Can the Patent Office Be Fixed?[1]

Mark A. Lemley[2]

I. The Problem of Bad Patents

The Patent and Trademark Office (PTO) finds itself caught in a vise. On the one hand, the PTO has been issuing a large number of dubious patents over the past twenty years, particularly in the software and electronic commerce space. The PTO issues many more patents than its counterparts in Europe and Japan (van Pottelsberghe de lat Potterie, 2010); roughly ¾ of applicants ultimately get one or more patents. (Lemley & Sampat, 2008) Complaints about those bad patents are legion, and indeed when they make it to litigation they are quite often held invalid. (Allison & Lemley, 1998; Allison et al., 2010) Even the ones that turn out to be valid are often impossible to understand; in the information technology industries, there is no lawsuit filed in which the parties don't fight over the meaning of patent claim terms. The natural reaction is to say that the PTO needs to do more than it does to make sure that it is awarding patents only to those who deserve them.

On the other hand, it is not clear that we can or should weed out bad applications at the PTO. The vast majority of patents are never litigated or licensed; spending a lot of money to ensure their validity would be wasted. (Lemley, 2001) And the structure of the patent prosecution process makes it very difficult for the PTO to do so. Patent examiners can never actually finally reject a patent application; applicants dissatisfied with the outcome can come

[2] William H. Neukom Professor, Stanford Law School; partner, Durie Tangri LLP.

back an unlimited number of times to try again through various mechanisms. (Lemley & Moore, 2004) Efforts beginning in 2006 to change that rule upset patent lawyers a great deal, and were ultimately abandoned. (*Tafas v. Kappos*, 586 F.3d 1369 (Fed. Cir. 2009)) And because of the inability of the PTO to finally reject applications, when the PTO actually started making it harder to get patents several years ago, the result was to create an enormous backlog of patent applications as examiners would reject applications and applicants would try again (and again, and again) to get a patent. That backlog in turn created its own set of problems, delaying the issuance of good patents and reducing certainty for both applicants and third parties.

Some have suggested that those delays – and the use of continuation applications more generally – are the result of oddities in the system for evaluating and rewarding patent examiners. The so-called "count" system gave credit to examiners for certain acts; patent lawyers often complain that examiners "make" them file continuations in order to boost their counts. Whether or not that was true, however, it doesn't appear to be behind the growth of continuation applications. The PTO changed the count system in 2009 to try to address this problem. And it has been issuing record numbers of patents in recent months. But preliminary data from Dennis Crouch suggests that the number of continuation applications is still on the rise (Crouch, 2010), suggesting that the use of continuations is largely applicant- rather than examiner-driven.

The evaluation of patent applications in the PTO is further complicated by recent empirical evidence. One recent study shows that junior patent examiners are a lot more zealous in weeding out bad patents than senior examiners. The longer examiners spend in the PTO, the less searching they do, the more likely they are to grant patents, and the more likely

they are to grant patents on applications that their counterparts in other countries have rejected. (Lemley & Sampat, 2010) A second study shows that whether senior or junior, examiners pay attention almost exclusively to prior art that they find themselves, and not to information submitted by patent applicants, even applicants who are passing on art found by patent examiners in other countries. (Cotropia et al., 2010) The implication of this evidence is that we need to pay attention not only to legal rules, but also to examiner behavior and reward systems.

II. Can the Problem Be Solved?

How, then, can we fix the PTO, allowing examiners to effectively distinguish between patentable and unpatentable inventions, without slowing the process to a crawl or wasting a bunch of money?

A. What Won't Work

First, some things that likely won't work.

Preventing fee diversion. The PTO is funded through user fees imposed on applicants and owners of issued patents. For much of the last twenty years, some of that fee revenue (typically 10-20% of it) has been diverted by Congress to general federal revenue. It is a commonplace among patent lawyers that the way to solve the PTO's problems is to stop fee diversion, "fully funding" the PTO.

Stopping fee diversion is certainly a good idea. Whatever the merits of government user fees over taxes as a general matter, it seems particularly foolish social policy to tax innovators in particular to raise general revenue. But stopping fee diversion is hardly a panacea. In the

last several years, the PTO has been fully funded – that is, Congress didn't divert fees. Nonetheless, the backlog grew. The addition of 10-20% of operating revenue wasn't enough even to enable the PTO to hold steady.

Fee-setting authority. In recent years the PTO's efforts have shifted to seeking permission from Congress to set their own fees. (Rai, 2009). This would allow the PTO to (presumably) raise fees on applicants and patentees, using the money to pay for a more intensive examination. There is some reason to believe that fee-setting authority, if nothing else, may result from the six-year patent reform effort in Congress.

