art to practice the claims of the '251 patent without undue experimentation, and issued a final rejection accordingly.

Curtis appealed this decision to the Board of Patent Appeals and Interferences of the PTO. The Board reversed the examiner's enablement rejection, but ruled that Curtis was not entitled to the benefit of the '962 application filing date in any event because that application did not provide an adequate written description of the later-claimed genus of friction enhancing coatings. The Board determined that MCW was the only friction enhancing coating disclosed expressly or inherently in the '962 application and, therefore, "it did not provide written description support for the later-claimed, generic subject matter of the claims under appeal." The case was remanded back to the examiner. On remand, in a declaration, one of the appellant, Mr. John P. Curtis asserted, *inter alia*, that a person of ordinary skill in the art would understand the invention described in the '488 patent (which issued from the parent '962 application) to be a PTFE dental floss coated with at least one material capable of adhering to PTFE and increasing the COF of a PTFE dental floss. In a second declaration,

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<sup>39</sup> In 1996, the PTO merged the '885 reexamination application with a reissue application ('297 reissue application) that had been filed by Curtis with some additional claims.

Mr. Curtis stated that MCW is the only such material disclosed in the written description of the '488 patent because it was the most commonly used and cheapest dental floss coating at the time the '962 application was filed. The examiner concluded that Curtis failed to demonstrate adequate support in the '962 application for the later-claimed genus of friction enhancing coatings. The examiner's decision was reaffirmed by the Board. Then, Curtis appealed the Board's decision to the Federal Circuit.

The Federal Circuit upheld the Board's decision to deny Curtis the benefit of the earlier filing date on the ground of failure to meet the written description requirement. The court first stated, in general, that claims found in a later-filed application are entitled to the filing date of an earlier application if, *inter alia*, the disclosure in the earlier application provides an adequate written description of the later-filed claims under 35 U.S.C. 112. Having mentioned that the parties agreed the only way Curtis could overcome the examiner's rejection for the lack of novelty and non-obviousness was to remove EP '466 as prior art, the court declared that the sole issue on appeal was whether substantial evidence in the record before it supported the Board's determination that the disclosure in the '962 application did not provide a written description of Curtis' later-claimed genus of friction enhancing coatings. In its inquiry into the conformity with the written description requirement, the Federal Circuit pointed out, in sum, the following:

- (a) Singleness of the embodiment (MCW) for the function-performing material, despite enumeration of a number of varieties with differences in the other respects

Referring to the disclosure in the '962 application, the court said, "In one table entitled 'Comparative Samples,' the COFs of waxed and unwaxed prior art flosses are compared with those of various expanded PTFE flosses lacking an MCW coating. A second table entitled 'Present Invention' reports the COFs of various expanded PTFE dental flosses with various substances incorporated into MCW. Nowhere in the examples, or in the remainder of the disclosure of the '962 Application, does Curtis name a suitable friction enhancing coating for a PTFE dental floss other than MCW."<sup>40</sup> (quotation omitted)

- (b) Unpredictability in performance of materials other than the disclosed embodiment (MCW) in terms of carrying out the claimed function (adhering to PTFE and increasing its COF)

The court stated, "The record before us also indicates that, at the time the '962 Application was filed, the inventors did not convey any other material that could adhere to PTFE in such a way so as to yield a commercially acceptable dental floss,"<sup>41</sup> and referred to, *inter alia*, the inventors' statement in the specification of the '962 application, as mentioned earlier, that the adhesion of MCW to PTFE to provide a COF within a desired range was surprising to them. The court also mentioned one of the inventors' statements during prosecution, which had been made in response to an obviousness rejection, "Due to the very low COF of the PTFE floss surface it is very difficult to have materials bind to PTFE. The only wax that will effectively bind to PTFE is microcrystalline wax."<sup>42</sup>

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<sup>40</sup> See 354 F.3d 1352 – 1353

<sup>41</sup> See 354 F.3d 1353

<sup>42</sup> Id.

It may be said that, in this case, the inventors broadened the scope of claims, when they filed a CIP application, by redefining inventions relying on the function or property of the specific material disclosed, instead of the specific material itself. This is one of typical ways to extend the scope of claims. While subject matter itself is rather simple technically, this case is suggestive in the sense that it uses such a typical way of broadening claims, as well as in terms of the involvement of continuing applications. As seen in the above, the Federal Circuit found that the later-claimed invention patented on the CIP application was too broad to be justified by the disclosure in its parent application in view of the written description requirement and thus was not entitled to the filing date of the parent application, which led to the invalidation of the patent based on an intermediate publication (EP '466).

This case is referred to in sub-part 4-1 in association with my proposal.

### 3-3. Controversial cases with regard to the written description requirement

Through active use of the written description requirement, the Federal Circuit has caused some controversy, even within itself. The controversy is well shown in the recent ruling of the Federal Circuit, *University of Rochester v. G.D. Searle & Co., Inc., Monsanto Company, Pharmacia Corporation, and Pfizer Inc.*, 375 F.3d 1303, 71 USPQ2d (BNA) 1545 (Fed. Cir. 2004), in which the written description requirement was at issue and the court considered a petition for rehearing en banc (denied). Although comprehensive review of the controversy, which mainly concerns biotechnology and are not necessarily relevant to technical standards or the continuing application system, is beyond the scope of the present paper, I will briefly review two cases below to the extent necessary to make my points later relevant to the subject of this paper.

- (1) Controversy over the “omitted essential element test” concerning the removal of claim elements, another typical way to broaden claims

The first case, *the Gentry Gallery, Inc., v. the Berkline Corporation*, 134 F.3d 1473, 45 USPQ2d (BNA) 1498 (Fed. Cir. 1998), does not concern biotechnology, but rather a unit of a sectional sofa. The patent in question was issued on an ordinary application, not a continuing application.

The broadest claim of US Patent 5,064,244, the patent in question in the infringement lawsuit, includes the limitation, “a pair of control means, one for each reclining seat; mounted on the double reclining seat sofa section.” On the other hand, the broadest *original* claim was directed to a sofa comprising, *inter alia*, “control means located upon the center console ...” The patented claim is broader than the original claim in the sense that the control means does not have to be located upon the center console, so long as it is mounted on the double reclining seat sofa section. (The center console is “disposed in the double reclining seat sofa section.”) As a matter of fact, the inventor broadened the claim, during prosecution, to cover competitors’ products. The Federal Circuit noted, “Spoule (the inventor) admitted at trial that he did not consider placing the controls outside the console until he became aware that some of Gentry’s competitors were so locating the recliner controls,”<sup>43</sup> adding that this is not dispositive because “one can add claims to a pending application directed to adequately described subject matter.”

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<sup>43</sup> *The Gentry Gallery, Inc., v. the Berkline Corporation*, 134 F.3d 1479

The court found that the patented claim<sup>44</sup> so broadened did not meet the written description requirement and accordingly took the position that it should be invalidated. Controversy arises from the court's statement that the inventor clearly "considered the location of the recliner controls on the console to be an *essential* element of his invention."<sup>45</sup> (emphasis added) Following the statement, the court said, "Accordingly, his original disclosure serves to limit the permissible breadth of his later-drafted claims."

