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How Far Should They Be Extended?**

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PATENT STANDARDS AND INNOVATION

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Given the limited time and the importance of getting issues before the STEP Board for their consideration for the second phase of their project I am going to run through my topic as quickly as I can, identifying but not developing issues, and asserting things to be the case without citations or elaboration. If anyone wishes a more detailed statement of these issues or citations for the assertions, I refer you to my papers, "Innovation and the United States Patent System Today" and "Proposal for the Simplification and Reform of the United States Patent System," and to testimony I gave at the Patent Office Public Hearing on the Nonobviousness Standard. Stephen Merrill has copies and can provide them to you, and I can as well.

I should make one other preliminary comment. I will refer from time-to-time to the Polaroid v. Kodak patent litigation. It is not my purpose to retry that case, or to complain about the outcome. The case was over long, long ago, and the parties have long since put it behind them. But the case does contain important lessons about the relationship between patent standards and innovation, and these lessons should be learned and applied. And the findings of fact by Judge Mazzone, who tried the damages part of the case, are unique in their completeness, which enables a depth of analysis that is unusual.

¹ Presented February 2, 2000 at Washington, D.C. at the conference *Intellectual Property Rights: How Far Should They Be Extended*, sponsored by the National Academies' Board on Science, Technology, and Economic Policy. Mr. Quillen is affiliated with PHB Hagler Bailly, Inc., an international economic and management consulting firm. Before his association with PHB Hagler Bailly, Mr. Quillen was Senior Vice President & General Counsel of

Perhaps the best way into the topic is to recall that before formation of the Court of Appeals for the Federal Circuit about two-thirds of the patents which were litigated were found invalid. The Supreme Court had taken note of this situation in the famous Graham v. John Deere case when they stated:

We have observed a notorious difference between the standards applied by the Patent Office and by the courts. While many reasons can be adduced to explain this discrepancy, one may well be the free rein often exercised by Examiners in their use of the concept of "invention." In this connection we note that the Patent Office is confronted with a most difficult task. Almost 100,000 applications for patents are filed each year. Of these 50,000 are granted and the backlog now runs well over 200,000. [Citation omitted] This is itself a compelling reason for the Commissioner to strictly adhere to the 1952 Act as interpreted here. This would, we believe, not only expedite disposition but bring about a closer concurrence between administrative and judicial precedent.

However, the admonition of the Supreme Court to change Patent Office practices and procedures so that it stopped issuing invalid patents was not followed. Rather we created a new court, the Court of Appeals for the Federal Circuit, with responsibility for appeals in all patent infringement cases. And soon after this new court began deciding patent appeals, and without any change in the patent statute or Patent Office practices, the statistics reversed themselves and something like two-thirds of the patents which were litigated were found to be valid and infringed.

Decisions by the Court of Appeals for the Federal Circuit limited the prior art to be considered in determining obviousness/nonobviousness, and mandated that nonstatutory factors, the so-called "secondary considerations," be considered in every case, with the consequence that standards for patentability as applied in the courts were lowered and made less certain. The proportion of litigated patents found valid was doubled, from about one-third to about two-thirds, and patents which once would have been ruled invalid were now valid, and capable of being infringed.

Eastman Kodak Company where he was also a member of the board of directors. The views expressed herein are those of Mr. Quillen and should not be attributed to PHB Hagler Bailly or to Eastman Kodak Company.

The important question is not whether standards have been lowered - - they have - - but rather whether the lowered standards are good or bad for innovation in the United States. In this new world, the would-be innovator, one who would commercialize a new product or new process, is forced to deal with twice as many valid patents before his or her innovation can be brought to market. And the probability that an intractable patent problem will prevent the would-be innovator from using the fruits of his or her own work has been doubled as a consequence of the lowered standards. It seems plain that this lowering of standards, with the consequent doubling of the patent problems that innovators must deal with and resolve (or deal with and not resolve) has diminished rather than enhanced incentives for innovation, and for the research and development work that precedes it. If using your own work is made less likely or more costly, then it is less likely you will undertake that work in the first place.

There is another consequence. A principal hope of every would-be innovator, as I have intimated, is for their research and development work to be commercialized. Otherwise the money spent for the work is wasted. A standard patent strategy for attempting to preserve that opportunity is to seek patents on those aspects of the work that possibly could be the subject of valid patents so as to preempt competitors or others from obtaining those patents and using them to frustrate the would-be innovator's commercialization. This is called defensive patenting, or, in Wes Cohen's work, "blocking." With the doubling of the number of valid patents because of the lowered standards, would-be innovators who follow this strategy, and most do, must file more patent applications than they otherwise would, and pay the cost for those additional filings. That additional cost, of course, is borne by the innovation process, and eventually paid for by consumers in the price of goods they buy.