Giving the PTO the authority to set its own fees might or might not be a good idea, depending on the relative incentives the PTO and Congress have to set fees rationally. But as noted above, it is likely not a good idea simply to spend more money to weed out bad patents. Most of that money will be wasted on applications that are of no consequence to anyone. And because of the structure of the examination system, it might not even succeed in weeding out bad patent applications.

Even if it did, however, the current fee structure makes patent quality self-limiting. The PTO is paid by applicants to process their applications at each stage. But those payments are not enough even to sustain the limited examination that now occurs. The difference is made up by patent "maintenance fees" – periodic payments made by the owners of issued patents to keep those patents in force. Because the PTO's ability to examine new applications is dependent on revenue from previously granted ones, the PTO faces a problem: the more bad applications it rejects, the fewer patents will pay maintenance fees, and the less money it will have to conduct a detailed examination. The PTO ran into this problem in the late 2000s, when

– as a result of a lowered grant rate coupled with companies abandoning patents in the recession – it found itself in a financial crisis. The broader lesson should be clear: the current system for funding the PTO works only if the PTO continues to issue patents on a large percentage of the applications it receives.

The PTO might begin to address this problem by changing the way it collects fees. At one extreme, it could abandon maintenance fees altogether, and pay for enhanced examination through higher application fees. That solves the self-limiting problem, but it raises the cost to start-ups seeking patents at an early stage of development, which may not be ideal. Alternatively, the PTO could simply raise the maintenance fees significantly, to perhaps ten times their current rate. Doing so might make the weeding out of bad patents revenue neutral, though as more bad applications are rejected the tax on those who actually obtained patents would have to increase further to compensate. And the higher the PTO raises its maintenance fees, the fewer people will choose to maintain their patents. Depending on the elasticity of demand, paying for examination out of higher maintenance fees may or may not work.

Some have suggested raising maintenance fees for a different reason – to prevent patent lawsuits by trolls who buy up patents in order to enforce them. But that is unlikely to work. Patent litigation costs millions of dollars. (AIPLA Report, 2009) (reporting median cost of $5.5 million per side in attorney's fees to take a major patent case to trial). A maintenance fee of $40-50,000 – ten times the current fee – may weed out more patents that aren't being used,

but it is unlikely to deter someone considering spending perhaps 100 times that much to litigate a patent. And the patents that aren't being used aren't really the problem.[3]

Retaining patent examiners. Another problem commonly cited by patent lawyers is the high rate of turnover at the PTO. Being an examiner is not an easy job, and it doesn't pay all that well. Not surprisingly, therefore, examiners often leave relatively quickly for jobs in engineering, jobs in law firms, or to go to law school. Indeed, one recent study found the median examiner had been at the PTO for just over three years. (Lemley & Sampat, 2010) The high rate of turnover means that the PTO needs to hire over 1000 examiners a year just to keep even with attrition. In recent years the PTO has found it virtually impossible to grow the examining corps. And of course those new examiners must be trained. Perhaps the solution to the PTO's problems, then, is to find ways to keep those examiners from leaving,

There may well be benefits to reducing examiner attrition. But the evidence suggests that weeding out bad patents is not among them. Empirical research by Lemley and Sampat shows that the longer examiners spend at the PTO, the less searching they do, the less likely they are to issue initial rejections or demand claim amendments, and the more likely they are to ultimately grant a patent. (Lemley & Sampat, 2010). It is the most junior examiners who are most likely to reject applications. The reason is not precisely clear, but may have to do with increased workloads on senior examiners, or with acculturation into a corps whose ethos is to grant rather than deny patents. Either way, keeping examiners around longer may hurt rather than help the cause of weeding out bad patents.

[3] Raising maintenance fees would weed out patents that sit on a shelf now but might be sold in the future to a troll that will assert them against product companies. In that limited sense it might reduce the number of troll lawsuits.

Outsourcing search. Reacting both to workload and to a sense that examiners don't find the most important prior art, a number of initiatives both within and outside the PTO have tried to relieve examiners of the burden of searching for prior art. They have variously proposed to require the applicants to do their own search for prior art,[4] to invite the public to review applications and submit prior art (Noveck, 2006), or to share the burden of searching with patent examiners in other countries. These initiatives seem promising because they outsource a function examiners don't seem particularly good at – finding the most relevant information on the ground – to others who are positioned to do it better.

But recent empirical evidence suggests that it might not work. Cotropia et al. studied the behavior of patent examiners in responding to applications, and found that they rely almost exclusively on art they find for themselves, not art submitted by applicants. And that doesn't appear to reflect either applicants drafting around the art they found or the weakness of that art; U.S. examiners largely ignored even art that was submitted because it was found important by a foreign patent examiner during examination of a counterpart application. (Cotropia et al., 2010). If examiners are psychologically primed to rely principally on things they find for themselves, it won't help to have others provide them with the best art. And it might even hurt, causing examiners not to focus on the best prior art.