The Federal Circuit noted several points to support its conclusion that the disclosure, when viewed in its entirety, was limited to sofas in which recliner control is located on the console. These points include:

- (a) The original disclosure provides for only "the most minor variation" in the location of the controls, noting that the control may be mounted on top or side surfaces of the console rather than on the front wall;
- (b) No similar variation beyond the console is even suggested in the original disclosure;
- (c) The only discernible purpose for the console is to house the controls (The court cited the description of the specification, "another object of the present invention is to provide . . . a console positioned between [the reclining seats] that accommodates the controls for both of the reclining seats," and stated, "Thus, locating the controls anywhere but on the console is outside the stated purpose of the invention."); and
- (d) The original claim was limited to the arrangement of the control means being located upon the center console.

The above (c), in particular, gives an impression that the court hunted for an expression in the specification to justify limiting the scope of the claimed invention to the explicit disclosure of the invention in the original specification, or even to embodiments existing therein. This is all the more suspected because the court relied on description concerning an object of the invention, not that regarding the constitution of the invention itself.

Above all, if a certain element of an originally-filed claim may be considered by the patent office or courts to be an essential element that cannot be omitted later, it would not only make it quite difficult to broaden the scope of original claims in any way but also frequently raise debates on what elements are essential and what elements are non-essential. No wonder the *Gentry Gallery* case generated concern among practitioners that the Federal Circuit was raising the bar on the written description by prohibiting patentees from claiming embodiments that are any broader than the preferred embodiments specifically disclosed in the specification<sup>46</sup>. It makes sense that the Federal Circuit itself has stated in a later ruling, "In [*Gentry Gallery*] we did not announce a new 'essential element' test mandating an inquiry into what an inventor considers to be essential to his invention and requiring that the claims incorporate those elements."<sup>47</sup>

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<sup>44</sup> Not only the aforementioned broadest claim but also some other claims were considered to fail to meet the written description requirement.

<sup>45</sup> See supra note 43

<sup>46</sup> See Robert Greene Sterne, Patrick E. Garrett, and Theodore A. Wood, *The Written Description Requirement*, 37 *Akron L. Rev.* 231 (2004)

<sup>47</sup> See *Id.*, citing *Cooper Cameron Corp. v. Kvaerner Oilfield Products, Inc.*, 291 F.3d 1317, 1323 (*Fed. Cir.* 2002)

(2) Controversy over compliance of original claims with the written description requirement

*The Regents of the University of California v. Eli Lilly and Company*, 119 F.3d 1559, 43 USPQ2d (BNA) 1398 (Fed. Cir. 1997) is a frequently-cited leading case, in which the Federal Circuit applied the written description requirement to originally-filed claims to invalidate a patent. The patent in question concerns biotechnology, more specifically, recombinant DNA technology, and the court required the sequence information disclosure indicating which nucleotides constitute human cDNA (complementary DNA)<sup>48</sup> encoding insulin for the specification to support, in compliance with the written description requirement, a claim directed to a microorganism modified to contain a nucleotide sequence corresponding to human mRNA (messenger RNA) encoding insulin.

Claim 5 of US Patent 4,652,525, one of the claims held by the court to be invalid, is directed to a recombinant procaryotic microorganism modified so that it contains “a nucleotide sequence having the structure of the reverse transcript of an mRNA of a [human], which mRNA encodes insulin.” The patent specification discloses, in a general manner, a *method* of obtaining human insulin-encoding cDNA, but not such cDNA sequence itself, while the specification describes rat insulin-encoding cDNA in terms of its sequence (although not in a complete manner) as well as the method of obtaining such rat cDNA. The Federal Circuit stated the following:

“Whether or not it provides an enabling disclosure, it does not provide a written description of the cDNA encoding human insulin, which is necessary to provide a written description of the subject matter of claim 5. The name cDNA is not itself a written description of that DNA; it conveys no *distinguishing information* concerning its *identity*. While the example provides a process for obtaining human insulin-encoding cDNA, there is no further information in the patent pertaining to that cDNA’s relevant *structural or physical characteristics*; in other words, it thus does not describe human insulin cDNA.”<sup>49</sup> (emphasis added)

After discussing other claims of the patent also held to be invalid, including claim 4 directed genetically to cDNA encoding mammalian insulin, which the court found was not supported by a description of rat insulin cDNA, the court further stated:

“A definition by *function*, as we have previously indicated, does not suffice to define the genus because it is only an indication of what the gene does, rather than what it is. ... It is only a definition of a useful result rather than a definition of what achieves that result. Many such genes may achieve that result. The description requirement of the patent statute requires a description of an invention, not an indication of a result that one might achieve if one made that invention. ... A description of a genus of cDNAs may be achieved by means of a recitation of a representative number of cDNAs, defined by nucleotide sequence, falling within the scope of the genus or of a recitation of structural features common to the members of the genus, which features constitute a substantial portion of the genus.”<sup>50</sup> (emphasis added)

This ruling has caused much controversy over whether it is appropriate to apply the written description requirement to originally-filed claims to require support by the specification further to enablement and, in terms of the technical field of biotechnology, to

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<sup>48</sup> Complementary DNA is enzymatically synthesized from a messenger RNA sequence.

<sup>49</sup> *The Regents of the University of California v. Eli Lilly and Company*, 119 F.3d 1567 (Fed. Cir. 1997)

<sup>50</sup> *Id.* at 1568, 1569

require description of sequence information to support a claim concerning recombinant DNA. Such controversy is found in discussions in the ruling of the *University of Rochester v. G.D. Searle* case mentioned above, and will be touched upon in the following sub-part.

### 3-4. Discussion

As explained in the above, the written description requirement fundamentally inquires whether the specification conveys with reasonable clarity to those skilled in the art that, as of the filing date sought, applicant was in possession of the invention as now claimed. Thus, the requirement is very relevant to the continuing application system, which is frequently relied upon in obtaining essential patents in technical standards.

From the preceding analysis, it can be said that a written description requirement is a powerful means to prevent applicants from rewriting a claim to broaden or change its scope unjustifiably vis-à-vis the original disclosure, in particular, by the use of functional language or by the omission of part of its elements. An example of broadening a claim relying on functional language and using the written description requirement to curb it was seen in *In re Curtis*.

Having said the above, I note that the assessment of compliance with the written description requirement is not an easy task, just as that of other requirements in the patent field, not only because careful examination of the specification and corresponding claims is needed, but also as implicit or inherent disclosure has also to be taken into account, along with, if necessary, any relevant evidence showing the general knowledge in the art at the time of filing. In light of this, it is desired that some new measures be devised to facilitate the proper use of the requirement. To this end, a proposal is made in the following part 4.

In view of one of the two controversial cases, *Gentry Gallery*, I would say that, although omission of an element from a claim is a typical way to broaden its scope and has to be addressed in terms of the written description requirement, it would not be appropriate to impose the “omitted essential element test.” It is a negative test that could cause an unproductive hunt for words suggesting indispensability of specific elements and consequent debates on what is essential. If such a negative test is often carried out, patent practitioners would take equally unproductive defensive measures such as: avoiding using in the specification any kind of expression revealing relative importance of a specific element of an invention; and leaving the explanation of the objects of the invention as abstract as possible. Rather than the negative test, compliance of a claim with omitted element(s) with the written description requirement should be examined from the positive side – namely, from the viewpoint of whether there is any teaching, explicit or implicit, of combinations of elements without the omitted one in the entirety of the specification.

