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PATENT CRISIS

★ ★ ★ ★ AND ★ ★ ★ ★

HOW THE COURTS
CAN SOLVE IT

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Dan L. Burk & Mark A. Lemley

*The Patent Crisis
and How the Courts
Can Solve It*

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The Patent Crisis and How the Courts Can Solve It

Preface

This project has been more than a decade in the making. It began with a discussion we had in the Cayman Islands about the different ways courts were treating DNA and software cases. That discussion led to two articles—“Is Patent Law Technology-Specific?” in the *Berkeley Technology Law Journal* and “Biotechnology’s Uncertainty Principle” in the *Case Western Law Review*—that discussed the differences in judicial treatment of patents in different industries. It also led to a broader discussion about industry-specific differences in the patent system, including differences in the economics of innovation and differences in how theorists conceive of the patent system. That broader conversation led to a third article, “Policy Levers in Patent Law,” that appeared in the *Virginia Law Review*. This book has grown out of that third article and represents our effort to present the basic idea to an audience beyond law professors and tie it to the current fight over patent reform. We also hope to flesh out the economic analysis, discuss the rapid changes that have occurred since 2003, and respond to skeptics.

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A Note on Usage. We refer to intellectual property rights collectively as “IP” rights throughout the book. There is considerable debate over whether IP rights are in fact “property” in any meaningful sense. We don’t intend to engage in that debate here, but neither do we want to perpetuate the controversial assumption that they are by using the term.

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PART ONE

The Problem

The Gathering Storm

The patent system is in crisis. The consensus in favor of strong patent protection that has existed since the 1982 creation of the Federal Circuit, the appeals court that hears virtually all patent disputes in the United States, has broken down. Patent owners—and the Federal Circuit itself—are beset on all sides by those complaining about the proliferation of bad patents and the abuse of those patents in court. Congress, the Federal Trade Commission, the National Academy of Sciences, industry leaders, the press, academics, and even the Patent and Trademark Office (PTO) itself have all gotten into the act. They point to example after example: silly patents granted by the PTO; lawsuits filed by people who invented something decades ago against companies who do something very different today; patent claims so confusing that no one can be sure what the patent covers, even after a district court holds hearings on the subject; and the ability of those who own a patent on a small component to get control over most or all of a much larger product.

Whether you think this crisis is real, or is instead a crisis of perception, probably depends on where you sit. There is a reason we are hearing this firestorm of criticism; the problems and examples are real. But the patent system described above—the one in crisis—is not the only one. There is another patent system in the United States today, one in which claims are clear, patents are subject to significant scrutiny, and strong protection is necessary to allow companies to recover hundreds of millions of dollars in investment. The prototypical industry that operates in this second patent system is the pharmaceutical industry, but other industries, including medical devices and chemistry, look more like this as well.

Talk to lawyers or businesspeople at technology companies about the patent system, and you will quickly get a sense of our two different patent

systems. In the pharmaceutical industry, there seems to be a strong consensus (at least among innovative rather than generic pharmaceutical companies) that patents are critical to innovation. Their only complaint is that patents aren't strong enough. They don't last long enough to compensate for FDA delays, and the uncertain or probabilistic nature of patent scope and validity leaves them with uncertain protection for their enormous investment. Those in the biotechnology industry also see patent protection as critical to their survival, though they may also worry a bit about how the many different upstream patents owned by others might affect their ability to produce products at the end of the day.

Lawyers and executives in the information technology industries, by contrast, almost invariably see the patent system as a cost rather than a benefit to innovation. Even companies with tens of thousands of patents generally use those patents only "defensively," to minimize the amount they must pay other patent owners to permit them to sell their products. Ask most of these companies and in their candid moments they will tell you that they would be better off without any patent system, or at least with one that was radically changed and that left them alone to innovate.

