SPECIAL REPORT

High hopes for US patent reform

Lawmakers may be nearing agreement on how to fix the nation's crumbling patent system, reports **Heidi Ledford**.

Robert Budens has worked for the United States Patent and Trademark Office (USPTO) for 19 years. As an examiner in the field of immunology, he has scrutinized more than 1,000 patent applications, ranging from HIV vaccines to antibody therapies. For each patent, he has roughly 20 hours to read the application, search through databases to check if someone else has come up with the idea before, and write a 20-page report on his findings. It's like being back in school, he says from the patent office's gleaming headquarters in Alexandria, Virginia, "except that nearly every day I have to write a term paper from scratch". One year, he says, he worked for six months without a day off so that he could keep up with his workload.

The USPTO stands at the centre of a patent system in crisis. Examiners labour under a quota system that was developed in 1976, during a simpler technological era. Today, these quotas force examiners to race through applications in a system that, critics say, grants all too many obvious or overlapping patents. Yet the backlog of unexamined patents continues to grow, climbing from around 470,000 in 2003 to about 770,000 in 2008. During the same period, patent applications increased from about 355,000 to 495,000 a year (see graph). Applicants must wait about 2 years before their patent is reviewed — particularly troublesome to start-up companies who rely on patents for financial leverage. It is hardly surprising that the USPTO is haemorrhaging staff: a 2007 survey found that for every two examiners the office hired, one left the organization.

But after years of failed attempts at reforming the US patent system, the next few months could see its first major overhaul in more than 50 years. Two bills to fix the system were introduced in early March in the Senate and the House of Representatives; similar bills have previously failed to win approval, but experts say there is a real chance this year that the legislation will pass.

Democrat and Republican lawmakers alike have long supported patent reform in principle, but previous legislation failed because of competing interests from two camps that stand to win or lose the most from patent reform. On one side stand those who rely on strong patents to protect their significant investments

in research and development — including universities, biotechnology companies and the pharmaceutical industry.

On the other side are many technology businesses, including microelectronics, information-technology and software firms, who feel trapped in a thicket of incremental and sometimes low-quality patents. For these sectors, in which a single product may contain more than 100 patented components, patents are often considered a nuisance. Infringement of a patent, even when unintentional, leaves companies vulnerable to a lawsuit. There is also a small but growing industry of 'patent trolls' who buy obscure patents for the sole purpose of suing infringers.

So the technology industry has lobbied Congress to change how monetary awards are calculated in patent lawsuits, suggesting that juries should take into consideration the relative contribution of a patent to the value of the

finished product. As included in earlier versions of the congressional bills, this stipulation could reduce the damages paid in a lawsuit over a piece of consumer electronics, for example.

But a study released this year — commissioned by the Manufacturing Alliance on Patent Policy, a coalition of industries campaigning against the changes — claimed that the bills could devalue US patents by as much as \$85.3 billion, making companies less likely to invest in research and development, possibly resulting in the loss of up to 298,000 manufacturing jobs.

The argument over damages has been a barrier to patent reform in the past, contributing to the downfall of two patent reform acts

The US Patent and Trademark Office: welcome to patent mountain.

introduced as recently as 2005 and 2007. To avoid this happening again, the Senate judiciary committee removed the damages proposal from the latest bill on 2 April, and voted in favour of the legislation by 15 to 4. The bill will now face a vote by the full Senate, and the House of Representatives must also approve the measure for the reform to be enacted.

Those opposed to the damages provision say its removal is a major breakthrough in moving patent reform closer to reality. "We believe the committee's product breaks the logjam on the major issues that have held up patent reform for the past several Congresses, and will clear the path for a bill to be completed without undue delay," says James Greenwood, president of the Biotechnology Industry Organization in Washington DC.

But some felt that the damages provision was a key reform. Mark Lemley, a professor of law at Stanford University in California, and a patent attorney who has represented companies from the information technology and biotechnology sectors, argues that the measure would have had little effect on universities and the pharmaceutical industry, yet would have relieved some pressure from excessive lawsuits in the technology sector. "It's the right solution," he says. "The goal of the measure is not to reduce damages, the goal is to make sure the damages are in line with what the value of the patent actually is."