With regard to *Eli Lilly*, I note that what is questioned in this case on the basis of the same written description requirement is fundamentally different from that in such a case as *In re Curtis*. I would say that the application of the written description requirement to original claims, as was done in *Eli Lilly*, should be considered separately. So long as original claims are at issue, the question is not necessarily whether the inventor had recognized the claimed invention at the time of filing, but rather, to what extent the inventor had known what his/her own claimed invention had actually been. It should be pondered whether, in the case of original claims, there is a need for the written description requirement *distinct* from the enablement requirement. In this regard, I find the following statement of Circuit Judge

Rader in his dissent in *University of Rochester v. G.D. Searle* persuasive:

“In 1997, this court for the first time applied the written description language of 35 U.S.C. §112, P 1 as a general disclosure requirement in place of enablement, rather than in its traditional role as a doctrine to prevent applicants from adding new inventions to an older disclosure. ... In simple terms, contrary to logic and the statute itself, Eli Lilly requires one part of the specification (the written description) to provide ‘adequate support’ for another part of the specification (the claims). (note below) Neither Eli Lilly nor this case has explained either the legal basis for this new validity requirement or the standard for ‘adequate support.’ [T]his new judge-made doctrine has created enormous confusion ...”<sup>51</sup>

Note: “This new validity requirement conflicts with binding precedent because the CCPA made clear that original claims are part of the original disclosure of an invention and thus have no ‘description’ problems.”

It seems appropriate to consider that the same written description requirement is applied to all claims, original or later-introduced, as the statute does not differentiate between original claims and later-introduced claims vis-à-vis the application of the written description requirement. However, if attention is paid to difference between the written description requirement and the enablement requirement, we may be able to say that the difference is less significant in the case of original claims<sup>52</sup>, assuming that original claims are part of the original disclosure of an invention. Setting aside the correctness of the statement that original claims have no description problems at all, I would be able to say safely that compliance of original claims with the written description requirement would be strongly presumed by the very existence of these claims in the application as filed. In this connection, I would like to emphasize that distinction should be made between a criticism against the application of the written description requirement to original claims to invalidate them for lack of description support (even if the disclosure is enabling) and a criticism against the requirement itself.

If I go further, what the written description requirement should mainly target at would be claim rewriting upon entry into, or during, prosecution on continuing applications. I state this in view of observations presented earlier in this paper on the use of continuing applications to cover ideas that the inventor did not recognize at the time of earlier filing but learned subsequently, taking advantage of extension of prosecution time, from competitors’ product or processes and technical standards. Lemley and Moore say, “Permitting patentees to change claims to track competitor’s products invites abuse of the system. This practice seems fundamentally unfair, since a competitor who was legitimately the first to invent a

<sup>51</sup> *University of Rochester v. G.D. Searle & Co., Inc., et al.*, 375 F.3d 1307, 1308 (Fed. Cir. 2004)

<sup>52</sup> Still, the written description requirement would have to be questioned, separately from the enablement requirement, in some limited cases even as to original claims. An example of such a case would be the following: a claim of a product (a original claim) is defined in terms of the function or property of the product, and a single enabling example of such a product is disclosed in the specification; however, no other examples of such a product are taught by the disclosure at all, even combined with the general knowledge a person skilled in the art would have had at the time of filing. In this context, the following example given in the EPO Examination Guidelines as a claim lacking support may be illustrative. “A claim relates to improved fuel oil compositions which have a given desired property. The description provides support for one way of obtaining fuel oils having this property, which is by the presence of defined amounts of a certain additive. No other ways of obtaining fuel oils having the desired property are disclosed. The claim makes no mention of the additive. The claim is not supported over the whole of its breadth and objection arises.” (See the EPO Examination Guidelines, Part C, Chapter III, 6 “Support in description,” 6.3 “Objection of lack of support”)



particular device or process may be held to have infringed on a patent claim written after (and *indeed because of*) that invention.”<sup>53</sup> (emphasis added) It seems to me that the statement makes very good sense, particularly if it is followed by the condition, “unless the later-written claim falls within the explicit and implicit disclosure as filed.”

In light of discussions in the present sub-part as well as those in sub-part 2-3, let me proceed to my proposals.

#### 4. Proposals

I present the proposals contained in sub-parts 4-1 and 4-2, having in mind the following considerations:

- Focus should be upon the suppression of abuse of continuing applications;
- Still, inventors should neither be deprived of flexibility in the patent system nor be penalized for the use of such flexibility<sup>54</sup> so that they can fully protect their innovative ideas; and
- Degree of presumption of compliance with the written description requirement should be considered differently between original claims and those newly introduced or rewritten after filing<sup>55</sup>.

##### 4-1. Reduction of burden of proof to patent challengers as to written description compliance

I propose that the burden of proof be reduced in favor of patent challengers as to compliance of a claim of a continuing application with the written description requirement, if the claim was not present in its parent application<sup>56</sup> as filed, unless the claim has been narrowed based on a claim existing in the parent application as filed. The reduction of burden of proof would be achieved by releasing patent challengers, before subsequent rebuttal by applicants/patentees, from the need to take into account implicit and inherent disclosure in showing noncompliance with the written description requirement.

Currently, the general presumption of patent validity extends to a presumption of compliance of a patented claim with the written description requirement. As the assessment of compliance with the written description requirement involves the consideration of not only explicit disclosure but also implicit/inherent disclosure, as mentioned in sub-part 3-1, a patent

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<sup>53</sup> See supra note 5 at 78

<sup>54</sup> In the aforementioned recently published paper (see supra note 5), Lemley and Moore make interesting proposals to suppress abuse of continuing applications. These include: (i) abolishing the continuing application system (as an ultimate choice); or more practically, (ii) limiting the number of continuing applications; (iii) prohibiting broadening of claims during the continuing application prosecution; (iv) limiting the time an application can spend in prosecution; (v) strengthening the third-parties' prior-use defense (i.e., creating an intervening right or a defense for infringers who independently developed the patented invention before it was added to the patent claims); and (vi) requiring publication of all applications. Although these proposals make sense, some concerns exist. Setting aside the ultimate choice (i), choices (ii) to (iv) impose new restrictions on applicants during prosecution, thus sacrificing more or less flexibility available to applicants. Choice (v) penalizes, in a *substantive* manner, applicants who rewrite claims upon entry into, or during, the continuing application prosecution, through the erosion of their exclusive rights conferred by patents after issuance.

<sup>55</sup> It is noted that what is meant here is a differentiation in the degree of presumption with respect to compliance with the written description requirement, not a differentiation in the requirement itself, between original claims and newly-introduced or rewritten claims.

<sup>56</sup> More precisely, this means the earlier application whose benefit is sought.

challenger would have to prove, with sufficient evidence, that the patented claim in question was not supported by the disclosure even taking into account implicit/inherent one, in order to invalidate the claim. In *Ralston Purina Co. v. Far-Mar-Co.*, the Kansas District Court ruled as follows<sup>57</sup>: “The statutory presumption of patent validity also extends to a presumption that the inventor complied with all the requirements of 35 U.S.C. §112. Moreover, as already indicated, 35 U.S.C. §282 places the burden of proving facts necessary to a conclusion of invalidity on the party asserting such invalidity. This would include the assertion of invalidity premised on prior art allegedly applicable because various claim limitations fail to find descriptive support in a parent application predating the references. ... To provide descriptive support, it is not necessary that the earlier application describe the claim limitations exactly, but only so clearly that persons of ordinary skill in the art will recognize from the disclosure that applicant’s invented processes included those limitations. ... When making this determination, a mere comparison of ranges is not enough. Nor is it sufficient to prove lack of descriptive support by merely pointing out an absence of literal support in an earlier application. The disclosure in question should be read in light of the knowledge possessed by persons skilled in the art.” (quotation omitted) On appeal, the Federal Circuit affirmed the lower court’s ruling, stating<sup>58</sup>: “Before rendering its judgment, the court must determine whether ‘all of the evidence establishes that the validity challenger so carried his burden as to have persuaded the decisionmaker that the patent can no longer be accepted as valid.’ A party asserting invalidity based on 35 U.S.C. §112 bears no less a burden and no fewer responsibilities than any other patent challenger.” (quotation omitted)

The above proposal of mine modifies this practice, in respect of the proof of non-compliance with the written description requirement, in circumstances where continuing applications are used to introduce new claims.

