Chapter 4

Protecting Intellectual Property – Insights into the Legal Process

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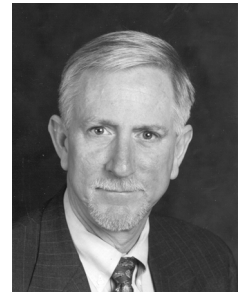

John R. Harris is a Partner in the technology and intellectual property group of Morris, Manning & Martin LLC, and is a registered patent attorney. For the past 29 years, Harris has advised clients in the electronics, computer, financial services and Internet industries on intellectual property matters. As a former computer system design engineer at Harris Corporation (which he said regrettably had no connection to his relations), Harris designed electronic printing, data compression and word processing systems. His experiences as a lawyer range from helping in the early stages of patent programs at Scientific-Atlanta, Microsoft, BellSouth Corporation and Hayes Microcomputer Products, to numerous entrepreneurial startups. Harris has extensive experience counseling clients, preparing and prosecuting patent applications, rendering patent opinions and freedom to operate (FTO) analyses, and negotiating transactions involving various technologies including electronic commerce systems, financial services business models and payment systems, telecommunication technologies including cellular and mobile devices, video signal processing, data compression, computer architecture, medical devices, manufacturing systems, robotics, energy management, visual systems for flight simulation and video gaming, distributed database systems, computer software and many other technologies. He holds a BEE with honors from Georgia Tech, a JD from Emory University School of Law and an MBA from the Goizueta School of Business at Emory University.

Q: Would you describe your practice in terms of the types of cases you handle?

A: I am a full-fledged intellectual property attorney. I handle anything that touches or concerns IP. That means that I represent clients in connection with their patents, trademarks, copyrights, trade secrets and related litigation and licensing. There are five "bubbles," as I describe them, in which intellectual property lawyers work: Acquisition, Maintenance, Enforcement, Transactions and Avoidance. Although I work in all five bubbles, I spend most of my time helping clients with the acquisition of their IP. That's where we work with clients to identify their intellectual property and put the appropriate legal wrappers around it. Once the IP is legally wrapped up, so to speak, it becomes an identifiable asset that a company or individual can own.

Q: To provide some background for our readers, would you explain what the other "bubbles" entail?

A: Once an IP asset has been acquired, you have to maintain it. That's the Maintenance bubble. You have to pay maintenance fees to keep it alive, or sometimes take other actions like filing corrections or showing you are still using a trademark. You can't just let IP sit stagnant on the shelf. There are things that have to be done to it in order for it to preserve its value. Then there is the Enforcement bubble. A lot of people think about IP in order to monetize it and realize its value, and that means sometimes we have to write demand letters or go to court to assert IP ownership rights against infringers. The fourth bubble is Transactions. IP often is valued by engaging in transactions such as licensing or sale. This is also where due diligence-type of work comes in. If a company is being acquired, for example, we help purchasers review the IP of target companies. We also help target companies dress themselves up by getting their IP in order so that they are attractive to prospective acquirers. The same goes for investment deals — I help find and clean up a company's IP so that investors can better appreciate the value of the IP and are more comfortable that their money is protected. And the final bubble is Avoidance. This may be the last on the list, but it is by far not the least important. In this area we assist clients in avoiding the valid IP rights of others. As to patents, I help clients stay away from "OPPs" — Other People's Patents. One of the key things an entrepreneur introducing a new technology has to do is determine if there are existing patents already in the market, and if there are, make sure that the new offering doesn't infringe on those patents.

Q: What type of clients do you represent?

A: We represent small businesses, entrepreneurial startups, medium-size technology companies and a few large technology companies. I enjoy technology almost for technology's sake — I've always been fascinated by science, engineering, math, computers — and somehow the law, too. The technologies I deal with are all over the place — computers, electronics, telecommunications, medical devices, materials science, image processing, engineered lumber, network security and a lot of other things. My practice currently emphasizes small businesses and entrepreneurial technology startups, because quite frankly, I find it more interesting and more exciting to work on. As for the type of clients we work with by sector, my particular emphasis — since I've got a computer and electronics background — is in computers, electronics, Internet and telecommunications, but I have medical device clients, industrial equipment clients and a client with a new kind of engine technology.