There are important recent and ongoing studies on the relation between innovation and standards for patentability. Dr. Robert Hunt of the Federal Reserve Bank of Philadelphia has presented his work in two articles. One, "*Patent Reform: A Mixed Blessing For The U.S. Economy*," was in the November-December 1999 Business Review of the Federal Reserve Bank of Philadelphia. The other, Working Paper 99-3, is titled "*Nonobviousness and the Incentive to Innovate: An Economic Analysis of Intellectual Property Reform*." Both can be found on the Bank's website, www.phil.frb.org. Dr. James Bessen of Research on Innovation and Dr. Eric

Maskin of Harvard and MIT have made their studies available in a working paper titled "*Sequential Innovation, Patents, and Imitation*," which can be found at the Research on Innovation website, www.researchoninnovation.org. Dr. Hunt and Dr. Bessen are both at this conference if you wish to speak with them. I won't attempt to characterize the work of Dr. Hunt or that of Drs. Bessen and Maskin other than to observe that it appears to me that both reach the same general conclusion I have reached, namely, lowered standards for patentability do not lead to enhanced innovation.

The problem of the lowered standards for patentability, at least as to the obviousness/nonobviousness issue, could be remedied by returning to the Graham v. John Deere test as enunciated by the Supreme Court, including relegating the nonstatutory "secondary considerations" to their former status of conditional relevance (or even better, by abolishing them entirely), and by following the Supreme Court's admonition that the 1952 patent act, as interpreted by the Supreme Court in Graham v. John Deere, be strictly adhered to.

The second area to which I wish to draw the Board's attention is the uncertainty or unpredictability that exists in our patent law, and the effect of that uncertainty on the cost of capital for innovation investments. Any legal regime, including our patent system, should inform those affected by it of their rights and duties. The outcomes of possible disputes should be predictable in advance so that litigation can be avoided, or at least minimized and simplified.

Unfortunately our patent system is a failure in this regard. Rather it is characterized by unnecessary uncertainty or unpredictability which, in some instances, has been aggravated by decisions of the Federal Circuit. For example, under Graham v. John Deere, the nonstatutory "secondary considerations" were relevant only if there was a question or doubt remaining after application of the statutory test, and no amount of nonstatutory factors could overcome a determination of obviousness under the statutory test. However, as I have previously noted, decisions by the Federal Circuit now require that these nonstatutory factors always be considered, and, if sufficiently present, can even overcome a determination that the invention is obvious under the statutory test. The analytic method prescribed by the Federal Circuit for considering these nonstatutory factors in conjunction with the statutory test is to consider "the

evidence of obviousness/non-obviousness collectively," whatever that may mean. The practical result, of course, is that the increased uncertainty has made it impossible for counselors to advise on the obviousness/nonobviousness issue with any measure of confidence. The outcome cannot be known without litigation, which has been made more complex and costly because of the mandate to consider the nonstatutory factors.

There are other uncertainties in our patent system which are unnecessary and undesirable, and that should be eliminated. The catalogue includes the doctrine of equivalents, the ability to file continuing applications, our first-to-invent system, and the surprises that flow from the secrecy afforded patent applications and patent prosecution (which may have been somewhat ameliorated by recent legislation).

The doctrine of equivalents is the patent system's Catch-22. The diligent innovator who has found all of the patents potentially relevant to his or her proposed product or process, and has carefully designed the product or process so as to avoid all of the patents' claims (which are supposed to define the invention with particularity) is nonetheless at risk, and can be found to be an infringer even though the product or process is outside all of the patent claims. Neither they nor their advisors can know in advance whether they will be found to be infringers, and they must endure a lawsuit and wait until it is over for their answer. The Supreme Court has recently declined to abolish the doctrine of equivalents (in a case in which the invention was a process for using a commercially available filter to filter), so the only way to eliminate this source of uncertainty is through legislation.