Specifically, it is proposed that the burden of production (burden of producing evidence) be reversed if the party claiming invalidity can present any reasonable, simplified *prima-facie* evidence (such as those presented later) preliminary showing that the applicant has introduced to a continuing application a claim not existing in its parent application as filed, in a manner violating the written description requirement as provided in the paragraph 1 of 35 U.S.C. 112. Here, such simplified *prima-facie* evidence I envisage is the one showing only that the claim in question is not supported by the *explicit* disclosure. This would remove the initial burden of the patent challenger to take into account implicit/inherent disclosure to prove non-compliance of the claim with the written description requirement.

A number of advantages of the arrangement are foreseen, including:

- It creates an incentive to observe the fundamental principle of the patent system (existing not only in the US patent system but also in various countries’ including European and Japanese patent systems): exclusivity for disclosure;
- It has an effect of preventing abuse of the continuing application system while it does not limit, in any sense, the availability of the continuing application system to inventors; and
- To implement the proposal, no extensive legislative change would be required either in the US, in Europe, or in Japan.

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<sup>57</sup> 586 F. Supp. 1176; 222 USPQ (BNA) 863 (D. Kan. 1984) See also Donald S. Chisum, *Chisum on Patents*, Chapter 13 “Continuation Applications,” 13.04 “Continuity of Disclosure,” [6] “Burden of Proof in Infringement Suits” (2004), citing the present case.

<sup>58</sup> 772 F.2d 1570; 227 USPQ (BNA) 177 (Fed. Cir. 1985)

The proposal would be supported by the consideration that claim redrafting after the filing date whose benefit is sought, in particular claim redrafting taking advantage of the continuing application system having the effect of delaying prosecution, should be accompanied by accountability for inventor's possession, at the time of filing, of the later-claimed invention. In addition, as the use of the continuing application system causes a procedural burden on the patent administration<sup>59</sup>, it would be justified to put this sort of potential procedural burden on the user of the continuing application system (but not substantive penalties<sup>60</sup>).

Concrete examples of (simplified) prima-face evidence include the following:

Possible prima-facie evidence 1: A newly introduced or rewritten claim in the later application has limitation in terms of function or property, while the earlier application as filed whose benefit is sought discloses none of, or only one, concrete example or embodiment performing the function or having the property.

Explanation: In such a case, the functional limitation cannot be said to be included in the claim to represent a common feature among more than one examples or embodiments present in the original specification. Thus, it could be, at least preliminarily, presumed that the applicant has broadened the scope of the claim making use of the functional language to cover the products or processes that had not been recognized by the inventor himself/herself at the time of original filing. Claim rewriting in *In re Curtis*, which was reviewed in detail in sub-part 3-2, may be classified into this type of case. Facing the aforementioned prima-facie evidence, the applicant/patentee would be able to rebut it by, for example, giving an evidence to demonstrate that correlation or relationship was known to a person skilled in the art at the time of filing between such function or property on one hand and concrete examples on the other, possibly with structural identification, performing the function or having the property. If this is hypothetically applied to *In re Curtis*, a prima-facie evidence could simply be the fact that only one concrete example (MCW) was given in the '962 application (parent application) for a material to perform the function of coating a PTFE strand to increase its COF, as in the rewritten claims of the '251 patent issued on a CIP application. The patentee side, facing the prima-facie evidence, might have been able to rebut it by, *inter alia*, presenting an evidence showing that a person skilled in the art knew, at the time of filing the '962 application, that MCW's property of adherence to PTFE was associated with certain concrete characteristics of MCW shared among a specific group of materials.

Possible prima-facie evidence 2: There is a conceivable embodiment of the invention claimed in the later application which is neither covered by any claim originally existing in, nor described expressly in the specification of, the earlier application as filed whose benefit is sought.

Explanation: This sort of prima-facie evidence may be used, unlike the aforesaid first type, even when a plurality of embodiments are disclosed in the original specification. It is also noted that such a conceivable embodiment could be an allegedly infringing product or process of the defendant in an infringement lawsuit. Facing this type of prima-facie evidence, the applicant/patentee would be able to rebut it by, for example, claiming the existence of the

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<sup>59</sup> According to the study by Lemley and Moore referred to in sub-part 2-2, patents based on one or more continuations take on average 1.86 years from the filing date of the continuation to the grant date. Patents with no earlier claims to priority (original applications) take on average 1.96 years from filing date to grant date - just thirty-six days longer. This implies that the burden of examining one continuing application is almost the same as that for its parent application.

<sup>60</sup> See supra note 54

implicit or inherent disclosure, in the original specification, describing the later-claimed invention, with some appropriate supporting evidence. If I take the example of *Gentry Gallery* (although the patent in question was not one granted on a continuing application), such a conceivable embodiment to establish a prima-facie case would be one having a pair of control means mounted on the double reclining seat sofa section excluding the center console (if the patent had been granted on a continuing application).

Possible prima-facie evidence 3: An element of an original claim in the earlier application as filed has been removed in the corresponding claim in the later application, while embodiments disclosed in the original specification contain that element and there is no express indication, in the same specification, of the combination of elements without that particular element (“subcombination” of the original claim).

Explanation: In such a case, it could be, at least preliminarily, presumed that the applicant has removed the element to broaden the claim despite his/her failure to recognize subject matter without that element at the time of original filing. It is also noted that this suggestion of prima-facie evidence is completely different from the approach to try to identify an “essential” element of a claim based upon the existence of any invention-scope-limiting language somewhere in the specification (particularly that describing objects or advantageous effects of the invention). Facing this type of prima-facie evidence, the applicant/patentee would be able to rebut it by, for example, showing that the original specification had implicit teaching of the combination of elements without that removed element, or proving that a person skilled in the art would have known the optional nature of the element at the time of original filing.

The above examples are not exhaustive. The point is to make it clear that, if an applicant files a continuing application and has introduced a new or rewritten claim neither identical to nor narrower than a claim existing in the parent application as filed, he/she has to prove, either in prosecution or in litigation, the claim’s compliance with the written description requirement once rather simple prima-facie evidence on the contrary is presented by the opponent. Implementation of the proposed reduction of burden of proof could be achieved through, for example, amendment of 35 U.S.C. 120 and/or 282.

The proposed change in the burden of proof would not affect such a “legitimate” use of a continuation or divisional application as the following: facing the opinion of the examiner to refuse some of the original claims of the parent application, the applicant moves these argued claims to the new child application for further prosecution while claims with no argument by the examiner about patentability are left in the parent application so as to achieve the quick issuance of a patent on the parent application.