Q: Would you elaborate on why you find working with entrepreneurs more interesting?

A: Over the years, I've worked for large companies that have well-developed IP portfolios, but I find them, for the most part, to be rather dull and not particularly innovative. The good stuff seems to come out of entrepreneurial ventures where you've got people who are incentivized on a number of different levels to come up with new products and services. (Except for Apple, which is one of my favorite companies — I really like Macs and iPhones and iPods.) That is not to say that other large companies don't do R&D or don't do it well, but in my experience the more institutionalized a company becomes in its research and development, the more it becomes incremental in its approach to innovation — and that is just not nearly as exciting and fun to work on as an entrepreneurial startup. I think this is reflected in the market by the fact that a lot of medium-size to larger companies find new products and services through acquisitions of startups. They see the entrepreneurial startups that have the new ideas that are unfettered by the bureaucracy and institutional inertia of a larger organization. They see these entrepreneurial folks out there and say those guys have a pretty good idea, but let's see if they make it, let's see if they get far enough along. If they get far enough along and they've got all of the right pieces in place — a good product with a good management team, maybe a few key early customers, a good legal wrapper of IP protection — then they will go and buy them.

Q: Would you give your definition of what intellectual property means from a legal perspective?

A: One way that I like to explain the idea is that companies need what I call "intellectual capital" as a part of their business. That typically consists of two components: People who come up with new ideas and the new ideas themselves, which are, in effect, the intellectual property. You can't have the IP without the smart and creative people, so intellectual capital is the combination of the people and the wrapped-up IP that comes from the people. So, my definition is intellectual capital equals IP — which are all the legal wrappers that are put around the ideas, new products and services — plus the people that come up with those ideas, products and services. You have to address both of those aspects in order to have intellectual capital, which of course becomes one of the most valuable assets that any innovative company can have. Intellectual property, then, is that subset of intellectual capital that pertains to how you go about doing those things I described earlier as the five bubbles. You acquire it, you maintain it, you enforce it, you derive value by transacting with it and you avoid infringing on other people's IP. It is also important to note the kinds of intellectual properties that exist. There are five primary kinds of IP that you can put legal schemes around. As a lawyer, I focus on taking the information I get from clients and seeing where it fits into one of the five categories — it must fit into one if it is going to be recognized by the outside world and readily protected. Those five categories are patents, trademarks, copyrights, trade secrets and a sort of catchall category called "know how."

Q: In this project, we have used the word "innovation" in the title and it is used frequently in the business press. Does innovation itself have any legal connotation in the context of intellectual property?

A: Not really. The word "innovation" is very popular in the press. I use it a lot, clients use it a lot. Nobody really knows exactly what it means. I hear people talk about innovation in a number of different contexts, and most of the time I just think it is wrong. Some people think that innovation is like an invention, but that doesn't quite capture it. According to one definition that I heard, innovation is a new idea coupled with the ability to turn it into value. There are a lot of people with great ideas, but ideas are just ideas. The idea may be novel or it may not be. You can have an idea and 10 million other people can have the same idea — just because someone has an idea doesn't mean that it translates into anything of value. Innovation to me implies that the idea is new, and that someone has taken action to turn the new idea into something of value.

Q: Let's use that discussion to segue into more of the legal aspects of protecting intellectual property. Would you please explain the concept of patents?

A: Patent law requires that three different criteria be satisfied in order to get a patent: A patentable subject matter that is new and non-obvious. The newness and the subject matter relate back to innovation, and then there's this qualifier in the patent laws that relates to the non-obviousness of the concept. I often use the term "inventive concept" to start a discussion about getting a patent. An inventive concept is taking someone's new idea and trying to morph it into an appropriate form that can be put into a patent filing, and you can write a patent claim on it. Once it is in a patent filing, you have a technical description of the innovation or the new idea, how you make and use it, plus the legal language that constitutes the claims of the patent. The claims are the most important part of the patent; they are your verbal expression in writing of the innovation that satisfies the legal requirements to get a patent.