Continuing applications are unique to American patent law and are one its most bizarre features. A patent applicant whose application has been rejected (or even one whose application has not been rejected) can file a subsequent application claiming the benefit of the filing date of the earlier application (and can do it again and again). Continuing applications are an invitation to sloppy work for those who practice before the Patent Office, and a source of much abuse by those who file a sequence of such applications and "reinvent" their claims in light of subsequent developments by others. They are the source of the much-discussed "submarine patents," which surface many years after the initial application and claim subjects not contemplated at the time

the first application was filed. And because the applicant can refile time after time, the only way the Patent Office can finally dispose of the application is to grant a patent. Elimination of this source of uncertainty and abuse will also require legislation because continuing applications are provided for in the statute. Similar uncertainties are a consequence of our first-to-invent system, which too can be eliminated only by legislation.

The effect of the uncertainties is real. For example, in the Polaroid v. Kodak litigation, Kodak, which had set out to design instant photography products that did not infringe any valid patents of others (and believed it had done so), was determined by Judge Mazzone to have followed a patent clearance process that was "a model for what the law requires." Yet the "model process" was wrong as to seven of the twelve patents involved in the litigation. District court judges have fared little better. The June 15, 1998 issue of the National Law Journal reported that 40 percent of the claim interpretation decisions by district court judges had been overturned by the Federal Circuit, and that 53 percent of patent infringement decisions by district court judges had been reversed, in whole or in part. There is clearly something wrong with a legal regime in which uncertainty is so great that a "model process," or even district court judges, can do no better than the toss of a coin.

These uncertainties manifest themselves as increased cost of capital for innovation investments. Investors, including corporate managers who have a fiduciary obligation to their shareowners, are not likely to make such investments without a reasonable expectation of getting their money back. And they will demand a higher return for uncertain investments because of the risk. Thus the uncertainties of our patent system result in the cost of capital for innovation investments being higher than it otherwise would be. Again, Polaroid v. Kodak provides an illustration. There was uncertainty as to the amount of damages Polaroid would be awarded. The judgment was announced at \$905 million (later reduced to \$873 million) and the equity market value of Kodak promptly increased by \$795 million. Thus elimination of uncertainty as to the outcome of the lawsuit was accompanied by an increase in Kodak's market equity value, and a corresponding decrease in the cost of equity capital for Kodak.

The third area I want to talk about is excessive damages for patent infringement. The statute (35 U.S.C. Sec. 284) provides that damages for patent infringement shall be "adequate to compensate for the infringement, but in no event less than a reasonable royalty." In the Aro case the Supreme Court told us this means that patent damages are "the difference between [the patentee's] pecuniary condition after the infringement, and what his [pecuniary] position would have been if the infringement had not occurred." That is to say the object of the patent damages statute as interpreted by the Supreme Court is to restore the patentee to the position he or she would have enjoyed had there been no infringement.

However, damages determined in accordance with decisions of the Court of Appeals for the Federal Circuit more often than not result in the patentee being placed in a better position than if the infringement had never occurred. Just one example should suffice. Federal Circuit cases require that the patentee recover lost profits damages on all of the infringer's sales the patentee would have made in the absence of the infringement and, in addition, a reasonable royalty on any additional sales by the infringer which could not have been made by the patentee. This "but-for" world in which the patentee can simultaneously license and not license and combine both lost profits and reasonable royalties is not at all like the real world, which the Supreme Court in Aro said we are supposed to emulate. In the real world, licensing and not licensing are mutually exclusive, and the patentee does one or the other, but not both simultaneously. A damages rule in accordance with Aro that would emulate the real world would not combine lost profits and reasonable royalty damages as Federal Circuit decisions mandate, but instead would award the patentee his or her lost profits on their lost sales or a reasonable royalty on all of the infringer's sales, whichever is the greater, but not some combination of the two which is larger than either, and which puts the patentee in better financial position than if the infringement had never occurred.

The damages award in Polaroid v. Kodak was just such a combined award, as mandated by Federal Circuit decisions, and the completeness of Judge Mazzone's findings permits the excess to be determined. The award, as I have said, was \$873 million, composed of \$437 million combined lost profits and reasonable royalty damages, and \$436 million interest. Based on the facts as found by Judge Mazzone, Polaroid's lost profits on all of its lost sales, before taxes, was

\$171 million. And a reasonable royalty on all of Kodak's sales (at the 5% rate Judge Mazzone said "would have been acceptable to Polaroid," not the 10% rate that was imposed) would have been \$159 million, before taxes. With interest at the rate found by the judge and taking taxes into account, the damages award would have been \$197 million, based on the reasonable royalty. (Damages based on lost profits would have been lower because of tax and timing effects on the amount of interest) Now the difference between \$873 million and \$197 million is a lot of money and a real windfall, and gives patentees a tremendous incentive to sue rather than settle. The consequence I suspect, is that a lot of patent infringement suits that should have settled, or never been brought at all, were pursued by patentees hoping to win the lottery.