Any doubts that the patent system is perceived by different industries in fundamentally different ways were dispelled during the course of congressional debates over patent reform in the four years beginning in 2005. The reform process ground to a halt because different industries couldn't agree on a single principle of reform. The reforms the pharmaceutical and biotech industries wanted—harmonization on first to file, the elimination of the best mode requirement, and the weakening of rules against inequitable conduct—were opposed by the IT industries. At the same time, the things the IT industry wanted—reforms to limit damages and injunctive relief in patent holdup settings, and an effective administrative process to oppose patents—were anathema to the biomedical industries.

Something very important is going on here. When some of the most innovative companies in the world think that they would be better off without a law whose entire purpose is to promote innovation, policymakers should sit up and take notice. At the same time, the fact that other innovators clearly rely on patent protection to fund research and development means that we can't simply get rid of the system. Clearly, patents are doing good in some circumstances, but they are also doing harm in others. Why is it that different industries focus on different effects? What should we do about it? Our effort to think through these problems is at the heart of this book.

We think that the problem is deeper than a question of which companies are on which side of particular cases at any given time. The economic

evidence is overwhelming that innovation works differently in different industries, and that the way patents affect that innovation also differs enormously by industry. The question for patent policy is how to respond to those differences. In this book we suggest that the courts, not Congress, are best situated to deal with these differences, and indeed that they already have the tools to do so, provided they have the self-confidence to use them.

We hope, in short, to convince the reader of three things: (1) that a purely unitary patent system no longer fits the extraordinarily diverse needs of innovators in today's technology industries; (2) that the solution is not to split the patent system into industry-specific protection statutes, but to tailor the unitary patent rules on a case-by-case basis to the needs of different industries; and (3) that it is the courts, not Congress or the PTO, that are best positioned to do this tailoring.

Saying that the courts should have the power to tailor patent law to the needs of different industries will raise the hackles of many. To some, it smacks of judicial activism and raises questions about the institutional competence of the courts. To others, even those happy with the courts in charge, industry-specific rules will seem unworkable or a recipe for business uncertainty. We will consider these objections in detail later in the book, in chapter 8. But first, it is important to establish the need for such a system. We therefore begin in chapter 3 by examining the overwhelming evidence that innovation generally, and the relationship of patents to innovation in particular, differ by industry. A truly "unitary" patent law would therefore treat unlike things alike, which is neither fair nor likely to best encourage innovation across the range of industries. We then discuss the wide variance in theories of the patent system, pointing out how neatly they map to the different needs and understandings of different industries. Significantly, we explore the myriad ways in which the courts *already* treat innovation in different industries differently. The question, therefore, is not whether we should retain a unitary patent system—we don't have one now. The only question is whether we should acknowledge and embrace these differences, try to weed them out by fundamentally changing the law, or let the industry-specific characteristics of patent law develop accidentally. Given these alternatives, we think the right choice is clear.

We turn next to the most common objection to this flexible, industry-focused patent system: the idea that courts can't, or shouldn't, make these determinations. It is true that courts face some significant limits in their ability to tailor patent law to the needs of particular industries. But all advantages are comparative, and we suggest that neither the option of rigid uniformity nor the alternative of letting Congress or the PTO divide up

the patent system is particularly attractive. A patent system that lacks the flexibility to deal with the radical differences between industries will break rather than bend. And a patent system whose only flexibility depends on particular industries lobbying Congress for specialized rules is unlikely to produce desirable rules. Certainly the lessons of recent efforts at patent reform are not encouraging for those who would rely on Congress.

The balance of the book begins the process of fleshing out our vision of a modular patent system. We begin in chapter 9 with some of the many industry-specific “policy levers” that courts now use to tailor the nominally unitary patent system to the needs of different industries. We talk about the ways courts in the last few years have begun to create new policy levers that treat different industries differently, and how those recent changes will alleviate some of the pressure that threatens to fracture the patent system. We then discuss in chapter 10 some other levers that courts have the power to use but currently do not, and some things Congress could do in the course of patent reform to facilitate the use of policy levers by the courts.