Q: When should an entrepreneur engage an IP attorney?

A: Early and often is about the best answer I can come up with. One of the problems that we often encounter is known as the "bar date" problem. Some clients don't realize that the laws are designed to prompt the early filing of patent applications. If you don't file your application early enough, you can't get a patent. Patents are a compromise in order to promote the progress of science. Inventors are given the exclusive right to their inventions and discovery for limited times, so long as they provide a public disclosure of their invention in a patent filing. That's Article One, Section 8 of the U.S. Constitution. The way that Congress has implemented that constitutional mandate is to say that if you don't file your patent application soon enough, you don't get a valid patent, because we want to encourage people to get their ideas into the public as quickly as possible to start that exclusive time period so that when that period runs out, the public benefits from being able to practice that particular invention. So, we have this one-year bar date rule. If there has been a public use or offer for sale of an invention, or even a printed publication describing the invention, for more than a year, you cannot get a valid patent. So you need to start early to make sure you don't run across this legal bar to patentability.

Q: How should entrepreneurs proceed if they are uncertain about the market potential of an idea?

A: Another aspect of consulting with an IP attorney is to find out whether or not you've actually got a new idea before you spend a lot of money developing the idea. What if someone else is already out there doing the same thing? It doesn't make a whole lot of sense to invest resources in pursuing an idea that's not new. You need to know the prior

art, and I help clients with that. You need to know what else and maybe who else is out there in the same field. Some effort needs to be made to survey the field and to know enough about the field so that it can be readily determined if you have a new invention. We typically suggest one of the first things that clients do is do some kind of a patent search and some kind of a non-patent literature search. The information that prevents you from getting a patent is not just found in the patent literature — it's also found in products that other people have already made and sold, and it's also found in technical articles and technical journals and publications.

Q: In addition to patents, how much emphasis should an entrepreneur place on other ways to protect IP such as copyrights and trademarks?

A: They are all different; they all cover different things. Sometimes an entrepreneur can't get a patent, and sometimes patents are not the right form of protection for a business. Patents cover inventions and that goes back to what we were talking about as innovations and inventive concepts — things that are new and non-obvious and are patentable subject matter. Patents relate to machines, articles of manufacture, compositions of matter and processes. Copyrights cover original works of authorship and those works of authorship are typically things that are created and reduced into a tangible form of expression such as music, plays, books, articles, computer programs, works of art, sculpture and things of that nature. Copyright does not require that there be any kind of a machine or a process. For copyrights, you have to think in terms of someone sitting down with some kind of tool that helps take something in a person's head and expressing it in some kind of a tangible form such as writing a computer program. It gets tricky when you are looking at the intersection between computer technology with respect to copyright laws and patent laws, because you can apply both patent laws and copyright laws to computer programs. There is some overlap in that regard. Trademarks, on the other hand, are a very different animal. Trademarks are words or symbols or colors or smells or shapes or other creative artifices that are used to associate particular goods with a particular supplier. They are brand names. A great example is Coca-Cola. Coca-Cola is not really the generic name of the product itself. The product is brown-colored, flavored, sugar water. But by putting the memorable artifices — having these red scripts on certain shapes of bottles — these different kinds of brandings cause consumers to think of going to a particular place, namely the Coca-Cola Co., to get their particular brown-colored, flavored, sugar water. Trade secrets are about information that is kept secret. It is difficult to put legal wrappers around them, and buy and sell trade secrets by themselves. You usually have to buy or sell a whole company and its

business model that just happens to involve some sort of trade secret process or machine. Trade secrets often involve two legal approaches: Contract relationships between people to keep something protected and to keep it a secret; and by operation of law, in that if you do certain things, like break into someone's facilities and steal their inventions or download their information, then the criminal laws come into effect. Then finally the other category we talked about, "know how," doesn't fit neatly into anything. That is information that's in somebody's head that may not qualify for a patent, but it's not a trademark and not a copyright. It might not be a trade secret because it may not be secret. It may be something that someone knows such as how to make something work better.