B. What Might Work

[4] There is currently no such requirement.

The problems with the PTO are deep rooted. Throwing money won't solve the problem of bad patents, and a variety of other commonly-suggested fixes for the PTO are unlikely to solve the problem, and indeed could even make it worse.

Other proposals have a greater chance of addressing the problem of bad patents, though they come with their own uncertainties.

Second Pair of Eyes. Shortly after the Federal Circuit held business methods patentable in 1998, the PTO was inundated with business method patent applications. Most of those applications went to class 705. Indeed, by 2001 class 705 had the largest application volume. In response to this flood, the PTO initiated a specific "quality control" measure in this class in March 2000: the "second pair of eyes" review (SPER), under which applications are subjected to mandatory assessment by more than one examiner before being allowed. (Allison & Hunter, 2006). Requiring two examiners to agree seems to have had a dramatic effect: a 2009 study found that class 705 has the lowest grant rate among high volume classes. (Lemley & Sampat, 2008). One possible explanation for the low grant rate in this class is that the second pair of eyes is working, and that the grant rate reflects better rigor during examinations, rather than application volume.

The fact that SPER leads to more rejections in Class 705 doesn't mean it is an unalloyed success, however. Allison and Hunter demonstrate that its adoption in Class 705 led applicants to try to characterize their business method patents in ways that got them out of Class 705. It is possible that the applications that were not so characterized were systematically weaker (or their lawyers systematically less skilled) than the ones that avoided Class 705. The differences

Lemley and Sampat found were so striking, however – a 16.1% grant rate in Class 705, compared with 72% on average – that it seems unlikely this can explain the full difference.

Allison and Hunter's objection is significant. But it applies only to a class-specific use of SPER, and wouldn't condemn a broader application of the policy to all art units. Nonetheless, there are reasons to think carefully before expanding SPER to all patent applications. Doing so would roughly double the cost of patent prosecution across the board. It would also delay the prosecution process further; class 705 applications are among the slowest to be processed. Further, at least as currently configured, SPER is asymmetric – it requires a second hurdle before allowing patents but not before rejecting applications.[5] As a result, it is likely to weed out bad patents, but also to catch some good ones within the net of rejected applications. Given the PTO's historic bias in the other direction, perhaps that is a risk worth taking, but it is still a social cost we should avoid if we can. If SPER or some other review process is to be adopted, it should apply even-handedly to grants and rejections.

Interestingly, the PTO recently shut down the SPER program in business methods. Too much success, it seems, carries its own risks.

Changing Examiner incentives. Recent empirical evidence suggests that much of the problem with patent examination revolves around examiner incentives and human resource policies. Examiners do less well at policing bad patents the longer they stay at the PTO. The problem could be their distance from the technology, or a tenure effect, or their increased workload. In any case, changes in training, workload, or promotion rules could affect those

[5] There is a similar problem with the PTO's quality review mechanism, which reviews a random subset of grants. Examiners can be punished for mistaken grants if caught in the quality control process, but are not punished for mistaken rejections, which are never reviewed. (Katznelson, 2010).

incentives. Examiners pay attention to their own searches, and not prior art submitted by others. The problem could be overconfidence bias, or simply triage. Either way, human resource policies could be brought to bear, training examiners to search better, or giving them more time, or finding other ways to debias them. And it seems obvious – though likely politically infeasible – that the rules should not treat allowances differently than rejections. (Katznelson, 2010).

These are good ideas, and they are worth exploring further. But implementation may be politically difficult. And some of the possible explanations point in different directions: should we give examiners more time to search, or less, for example?

Tiered review. The problem is not precisely that the Patent Office issues a large number of bad patents. Rather, it is that the Patent Office issues a small but worrisome number of economically significant bad patents and those patents enjoy a strong, but undeserved, presumption of validity.

Framed this way, the solution naturally follows: The Patent Office should focus its examination resources on important patents and pay little attention to the rest. But it is difficult for the government to know ahead of time which patents are likely to be important.