Supporters of damages reform may have to rely on the judicial system for change: an ongoing lawsuit over how damages were apportioned in a case between Lucent Technologies and the computer manufacturer Gateway is likely to be

SOURCE: USPTO

heard this summer, and could set a new legal precedent for how such awards are determined. "Right now, what we really need to do is to fix our patent office," says Arti Rai, a professor of law at Duke University in Durham, North Carolina. "I hope that goal doesn't get held up by the debate over damage apportionment."

Changes afoot

Abandoning the controversial damages provision may have freed lawmakers to approve much-needed but less-contentious changes to the USPTO. One long-awaited change would bring US patent law into alignment with that in other regions, including Europe and Japan, allowing the office to issue patents based on who first filed the application, rather than on who first came up with the invention. Another uncontroversial move is to give the patent office, as opposed to Congress, the ability to set its own fees. But the legislation does not guarantee that the office will be allowed to keep the fees, which are used to fund its operations, notes Rai. The USPTO's budget — \$1.92 billion in 2008 — has been increasing steadily over the past few years, but between 1992 and 2000, lawmakers diverted \$750 million in fees away from the office to fund other programmes.

Improving patent quality is an important goal for the US system. Examples of spurious patents, such as that of an 8-year-old boy who was awarded a patent for his method of swinging on a swing, highlight the problem that some companies face when obvious methods or products are deemed patentable. "The quality of the examination process is perceived as being much lower in the US patent office than the European Patent Office," says economist Bruno van Pottelsberghe of the Free University of Brussels.

One reason for this discrepancy, says van Pottelsberghe, is that the USPTO is not well funded relative to the large caseload it carries.

Economist Scott Shane of Case Western Reserve University in Cleveland, Ohio, author of the 2009 study that analysed the likely impact of the reforms on behalf of the Manufacturing Alliance on Patent Policy, believes that the solution to the patent problem is simple: "Stop starving the patent office." Additional funding would, in theory, let the USPTO recruit more examiners, lessen the workload on each examiner, and increase the quality of the examination process.

But a push to improve the quality of review may have had unwanted consequences. The USPTO has decreased the rate at which it approves patent applications from more than 70% in 2000 to 42% in the first quarter of 2009. The office receives about 50% of its income from patent issuance and maintenance fees. This drop in funding, coupled with a decline in patent applications owing to the ongoing worldwide economic crisis, has left the USPTO with a budget crisis. In response, the agency has instituted a hiring freeze, curtailing its programme to hire 1,200 additional employees each year.

Meanwhile, working conditions at the agency have posed a problem for employee retention. Two-thirds of the examiners who left cited the agency's production quotas as a primary reason for their departure. Although the USPTO has hired a consultant to evaluate the recruitment

programme, this is only part of the problem. "It's really asking patent examiners to do an impossible job by being experts across all of these different technologies," says Josh Lerner, an economist at Harvard Business School in Boston, Massachusetts. "The only real solution is to open up the process to get more input from the outside."

The US patent system limits outside input, and that is also why the quality of US patents has suffered, says economist Dietmar Harhoff of Ludwig Maximilians University in Munich, Germany. There is more interaction between patent examiners and applicants in Germany, and a post-grant examination process allows others to challenge a recent patent without filing a lawsuit. Some 7% of German patents are challenged, and a third of those are then revoked. "These are cases that will then never cause a litigation problem," says Harhoff. The proposed US patent-reform legislation would create a similar post-grant challenge procedure.

The USPTO launched a voluntary pilot programme in 2007 in which patent applications are posted online for comment on an independent website called Peer-to-Patent. The office notified 22,000 eligible patent applicants about the programme, but only 143 volunteered. Of those applications, 56 have since received at least some official review at the office; 7 of these were rejected based on prior discoveries unearthed by 'peers' that

were missed by patent examiners. Lerner says the patent office should make participation in the programme mandatory, but there are also concerns that some industries — notably the biotechnology and pharmaceutical sectors — would not support discussion of their patents in an open forum.

The USPTO could maximize its use of limited resources by focusing its efforts on patents that are more likely to be troublesome, says Lemley. Only a small percentage of patents are ever litigated, and these are most frequently in the software and telecommunications industries, he has found. In-depth searches

for 'prior art' — evidence that the invention has already been patented or is obvious and does not deserve a patent — could be focused on these problem areas. "So an 8-year-old gets a patent for swinging a swing," says Lemley. "It makes the news and everybody mocks it, but he's not going to sue anybody. Maybe it's not so bad that we didn't spend more money looking for prior art on that one."

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