There are other areas of patent damages law where Federal Circuit decisions result in awards that place the patentee in a better position than if there had been no infringement. These are detailed in a comprehensive working paper by Dr. Vincent O'Brien of the consulting firm LECG, Inc., and I am sure he would be happy to share his paper with you.

The final suggestion I have for the STEP Board is that it consider recommending that we return patent law to the more conventional Federal judicial structure in which appeals from district court patent infringement decisions are heard by the appropriate regional court of appeals rather than by the Federal Circuit. This would afford patent law the same self-correcting structure that governs other areas of United States law. Under this structure a regional court of appeals is not constrained by stare decisis by a decision of another regional court of appeals, and issues which have been decided by one of the regional courts of appeals can be reconsidered on their merits when they subsequently arise in another region. Eventually, if the regional circuit courts disagree, the Supreme Court can take a case which presents the issue as to which the circuits have split and resolve the matter fully confident that all sides of the issue have been debated time and again, and that it will hear the most compelling arguments, and have a reasonable opportunity for reaching the right result.

Under our current system, once the Federal Circuit has decided an issue there is no opportunity for alternative views to develop free of the constraints of stare decisis, and it is a rare district court judge who will disagree with a prior Federal Circuit decision knowing his or her

judgment will be appealed to the Federal Circuit. In fact, I know of only one, and it was not a district court judge but rather a court of appeals judge sitting by designation. The judge was Frank Easterbrook of the 7th Circuit Court of Appeals and the case was Grain Processing v. American Maize. Judge Easterbrook tried the damages part of the case after the district court judge originally responsible for it had died. Judge Easterbrook decided that the patentee was not entitled to lost profits, and that the reasonable royalty to which the patentee was entitled should be no more than the difference between the cost of the patented process and the cost of an alternative process. The case was appealed to the Federal Circuit, which reversed on the basis that the alternative process was not commercially available to the defendant during the infringement period, and returned the case to Judge Easterbrook to determine lost profits damages. Judge Easterbrook did not follow the directions of the Federal Circuit but instead wrote a second opinion in which he said, in very polite judge-talk, that he was right the first time, that the Federal Circuit was wrong in reversing him and didn't even understand its own cases, and that he was re-entering his earlier judgment. The case was appealed again. The second time around the Federal Circuit, either convinced by Judge Easterbrook's logic or intimidated by his reputation, did not follow its earlier decision, but instead reversed itself and affirmed Judge Easterbrook. You should read Judge Easterbrook's second opinion, the one that was affirmed. It is a treasure! The important point of course is that we should give patent law the benefit of the same self-correcting legal structure that governs other areas of American law, and not have to depend on super-courageous district court judges (or Court of Appeals judges sitting by designation) to correct erroneous legal doctrine.

Let me summarize. I have five suggestions for the STEP Board for their further study and policy recommendations. These are:

1. Our lowered standards for patentability are impediments to innovation in the United States. We should return to the higher standards for patentability that existed under Graham v. John Deere prior to formation of the Court of Appeals for the Federal Circuit.
2. Procedures and practices in the Patent & Trademark Office should be changed as recommended by the Supreme Court in Graham v. John Deere so that the PTO adheres to the restored higher standards for patentability and follows the analytic method of the Graham v. John Deere case.

3. There are unnecessary uncertainties in our patent law which cause the cost of capital for innovation investments to be higher than it otherwise would be in their absence. A return to the analytic method for resolving the obviousness/nonobviousness issue as prescribed by the Supreme Court in Graham v. John Deere would eliminate one major uncertainty. Elimination of other equally pernicious uncertainties will require legislation.
4. Damages awards for patent infringement are frequently excessive, and more often than not place the patentee in better pecuniary position than he or she would have enjoyed had there been no infringement. Thus patentees have an incentive to engage in and prolong litigation in the hope of winning the "lottery." Court decisions could resolve this issue. Legislation might be required.
5. We should return appellate jurisdiction in patent infringement cases to the regional courts of appeals. This would provide patent law with the same self-correcting mechanism that exists for most other areas of American law.