Q: Could you cite an example of that to illustrate how "know how" may come into play in the real world?

A: One deal I had involved the know how for making fiber optic cables on certain kinds of machines. If you don't set up the machines just right, you can easily damage the optical fibers. My client knew everything there was about that machine and how to make those cables, but didn't have any patents. They knew how to set up and operate the manufacturing line for fiber optic cables; how to set the machines with the speed and the tensioning and the nature of the coating and how thick you put on the coating; how tightly you wind it on the spools, and things like that. If somebody tried to set up that line by trial and error, they might waste thousands, if not hundreds of thousands, of dollars trying to figure out how to make this product efficiently. So, I set up a carefully worded "know how" agreement with a major South Korean company that wanted to make those cables, and my client made a good bit of money showing them how to do it.

Q: How do you respond to entrepreneurs who would shun the patent process because they are afraid they are going to give away too much information to competitors?

A: Well, one has to make a choice if they are going to play the patent game or not. There are some businesses that you just don't have a choice; you have to play the patent game because other people already have some patents. It's kind of like a poker game — there may already be a game, and if you want to play you have to ante up with some patents of your own or you don't get to play. Some industries are patent-intensive and you really have no choice but to play the patent game, or you will be excluded by the incumbents. That's one aspect to think about. But if someone doesn't really want to reveal information about his or her invention, it might be better to keep it as a trade secret. There are some

types of innovations that have greater value if they are kept secret as long as they can be. But here's a problem with trade secrets that I didn't mention: If you don't get a patent and someone figures out your invention by reverse engineering, then your trade secret has no value. If it can be determined by lawful means what your technology relates to and they haven't broken in and violated any laws or violated any contracts, people are perfectly free to probe around your product or service and figure out what you are doing. Only a patent can protect you in that context. So, if a person is afraid about giving too much information to a competitor, they have to be prepared for the risks.

Q: You've written a lot about the patent process and some of the proposed reforms to the system. Would you discuss the problems or shortcomings with the system as it is now and how you feel they should be addressed?

A: The patent system is suffering a lot now and there have been efforts to reform it. The Supreme Court in 2007 took an unusual interest in the patent system. There have been three major Supreme Court decisions related to patent laws in one calendar year, so the Supreme Court must have thought there was something wrong with the patent system and wanted to dive into it. Congress is also trying to pass legislation to reform the patent system. A bill passed the House in 2007, but didn't make it out of the Senate. Part of the problem with the legislation is that not everyone agrees on the problem. Some people think that patents are too strong. Some people think that patents are not strong enough. And there are business method patents that have become controversial since they were essentially sanctioned by a court decision in 1998. A lot of people look at business method patents and think, "Well, gee whiz, if that company can patent this, oh my goodness, then there are so many other things that could be patented. We had better start patenting things, too, or if we don't then someone else might get a patent and sue us."

Q: Has there been an increase in litigation or some other activity that has lead to the concerns about the integrity of the system?

A: There's been the emergence of the patent plaintiff's bar where lawyers take cases on a contingency and try to enforce questionable patents against larger companies. Well, some patents are questionable and some are not. Whether they are questionable or not remains to be seen until they actually go through the litigation process. But there are just a number of patents that people will look at and scratch their heads and they will say, "I'm not so sure that's really all that innovative." If you start looking at the statistics of patents being granted and patents being

enforced, the information as to whether the patent system is broken or not is very difficult to come by. It depends on whom you talk to. Some people love patents because they have been successful with them, and some people hate patents, sometimes because they have been on the receiving end of the stick. Some people hate patents just on philosophical grounds, you know, "information ought to be free to everybody." A lot of the open source software people dislike patents on that basis. The controversy has been driven lately by the press, which picked up on a few egregious examples of patents that seem silly. For instance, Smuckers was granted a patent for making a crustless peanut butter sandwich. Many critics seized upon that and said if they grant patents for a crustless peanut butter sandwich, my goodness, what has the world come to — my mother made crustless peanut butter sandwiches for me when I was a kid. It's silly and there are a number of silly patents that get through the system. And when they get through the system and they get into the popular press, it makes the whole patent system look broken. You take a lot of these things together and it seems there are some parts of the patent system that aren't working as well as you would like and that do need to be fixed. But I'll also point out this first: the U.S. has the strongest and the most robust patent system in the world, by far. And it's the U.S. that has got the biggest and most vibrant economy in the world. Is it a perfect system? No, but we've still got the best system in the world. Could it be better? Yes.