#### 4-2. International harmonization factors

I also propose that the following be clarified on an international basis: (i) the substantive requirement for the eligibility of a claim of the later application for the benefit of the filing date of its parent application is the support of the claim by the disclosure in the parent application as filed, with the requirement of support being the same as one applied to the relation between a claim and disclosure in a single application; and (ii) this requirement of support is the requirement that the disclosure must describe the claimed invention so as to convey with reasonable clarity to those skilled in the art that, as of the filing date sought, applicant had been in possession of, or in other words, had recognized, the invention as now claimed. To this end, the ongoing discussions for the establishment of the Substantive Patent

Law Treaty could be made use of. Further, the reduction of the burden of proof proposed in sub-part 4-1 could also be considered in the discussions.

The following paragraphs of this sub-part explain the background consideration of the above proposal.

As explained in sub-part 2-1, under the European and Japanese patent systems, provisions regarding eligibility of the later application for the benefit of the filing date of its parent application does not refer to requirements for description of the specification, unlike the US statute. Instead, the test for the eligibility questions whether there is any new matter introduced to the *claims* of the later application. This is shown in Article 76 (1) of the EPC referred to in sub-part 2-1, which provides that a European divisional application “may be filed only in respect of subject-matter which does not extend beyond the content of the earlier application as filed,” and further illustrated in the following part of the EPO Examination Guidelines: “If a divisional application as filed contains subject-matter additional to that contained in the parent application as filed and the applicant is unwilling to remedy this defect by removal of that additional subject-matter, the divisional application must be refused under Art. 97 (1) due to non-compliance with Art. 76 (1).”<sup>61</sup> Description requirements are provided separately. Among them, the support requirement, which is the European counterpart of the written description requirement under the US patent system, can be found in Article 84 of the EPC, which reads, “The claims shall define the matter for which protection is sought. They shall be clear and concise and be *supported by the description*.” (emphasis added). Both of the substantive requirement for eligibility for the earlier filing date and the support requirement concern relationship of claims to disclosure. However, it is not necessarily clear from the statute whether these two are fundamentally the same or not – in other words, whether the requirement for eligibility for the earlier filing date may be said to be the requirement of support (within the meaning of Article 84 of the EPC) of claims by disclosure in the earlier application as filed. The situation is similar under the Japanese patent system.

In relation to the requirement for eligibility for the earlier filing date, it is noted that the language used in the aforementioned provision of Article 76 (1) of the EPC is similar to that in the provision of Article 123 (2) of the EPC concerning amendments, which reads: “A European patent application or a European patent may not be amended in such a way that it contains subject-matter which extends beyond the content of the application as filed.” (As mentioned in the above, Article 76 (1) contains the language “subject-matter which does not extend beyond the content of the earlier application as filed.”) In fact, the practice applicable to amendments is also applicable to divisional applications, and vice-versa<sup>62</sup>. With regard to “the content of the application as filed,” which is contained in Article 123 (2), it is interpreted to include both the information which is expressly disclosed, and information which is implicit in the express disclosure<sup>63</sup>. In accordance with the provision, an amendment is not allowed if the overall change in the content of the application results in the skilled person being presented with information which is not “directly and unambiguously” derivable from that previously presented by the application, even when account is taken of

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<sup>61</sup> See supra note 11. Article 76 (1) of the EPC is shown in sub-part 2-1 along with its counterparts in the US and Japanese patent laws.

<sup>62</sup> See Gerald Paterson, *The European Patent System: The Law and Practice of the European Patent Convention* (Second Edition), p. 68 (2001)

<sup>63</sup> See Id. p. 364, citing Technical Board cases, T 151/84 and T 201/83

matter which is implicit to a person skilled in the art<sup>64</sup>. From the above, it can be said that the eligibility of a claim of a European divisional application for the benefit of the filing date of its parent application is assessed under Article 76 (1) in light of the implicit disclosure, as well as the explicit one, of the parent application as filed. In other words, a claim of a divisional application must not be so broad as to contain subject matter beyond the explicit and implicit disclosure, combined, of the parent application as filed.

The same situations apply to a European patent application with a priority right under the EPC: namely, the eligibility of a claim of such an application for the benefit of the filing date of the earlier application is assessed in light of the implicit disclosure, as well as the explicit one, of the earlier application as filed. For the priority date to be valid, the subject matter of the claim must be directly and unambiguously derivable from the disclosure of the invention in the priority document, also taking into account any features implicit to a person skilled in what is expressly mentioned in the document<sup>65</sup>.

As for the support requirement provided by Article 84 of the EPC, the EPO Examination Guidelines explain as follows: “The claims must be supported by the description. This means that there must be a basis in the description for the subject-matter of every claim and that the scope of the claims must not be broader than is justified by the extent of the description and drawings and also contribution to the art (T 409/91, OJ 9/1994, 653).”<sup>66</sup> Thus, this support requirement also asks whether the scope of a claim is too broad to be justified by disclosure.

From the above observation, it seems that basically the same requirement applies to (i) the support of claims by the specification in ordinary applications on one hand, and to (ii) the eligibility of claims of the later application for the benefit of the filing date of the earlier application in view of its original specification on the other<sup>67</sup>, under the European patent system. Still, there may be a possibility that the requirement for (ii) is somewhat stricter than that for (i), in light of the aforementioned “directly and unambiguously” language. In any case, it would be desirable to clarify the relationship between the requirement for (i) and that for (ii), possibly through an international treaty for patent system harmonization, as both of the two kinds of requirements specify the important relationship of claims to disclosure.

In the context of harmonization, attention is also drawn to the fact that the support requirement provided in Article 84 of the EPC is not a ground for filing an opposition after the grant of a patent although it is a ground for rejection in examination. The enablement requirement provided in Article 83 of the EPC is a ground both for rejection and for opposition<sup>68</sup>. In this sense, under the European system, the support requirement seems to be

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<sup>64</sup> See the EPO Examination Guidelines, Part C, Chapter VI, 5. “Amendments,” 5.3 “Additional subject-matter,” 5.3.1 “Basic principle; priority document”

<sup>65</sup> See Id. Part C, Chapter V, 2. “Determining priority dates,” 2.2 “The same invention”

<sup>66</sup> See Id. Part C, Chapter III, 6. “Support in description,” 6.1 “General remarks”

<sup>67</sup> Supposing that basically the same requirement applies to (i) and (ii), however, I find no reason for having to avoid differentiating the way to prove one from that to prove the other. Indeed, I have proposed in the above that the reduction of burden of proof be made as to the above (ii) where a new or rewritten claim is introduced to the continuing application and the claim is not narrowed on the basis of a claim of the earlier application as filed.

<sup>68</sup> Article 100 of the EPC stipulates that opposition may be filed on the ground that the European patent does not disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.

a second-class requirement in comparison with the enablement requirement. This is no surprise, if we consider the relative insignificance of the written description requirement as to original claims, as mentioned in sub-part 3-4, due to rather closeness between the written description requirement and the enablement requirement as to original claims<sup>69</sup>. Having said that, however, the above situation about the European patent system is not necessarily in harmony with the US and Japanese patent systems<sup>70</sup>, in which incompliance with the written description requirement and the support requirement, respectively, results in rejection in the examination process and invalidation after the grant of a patent.