There are two groups, however, that have better information about the likely technological and commercial value of inventions: patent applicants and competitors. To harness information in the hands of patent applicants, we could give applicants the option of earning a presumption of validity by paying for a thorough examination of their inventions. Put differently, applicants should be allowed to "gold plate" their patents by paying for the kind of

searching review that would merit a presumption of validity. (Lemley et al., 2005) An applicant who chooses not to pay could still get a patent. That patent, however, would be subject to serious—maybe even *de novo*—review in the event of litigation. Most likely, applicants would pay for serious review with respect to their most important patents but conserve resources on their more speculative entries.[6] That would allow the Patent Office to focus its resources, thus benefiting from the signal given by the applicant's own self-interested choice. The Obama campaign proposed this sort of tiered review, and the PTO has recently taken a step towards implementing a scaled-down version, in which applicants can choose the speed but not the intensity of review.[7]

Tiered review is only as good as the examination process that creates it, however, and if "gold-plated" patents are too easy to obtain, the point of the system will be lost. If they are too hard to obtain, or too expensive, no one will use the system. Further, tiered review can at best be only a partial solution, because applicants do not always have accurate information about the future value of their applications. These are real objections, but they do not undermine the value of some sort of targeting in the use of PTO examination resources.

Oppositions and adversarial evaluations. Competitors also have useful information about which patents worry them and which do not. A post-grant opposition system would harness that information. Post-grant opposition is a process by which parties other than the applicant would have the opportunity to request and fund a thorough examination of a recently issued patent. A patent that survives collateral attack would earn a presumption of validity

[6] For a more detailed working out of the tiered review proposal, see Lichtman & Lemley, 2007.

[7] Unfortunately, that proposal came with a bias against foreign applications that makes little sense as an economic matter, and may also render it suspect under U.S. treaty obligations.

similar to the one available through tiered review. The core difference is that the post-grant opposition would be triggered by competitors—presumably competitors looking to invalidate a patent that threatens their industry.

Like tiered review, post-grant opposition is attractive because it harnesses private information; this time, information in the hands of competitors. It thus helps the Patent Office to identify patents that warrant serious review, and it also makes that review less expensive by creating a mechanism by which competitors can share critical information directly with the Patent Office. (Lemley et al., 2005) A post-grant opposition system is part of proposed patent reform legislation, but at this writing it seems unlikely to pass.

Patent law already has mechanisms that could be used to achieve the same goal. Some issued patents are returned to the PTO after issuance and are reevaluated through an adversarial process known as *inter partes* reexamination. This is an evaluation to which some deference is appropriate, though today the law gives complete deference to that determination. Even traditional ex parte reexamination, while not truly adversarial, allows the filer to submit an initial explanation of the reasons for reexamination, and the result has been that in recent years patents fare worse in reexamination than applications do in initial examination.

The biggest risk with post-grant opposition and related systems is that we give challengers too many bites at the apple, allowing them to inundate patentees with an endless set of challenges. To solve that problem, it is appropriate to place some limits on the number

and perhaps the timing of challenges, and to imbue patents that survive those challenges with a strong presumption of validity.

C. Living With Imperfection

The reform proposals identified in the last section are a start. They will likely improve the prosecution process and help to weed out bad patents, and most will do so at an acceptable cost. But none of them will solve the problem of bad patents, or even come especially close to doing so. Part of the process of patent reform must involve acknowledging the inherent imperfections in the patent examination process, and adapting to those imperfections.

In particular, we will continue to rely on litigation for the foreseeable future as a primary means for weeding out bad patents. That is as it should be. Litigation elicits information from both patentees and competitors through the adversarial process, which is far superior to even the best-intentioned government bureaucracy as a mechanism for finding truth. (Lichtman & Lemley, 2007). More important, litigation is focused on the very few patents (1-2%) that turn out to be important and about which parties cannot agree in a business transaction.

Litigation can be abused, and examples of patent litigation abuse have been rampant in the last two decades. But a variety of reforms have started to bring that problem under control, and the courts have the means to continue that process. (Burk & Lemley 2009).

Part of the process must include a realistic recognition of the shortcomings of the patent prosecution system. In particular, courts should weaken the presumption of validity for issued patents. A presumption like that embraced by the current "clear and convincing" standard must

be earned, and under current rules patent applicants do not earn it. We should replace that high hurdle with a more appropriate level of deference such as the "preponderance of the evidence" presumption currently given trademarks and copyrights, in recognition of the fact that the scrutiny given patents doesn't warrant more. And we should apply the presumption with some eye toward reality. The current presumption is so wooden that courts today assume a patent is valid even as against evidence that the patent examiner never saw, much less considered, a rule that makes no sense. (Lemley et al., 2005; Lichtman & Lemley, 2007).

But the presumption of validity should be dynamic, not static. Improvements to the patent prosecution process might justify a stronger presumption. In particular, surviving more extensive scrutiny, whether by opting into tiered review, being subject to an opposition proceeding, or perhaps even getting approval from two examiners rather than one, should justify a stronger presumption. A dynamic presumption will allow the courts to play their proper role as the guardians of the public interest while encouraging applicants and the PTO to shoulder their burden as well.

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