Q: Given the complexities of the system, how should an entrepreneur go about the process of vetting and hiring a qualified attorney to handle IP matters?

A: I generally think that the best way to find qualified attorneys, or any qualified professional, is word of mouth and reputation. You should seek out trustworthy people who have been down the IP road before and find out who their lawyer was. I think the best advertising for any professional is a satisfied client. You can get some information by looking on the web to see if they've had a lot of reported decisions or written a lot of articles, but I don't think that's a good indication of whether they are any good or not. It could be that they just write good articles, or it could be that they just try cases a lot and they have no idea how to counsel a client. Ask more than one person; seek second and third opinions. If you've already got a good lawyer or accountant, then ask them to help you find the right IP attorney. There are good IP attorneys in boutique firms and in general practice firms, too.

Q: In most emerging growth companies, cash is tight and entrepreneurs become concerned about the expense of the patent

process. Can you give some general guidelines as to what they should expect to pay in order to secure a defensible patent?

A: That's difficult to answer. Not all patents are created equal. Patents differ in expense depending on a lot of factors — the basic subject matter, how complicated it is, how well the inventor can explain it, whether the attorney already has a background in the area, how much time is available, whether it's really new or not, whether there's a "bar date" and a lot of other things. There are good patents, there are mediocre patents and there are bad patents. One thing that the entrepreneur cannot control is the quality of the attorney and his or her abilities to understand the subject matter, to get it down on paper and to be able to fit the project within a budget. One thing that the patent attorney cannot control is the quality of the innovation coming from the entrepreneur. These things have to converge in order to come up with a good patent that is going to have value. If you start with a premise that you want a good patent, you can't also have the premise that you're going to go to the lowest bidder. Patents range in cost from just a few thousand dollars, where a lot of the background work is done by the inventor, all the way to tens of thousands of dollars — if not hundreds of thousands of dollars — for massive, simultaneous filings that cover complex systems. My best advice is that once you've found an attorney you're comfortable with, you have to talk to that attorney openly and decide what the budget should be. That will depend on the timeline, and should factor in how important the patent is to the overall business plan of the company. The ultimate price is going to be based on how a lot of factors come into play, but I would say that if you think you are going to spend less than $5,000 to $10,000 for a good patent, you are probably kidding yourself. I haven't seen very many good patents that were that cheap. You are not going to get a quality product below that price range; it's probably not going to provide much, if any, benefit to your company.

Q: Could you elaborate further on your statement, "Not all patents are created equal?"

A: It's a quality thing. One or my mentors in the field, Gene Zimmer, once likened patents to race horses (He was from Lexington, Kentucky.) He said that patents, like race horses, have to have good breeding, be fed well, worked out and trained how to run. But the value of the horse is only known when you put it in the gate and ring the bell. Only one horse will win the race, and it is rarely the underfed nag that has no good genes. A patent is much the same — you have to write it well, do your homework, know the prior art, find the white space for the claims. But the value won't often be known until you ring the bell at the gate, that is, put the patent up