As for the support requirement under the Japanese patent system, it was quite recent that the requirement was established as one separate from the enablement requirement. In October 2003, the Japan Patent Office revised its “Examination Guidelines for Patent and Utility Model” to modify practices on application of Section 36 (6) (i)<sup>71</sup> of the Japanese Patent Law to patent examination. In essence, before the revision, no substantive inquiry was made as to the support of claims by disclosure further to the test on the enablement requirement<sup>72</sup>, and no support requirement violation was raised unless the claimed invention was incomprehensible in the detailed explanation of invention in the specification due to its inconsistency in description with claims. Under the revised examination guidelines, a claim is to be rejected on the basis of Section 36 (6) (i) where the examiner finds that a person skilled in the art would not have been able to extend or generalize, at the time of filing, the teaching in the disclosure in the specification to the entire scope of the claim, even in light of the common general knowledge of the art at the time of filing.

A clue to international harmonization is in the ongoing work for drafting the Substantive Patent Law Treaty (SPLT), to be administered by the World Intellectual Property Organization (WIPO) after the establishment and entry into force of the treaty. Relevant provisions can be seen in the Draft SPLT and the Draft Regulations under the SPLT, as follows:

Draft SPLT, Article 11 (Claims)

(3) “[*Relationship of Claims to the Disclosure*] The claimed invention shall be fully supported by the disclosure of the [claims], description and drawings[, as prescribed in the Regulations].”<sup>73</sup>

Draft Regulations under the SPLT, Rule 12 (Details Concerning Claims Under Article 11)

(2) “[*Relationship of Claims to Disclosure*] The subject matter of each claim shall be supported by the [claims,] description and drawings in such a manner as to allow a person skilled in the art to extend the teaching therein to the entire scope of the claim, thereby showing that the applicant does not claim subject matter which he had not *recognized* and

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<sup>69</sup> As for grounds for opposition to the grant of a European patent to a divisional application, Article 100 of the EPC provides that opposition may be filed on the ground that the subject-matter of the European patent extends beyond the content of the earlier application as filed. In the case of an ordinary application, the same Article also provides that opposition may be filed on the ground that the subject-matter of the European patent extends beyond the content of the application as filed.

<sup>70</sup> Paterson (see supra note 62) writes, “Especially having regard to the close relationship between Articles 83 and 84 EPC . . . , there seems to be no good reason why the requirements of Article 84 EPC should be excluded as grounds for opposition under Article 100 EPC and as grounds for revocation by national courts under Article 138 EPC.” (p. 346)

<sup>71</sup> Section 36 (6) (i) of the Japanese Patent Law stipulates that the claimed invention must be what is described in the detailed explanation of the invention in the specification.

<sup>72</sup> The enablement requirement is provided in Section 36 (4) (i) of the Japanese Patent Law.

<sup>73</sup> See WIPO document SCP/10/4 “Draft Substantive Patent Law Treaty [Clean Text]” (September 30, 2003)

*described* on the filing date.”<sup>74</sup> (emphasis added)

(It is noted that bracketed parts remain, as the work is still ongoing.)

As the text of the regulations shows the concept of considering the support requirement (regarded as the equivalent to the written description requirement) to be a means to ensure that the invention as now claimed is within the scope of what the applicant had recognized at the time of filing, the proposed clarification and harmonization could be made on this basis.

Preferably, the reduction of burden of proof proposed in sub-part 4-1 would be promoted on an international basis, taking advantage of the SPLT work.

#### 4-3. Additional comments on the relevance of the proposals to the suppression of the patent system abuse for patenting technical standards

Just to further support the relevance of the above proposals, in particular those in sub-part 4-1, to the suppression of the patent system abuse for patenting technical standards, I will make brief comments on the aforementioned *Rambus* case again.

In the *Rambus v. Infineon* case, I do not find a record of Infineon’s making an invalidation defense on the ground of incompliance with the written description requirement. I note, however, that the construction was discussed, both at the district court and at the Federal Circuit, of claims newly introduced to continuing applications during prosecution, as the claim construction was crucial to judgment on infringement claims. Just for an example, the district court construed “integrated circuit device” in claim 26 of the ’804 patent to include a device identification register, interface circuitry, and comparison circuitry, based on the specification and the prosecution history. The Federal Circuit held that the district court had erred in the claim construction, pointing out that the terms “comparison circuitry” and “device identification register” did not appear anywhere in the text of claim 26. This was one of the grounds of the Federal Circuit’s vacating the district court’s grant of JMOL of non-infringement. The Federal Circuit states, in relation to the construction of claims in question including the above claim, “While claims often receive their interpretative context from the specification and the prosecution history, courts may not read limitations into the claims.”<sup>75</sup> This makes much sense to me. At the same time, as this matter concerns relationship between a claim and the specification, the matter may be seen from another perspective – that is, from the viewpoint of, if I take the example of the aforementioned claim 26, whether the claim without the elements of “comparison circuitry” and “device identification register” would have been supported by the disclosure at the time of filing the ’898 application whose benefit is sought, in view of the written description requirement. The claim’s incompliance with the written description requirement would result in invalidation of the patent.

In the above context, apart from the particular case of *Rambus v. Infineon*, I suppose that the proposed reduction of burden of proof would lead to the reasonable facilitation of an invalidation counterclaim on the ground of incompliance of a claim of a continuing application with the written description requirement, and thereby to the suppression of abusive use of the continuing application system in relation to technical standards as well as

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<sup>74</sup> See WIPO document SCP/10/5 “Draft Regulations under the Substantive Patent Law Treaty [Clean Text]” (September 30, 2003)

<sup>75</sup> See *Rambus Inc. v. Infineon Technologies AG, et al.*, 318 F.3d 1088



to competitors' products and processes.

## 5. Conclusion

I have examined the relevance of continuing applications to the process of patenting technical standards, and then, that of the written description requirement to the patentability of continuing applications. Thereafter, I have made proposals for the enhancement of the capacity of the written description requirement to suppress the abusive use of the continuing application system.

The importance of the role of the written description requirement to suppress abuse of the patent system (particularly, that of continuing applications) to cover technical standards or competitors' products or processes with claims introduced or rewritten during prosecution after filing should not be undermined by criticism against the application of the same requirement to originally-filed claims. The aforementioned role of the written description requirement is well justified, considering that claim redrafting after the filing date whose benefit is sought should be accompanied by accountability for inventor's possession, at the time of filing, of the later-claimed invention. Although the written description requirement itself would be the same regardless of situations, namely, whether the claim in question is original or not, procedural arrangements for proving compliance or noncompliance of the claim with the requirement do not have to be always identical and could be different depending upon situations. My proposals have this consideration as a background.

Here in this paper, I have proposed the reduction of burden of proof, to the patent challenger's side, of noncompliance of a claim with the written description requirement where the claim is newly introduced or rewritten in the continuing application prosecution and is not one narrowed based on a claim in its parent application as filed. Specifically, I have proposed that the burden of production be shifted to the applicant/patentee side once the party claiming invalidity can present any reasonable, simplified prima-facie evidence showing that the applicant is likely to have introduced to a continuing application a claim not existing in its parent application, in a manner violating the written description requirement as provided in the paragraph 1 of 35 U.S.C. 112. Such simplified prima-facie evidence I envisage is the one showing only that the claim in question is not supported by the *explicit* disclosure, thus removing the initial burden of the patent challenger to take into account implicit/inherent disclosure to prove noncompliance of the claim with the written description requirement. My proposals include concrete examples of such prima-facie evidence. Relevant international harmonization factors have also been considered in this paper. I am of the opinion that the proposed arrangements would enhance the role of the written description requirement in suppressing patent system abuses while not sacrificing innovative inventors' opportunities to mine their own disclosure for the exclusive rights they deserve.