Some of the consequences of policy levers are fairly clear, especially for the two industries that today exist at opposite poles of the patent system—pharmaceuticals and information technology. But policy levers will also apply to other industries with more complex characteristics. As a result, in chapter 11 we offer preliminary assessments of the economics of one such industry—biotechnology—and discuss how policy levers can and do apply in biotechnology. Chapter 12 does the same for the information technology (IT) industries.

Our goal in these chapters—and in the book as a whole—is not to offer the last word in how the patent system works in different industries. Rather, it is to begin a conversation about how the patent system can best adapt to the diversity of the modern world. If we don’t have that conversation in policy circles—and have it soon—the future of the patent system, and of the technological innovation that historically has flowed from the patent system, will be bleak indeed.

Foundations of the Patent System

The legal bundle of exclusive rights that we call a patent functions within a complex system of interlocking judicial, administrative, and legislative institutions. Much of the discussion of patents and innovation in this book takes for granted the background of the practices associated with these institutions. Readers who are familiar with the institutions and practices of the patent system may want to skip over this chapter, or skim it briefly to refresh their recollection. But for those who may be less familiar with the patent system, in this chapter we provide a brief overview of the legal and textual characteristics of the documents we call patents, as well as the institutions involved in granting and enforcing them. We focus primarily on the United States patent system, although with some local variation most of the features we discuss will be common to other patent systems around the world.

To decide whether this chapter is for you, take this simple test. Read the following four terms, and ask yourself honestly whether you know what they mean to a patent lawyer: anticipation, enablement, prior art, interference. If you know what these terms mean, skip this chapter: you'll be bored. If you don't know what they mean—if "anticipation" means only that you look forward to something, and "interference" only that someone is preventing you from enjoying it—by all means read on.

Why We Protect Inventions

The idea behind the patent system is simple: invention is a "public good" because it is expensive to invent but cheap to copy those inventions. If we don't

do something to encourage invention by rewarding inventors, everyone will want to be an imitator, not an inventor.

At the same time, patents represent a significant departure from the norm of market competition. A patent gives its owner a legal right not only to prevent others from copying her idea but even the right to stop independent inventors from continuing to use ideas they developed themselves. So patents can not only encourage innovation, they can also interfere with it. And even if they don't, encouraging innovation by giving exclusive rights raises the cost of products to buyers. Drugs, for example, cost five to ten times as much when they are patented as they do when the patent expires and the drug manufacturer faces generic competition.

We cannot, then, think of patents as some sort of moral entitlement to one's invention. Rather, patents are deliberate government interventions in the market—a sort of mercantilist economic policy for artificially stimulating innovation. We think that this economic policy is on balance a good one. We need innovation, and in the long run we need it much more than we need price competition for existing goods. (If you don't believe us, ask yourself whether you'd rather have an iPod monopolized by a patent-owning Apple or very cheap eight-track tapes manufactured by a variety of companies in market competition). But the patent system is (and should be) designed to give sufficient incentive for invention, not perfect control. Perfect control does more harm than good. The result is that patents are limited in various ways—they expire after twenty years, for example—and that we must exercise care not to grant patents to people who don't deserve them or to grant rights broader than what the patentee actually invented.

The Nature of Patents

Intellectual property (IP) rights exist in many forms, but patents have distinct legal characteristics that distinguish them from other forms of IP, such as copyrights, trademarks, or trade secrets. Unlike copyright, which is primarily designed to protect aesthetic and artistic creations, or trademarks, which protect signifiers that allow consumers to identify the origins of goods and services, patents are specifically addressed to functional or utilitarian creations. In the United States, Congress has created a general class of patents, known as “utility” patents, and two specialized types of patents: plant patents, which cover asexually reproducing plant varieties (35 U.S.C. § 161.), and design patents, which cover nonfunctional product designs (35 U.S.C. § 171). These latter specialized patents are subject to some of the same rules as utility patents, but also have certain idiosyncratic quirks

adapted to their specific subject matter. When most people speak of patents, they mean utility patents, and those more common patents are the focus of this book.