[Appendices follow]

Table 1: Continuing applications (enjoying the benefit of earlier filing dates) not allowing the introduction of new matter

Country/Region	United States		Europe	Japan
1. Names of applications	Continuation Application	Divisional Application	Divisional Application	Divisional Application
2. Legal grounds	35 U.S.C.120	35 U.S.C.121, 120	EPC Article 76	Japanese Patent Law Section 44
3. Intended use	To introduce a set of new claims to the application and have them examined as claims of a new application (Use A)	To respond to the patent office's objection of lack of unity of invention <sup>76</sup> (Use B)	Use A or B	Use A or B
4. Period when continuing applications can be filed	During the pendency of the earlier application (Before the patenting or abandonment of, or the termination of proceedings on, the earlier application)		During the pendency of the earlier application (Up to (but not including) the date that the European Patent Bulletin mentions the grant of the patent <sup>77</sup> )	<u>When amendment to the specification, claim(s) and drawing(s) is allowed</u> ; Specifically: (i) Before the transmittal of an examiner's decision to grant a patent (excluding the period after the receipt of a first notification of reasons for refusal); (ii) Within the designated time limit <sup>78</sup> where a notification of reasons for refusal is issued; or (iii) Within 30 days from the request for appeal examination against examiner's decision of refusal
5. Requirements for the enjoyment of the benefit of earlier filing dates	(a) Disclosure, in the earlier application, of the claimed invention " <u>in the manner provided by the first paragraph of section 112</u> " <sup>79</sup> (b) Identity of inventor(s) (at least partial identity if there are more than one inventors) (c) Pendency of the earlier application (See Item 4 above) (d) Reference to the earlier application in the specification of the later application	(a) Disclosure, in the earlier application, of the claimed invention (Subject matter should "not extend beyond the content of the earlier application as filed." <sup>80</sup> ) (b) Identity of applicant(s) (c) Pendency of the earlier application (See Item 4 above) (d) Reference to the earlier application (e) Non-addition of designated Contracting States	(a) Disclosure, in the earlier application, of the claimed invention (The earlier application must "comprise two or more inventions.") (b) Identity of applicant(s) (c) Within statutory time limit (See Item 4 above; Stricter condition than the pendency of the earlier application) (d) Reference to the earlier application	
6. Term of patents	20 years from the earliest filing date <sup>81</sup>		20 years from the earliest filing date	20 years from the earliest filing date <sup>82</sup>
7. Handling of earlier applications	Co-pending		Ditto	Ditto

<sup>76</sup> PTO Director's requirement to restrict the application to one of the inventions

<sup>77</sup> See *Guidelines for Examination in the European Patent Office* (December 2003), Part A, Chapter IV, 1.1.1, and Part C, Chapter VI, 9.1.3, both citing OJ 2/2002, 112.

<sup>78</sup> According to the established practice, 60 days for domestic applicants and 3 months (extendable up to 6 months upon request) for overseas applicants

<sup>79</sup> 35 U.S.C.120, first sentence; The first paragraph of section 112 referred to is interpreted by the courts to contain three requirements: the written description, enablement, and best-mode requirements, as explained in the body of this paper.

<sup>80</sup> EPC Article 76 (1), second sentence

<sup>81</sup> Statutory adjustment or extension of the patent term (see 35 U.S.C.154 (b), 155, 155A, and 156) may be available, as ordinary applications other than continuing applications.

<sup>82</sup> Statutory extension of the patent term (see Japanese Patent Law section 67 (2)) may be available, as ordinary applications other than continuing applications.

Table 2: Continuing applications (enjoying the benefit of earlier filing dates) allowing the introduction of new matter

Country/Region	United States	Europe	Japan
1. Names of applications	Continuation-in-part (CIP) Application	Application claiming Priority Right(s) in accordance with the EPC <sup>83</sup>	Application claiming Domestic Priority Right(s)
2. Legal grounds	35 U.S.C.120	EPC Article 87 <sup>84</sup>	Japanese Patent Law Section 41
3. Intended use	(a) To add improvements developed since the filing date of the earlier application (b) To overcome problems of insufficient disclosure in the earlier application (e.g., adding disclosure necessary for supporting existing claims or new and broader claims, on the applicant's own initiative, or in response to examiner's office action to refuse some claims in the earlier application for the lack of supporting disclosure in the specification) (c) To add information, such as testing data, which is desirable but not necessary for supporting claims <sup>85</sup>	Ditto. As for the use (b) in the left column, however, that use, in the European system, would be usually made based on applicant's own initiative, not in response to examiner's office action to refuse the application, as the later application may be filed only within 12 months from the filing date of the earlier application (the earliest one, if there are more than one), unlike the CIP system of the US.	Ditto, with the same note
4. Period when continuing applications can be filed	<u>During the pendency of the earlier application</u> (Before the patenting or abandonment of, or the termination of proceedings on, the earlier application)	12 months from the filing date of the earliest application	Ditto
5. Requirements for the enjoyment of the benefit of earlier filing dates	(a) Disclosure, in the earlier application, of the claimed invention " <u>in the manner provided by the first paragraph of section 112</u> " <sup>86</sup>	(a) Disclosure, in the earlier application, of the claimed invention (The later European patent application should be "in respect of the same invention." <sup>87</sup> )	Ditto, except requirement (f)

<sup>83</sup> Such applications include European applications claiming priority rights based on applications filed in a non-EPC country party to the Paris Convention for the Protection of Industrial Property (see the next footnote). Those applications are not "continuing" applications, as the earlier applications themselves have nothing to do with the EPC. However, an earlier European patent application can be a basis for a later European patent application, and in such a case, the later application may be regarded as a "continuing" application in the sense that the later application enjoys the benefit of the date of filing of another (earlier) European application.

<sup>84</sup> According to Article 87 (1) of the EPC, a European patent application may claim a priority right based on an earlier application(s) filed in any state party to the Paris Convention. Further, according to Article 87 (5) of the EPC, application filed in a state *not* party to the Paris Convention may also be a basis for a priority claim for a European patent application, provided that the state grants priority rights based on earlier applications filed with the European Patent Office as well as in or for any EPC Contracting States (on a reciprocal basis). No state, however, has been designated as such a state.

<sup>85</sup> See Donald S. Chisum, *Elements of United States Patent Law (Second Edition) (2000) 3421*

<sup>86</sup> The first paragraph of section 112 referred to is interpreted by the courts to contain three requirements: the written description, enablement, and best-mode requirements, as previously noted.

<sup>87</sup> See EPC Article 87 (1). The phrase "the same invention" is interpreted to mean that one skilled in the art can derive the invention (subject matter) in question in the later application directly and unambiguously, using common general knowledge, from the earlier application as a whole. (See the aforementioned EPO examination guidelines Part C Chapter V 1.3) This criterion is the same as that used for the new-matter test for amendment.

	(b) Identity of inventor(s) (at least partial identity if there are more than one inventors) (c) Pendency of the earlier application (See Item 4 above) (d) Reference to the earlier application in the specification of the later application Note: Claims not meeting the requirement (a) cannot enjoy the benefit of the earlier filing date.	(b) Applicant's having the priority right <sup>88</sup> (c) Meeting the time limit (See Item 4 above) (d) Priority claim referring to the earlier application (e) The earlier application was the first application filed in respect of the same invention (Requirement to prevent effective extension of the time limit) (f) The earlier application was filed in a state party to the Paris Convention Note: Partial and multiple priority claims are allowed. Claims not meeting the requirement (s) cannot enjoy the benefit of the earlier filing date.	
6. Term of patents <sup>89</sup>	20 years from <u>the earliest filing date</u>	20 years from the actual filing date	20 years from the actual filing date
7. Handling of earlier applications	Co-pending	Co-pending	<u>Deemed to be withdrawn</u> upon the expiration of the one-year-and-three-month period from the filing date of the application <sup>90</sup>
8. Publication of applications <sup>91</sup>	To be published after the expiration of the 18-month period from the filing date of the application (or the earliest filing date for which a benefit is sought), <i>unless</i> the applicant makes a request, upon filing, that the application not be published, certifying that the invention disclosed in the application has not and will not be the subject of an application filed in another country, or under a multilateral international treaty, that requires publication of applications 18 months after filing	To be published after the expiration of the 18-month period from the filing date of the application (or the earliest filing date for which a benefit is sought)	Ditto
9. Grace period	1 year	Virtually none	6 month, with the scope of the grace period being limited (Publication of the earlier application is not excluded from the prior art for the provision on the "exception to novelty")

<sup>88</sup> The earlier application must have been filed by the applicant of the later application or his/her predecessor in title.

<sup>89</sup> See the footnotes for Item 6 of the Table 1

<sup>90</sup> See Japanese Patent Law Section 42 (1)

<sup>91</sup> Publication of the earlier application may be a prior art for a claim of the later application for which the benefit of the earlier filing date cannot be enjoyed due to the addition of new matter in relation to that claim.

(APPENDIX 3 is contained in a separate Excel file.)

Table 3: Use of divisional, continuation, and CIP applications for essential US patents for DVD

Firms	Essential US patents for DVD players and disks		Frequency of division, continuation, or CIP				
	Total number	Those with division, continuation, or CIP	Division	Continuation	CIP	Total	Division, continuation or CIP per patent
Three firms (Matsushita, Philips, and Toshiba)	161	76	48	34	9	91	0.57
	100%	47%	53%	37%	10%	100%	
With respect to patents granted to the three firms after the standard adoption	115	60	43	23	4	70	0.61
	100%	52%	61%	33%	6%	100%	

Source: Tomoyuki Shimbo, 2004, "A patent study of DVD," in the study of essential patents for technical standards, Institute of Innovation Research, Hitotsubashi University

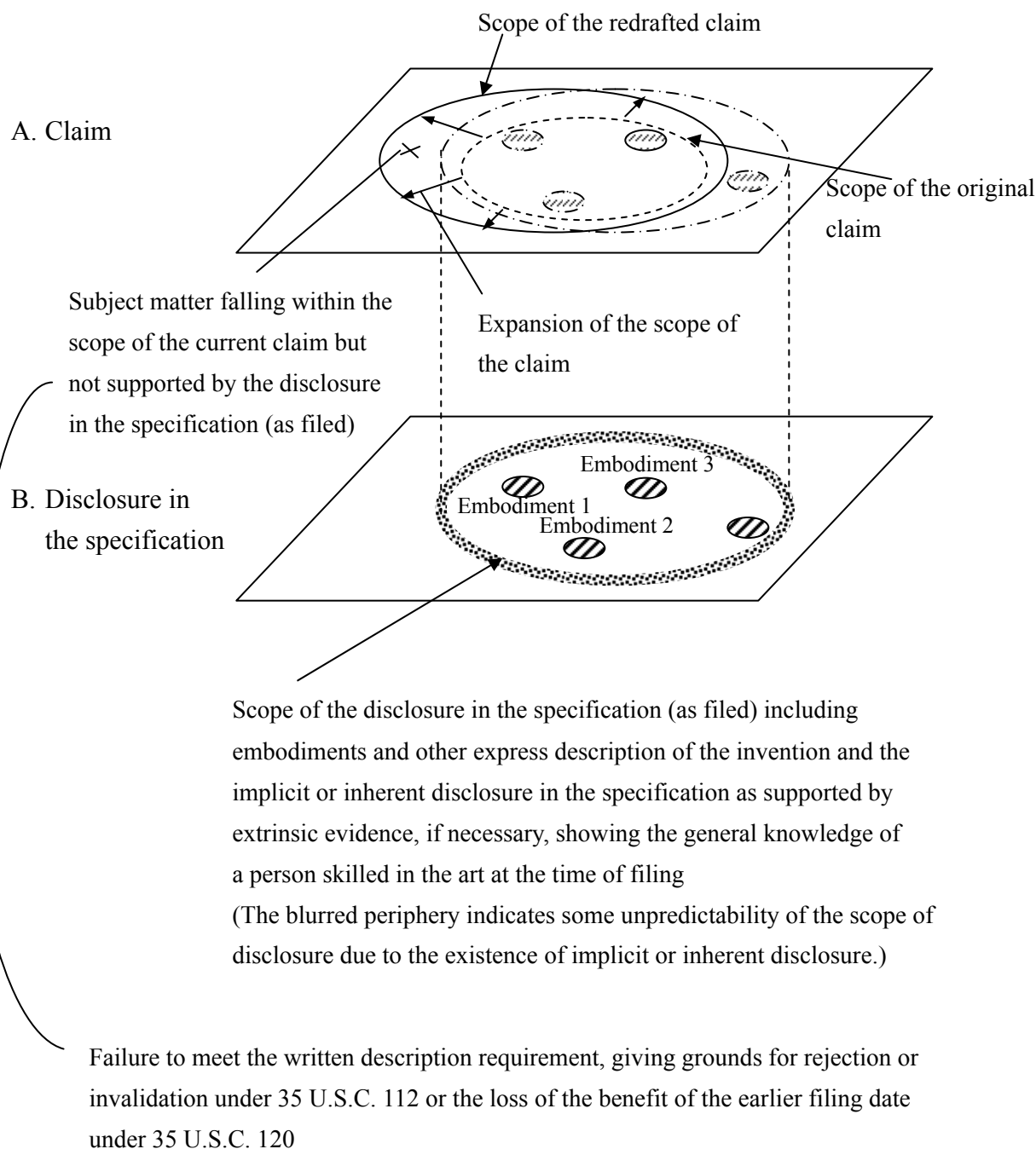
Table 4: Use of divisional, continuation, and CIP applications for essential US patents for MPEG-2

Firms	Essential US patents for MPEG2		Frequency of division, continuation, or CIP				
	Total number	Those with division, continuation, or CIP	Division	Continuation	CIP	Total	Division, continuation or CIP per patent
Ten MPEG-2 member firms	85	37	32	44	9	85	1
	100%	44%	38%	52%	11%	100%	

Note: Ten firms in this table consist of General Instrument, GE Technology, JVC, Matsushita, Mitsubishi, Philips, Samsung, Sony, Thomson Licensing, and Toshiba.

Source: Naotoshi Tsukada, 2004, "A patent study of MPEG-2," in the study of essential patents for technical standards, Institute of Innovation Research, Hitotsubashi University

Figure 2: Illustration of the written description requirement  
(taking an example of a new or amended claim unsupported by disclosure)



Note: Original claims constitute their own description<sup>92</sup>, thus are part of the original disclosure of an invention.

[End of document]

<sup>92</sup> See *In re Koller*, 613 F.2d 819, 204 USPQ (BNA) 702 (CCPA 1980)