Utility patents may cover any new or improved machine, article of manufacture, composition of matter, or process (35 U.S.C. § 101), as long as the subject of the patent meets certain statutory criteria for novelty (35 U.S.C. § 102), nonobviousness (35 U.S.C. § 103), and utility (35 U.S.C. §§ 101, 112), and the inventor has adequately disclosed the invention. In the United States, the scope of potentially patentable subject matter has been extended quite far, to include living organisms, business methods, and anything else under the sun made by humans. The broad scope of patentability is controversial in many other countries, and has come under increasing fire here. Laws or products of nature that have not been created or altered by humans continue to be excluded from patent protection, even in the United States. But with that exception, “anything under the sun made by” human effort is patentable.¹ That broad conception of patentable things has brought patent disputes to many industries that were not traditionally affected by patents, including software and financial services. In doing so, it has contributed to the division in the patent system that is at the heart of our book.

Patents also differ substantially from other forms of IP in the way in which they are created. Many forms of IP protection arise spontaneously with the use or creation of the item protected. For example, in the United States copyright attaches to works of original expression at the moment the work is fixed in a tangible medium (17 U.S.C. § 102). Trade secrecy attaches to any valuable business information that is kept reasonably undisclosed from competitors. Trademark rights arise as the mark is used in commerce and becomes associated in the minds of consumers with a particular good or service. Patents, however, cannot come into being automatically. A patent right exists only if granted by the federal government after a review of the claimed invention to determine whether it meets relatively rigorous statutory criteria (35 U.S.C. § 131).

To facilitate this examination process, a federal agency, the Patent and Trademark Office (PTO), has been organized to review applications for patents (35 U.S.C. § 1). Inventors who wish to obtain a patent must submit an application to the PTO that sets out the nature and details of the invention to be covered by the patent (35 U.S.C. § 111). This application and review process is termed the “prosecution” of the patent. Prosecution is not especially rigorous—the PTO is inundated with applications, and spends no more than sixteen to eighteen hours on average examining each application—but it can take three or more years to get a decision from the PTO.

Patents cannot be obtained for inventions that have already been published or disclosed to the public or are in public use (35 U.S.C. § 102[a]). In much of the world, patents follow a standard of absolute novelty—any disclosure of the invention to the public precludes obtaining a patent. However, the United States gives the first inventor a one-year grace period to file a patent after the invention has been disclosed publicly (35 U.S.C. § 102[b]). Since the clock on the one-year period may be started by someone other than the inventor, possibly even without the inventor's knowledge, this creates a significant incentive for inventors to file an application for a patent as soon as possible, even if they believe they may have a year or more to do so.

Even if the patent applicant is the first to have invented a particular technology, they cannot have a patent on that invention if it is “obvious”—that is, if a scientist of ordinary skill in the field would have been able to come up with the invention without undue experimentation. Finally, the inventor of a new and nonobvious patent must teach people in the field how to make and use the invention, both to prove to us that the inventor herself understood and was in possession of the invention and to make sure that the public can use the knowledge in the patent once it expires.

Anatomy of a Patent

The application for a patent is a highly specialized and stylized document conforming to the rules set out by the Patent Office. These rules allow, and in some cases require, specific elements to be present in the application, most of which also appear in a final published patent. The cover page of the application sets out a variety of classifying and indexing data. The name of the inventor or inventors appears here, as well as the name of any entity to which the patent may be assigned. Information about the date of application, and, eventually, the date and number of patent issue appears here. Numerical designations corresponding to international technological classification categories are set forth. A list of prior art references also appears on this page, as well as an abstract summarizing the features of the invention being claimed.

Patents also generally contain one or more drawings illustrating aspects of the invention and keyed to a textual description of the invention (35 U.S.C. § 113). Typically, a “background” section will describe the state of the prior art, that is, of the technology up to the development of the invention claimed in the patent. The background section will also typically explain or highlight the limitations of the prior art. A description of the invention