in litigation or have it examined by good lawyers. If a company has based its prospects for success on a foundational, fundamental technology, and the company will live or die by that technology, then you do not want to be pennywise and pound foolish. If indeed the innovation is of sufficient quality and importance, then you need to have the patent protection of sufficient quality to go along with it. This means you have to describe the invention thoroughly, you have to anticipate developments three, five, 10 years in the future, and you have to build in quality from the start because you don't get a chance to fix it later. It helps to be somewhat of a science fiction writer and a prognosticator to write the patent that will be relevant in the future. Patents usually don't reach their peak value for about five years, since it takes about that long for the patent to issue and be recognized as a force in the marketplace. If your technology will run out in two or three years, or even four or five, then a patent may not help you — or whoever may want to buy you — very much. If you don't anticipate the future and build in quality from the start and put it in your patent, then the value of the patent, if even you can get one, will diminish quickly as competitors find ways to work around it. Thin, poorly worded patents that don't contain a lot of thought or anticipation of the future aren't often worth very much. They are not going to bring value to the company. You have to look at the nature of the invention; is it just a simple mechanical device or is it a complex transaction processing system with computer intelligence and telecommunication interfaces and databases which could require multiple patents and multiple filings? That would require significant investment. If it is a simple little widget that's a little mechanical device, like a clip to hold a pen in a pocket, you don't need to spend as much.

Q: When the inventor sits down with the patent attorney, what is the initial information the attorney will be seeking?

A: If that attorney is me, I want to figure out how many different and independent inventive concepts there are. I will be looking for the words and terms to put in the application to describe the features and aspects of the invention, and that has to be fully supported in the patent application itself. How much information is available and how complete is it? How accurate is the information? How detailed is the subject matter and how far down will the attorney have to drill to get to the point of innovation and where it fits within the prior art? How skilled are the inventors and other people within the company at putting together technical information in suitable form for putting in a patent application? How many people are involved in it — are there one or two people involved, or are there five or 10 — that adds to the complexity and the cost. How long do you have? Is

there a bar date, as I mentioned earlier, or other time requirement? If there is a short period of time required, you may lower the cost but it's likely to lower the quality of the patent. What's the relationship of this particular technology to other technologies that the company may have? Is this foundational or can it build upon some previous work that the company has done? Perhaps you can lower the cost by piggybacking on prior patent filings.

Q: In addition to filing for protection in the U.S., how important is it also to seek protection in foreign countries as well?

A: For many entrepreneurial startups, foreign patents are a tough question. They are very expensive to obtain and the protections that are available are marginal for some technologies, especially computer software. Patent systems in other parts of the world are far less robust, far less capable and far less thorough than ours. If you were to have a U.S. patent application that cost $15,000 to file in the U.S., a limited program for filing in Europe, Japan, Australia, Canada and a number of other countries could easily cost five times that amount. You could easily get into the realm of $100,000 for a comprehensive worldwide program. The company has to think through why it may be worth spending this money. For example, if you think there is a prospect that you would be acquired by an international company, then you might want some foreign filings. If that's a likely exit strategy, then you might want to consider making the investment to file patents in countries where prospective acquirers have facilities and plants. If they are going to acquire your company, they are going to look at the degree to which they can pursue protection in those countries, and if you've already done that there could be more perceived value, especially if the acquirer already has an established patent program. You may also want to seek foreign patents if you are going to have significant manufacturing or distribution facilities abroad. With respect to manufacturing, if you are going to make an investment to have a plant in a particular country, you would want to have some patent protection in that country so that you are a part of the legal system and a part of the culture and community.

Q: Does the process for obtaining a patent vary significantly from one technology to another? In other words, would it be considered easier to gain a patent for a computer-related technology over a biotechnology discovery as an example?

A: Well, yes. There are very great differences in biotechnologies compared to mechanical and electrical technologies. Generally, the patent universe divides into two categories — the predictable arts and the

unpredictable arts. Predictable arts include things like electronics and mechanical devices because the laws of physics at the scale at which most of these technologies work is pretty well known — you can work out the math and do the physics equations. Predictable arts then, by their nature, seem to be somewhat predictable as to what the next level of improvement will be. For example, it may not be a great inventive leap to increase the clock speed of a microprocessor from 2 GHz to 2.2 GHz. (Some Intel people may tell you otherwise, however.) The patent examiners and courts seem to take a pretty hard line and often find inventions in these fields "obvious." There is a greater difficulty justifying a patent for an incremental improvement or incremental innovation. This is reflected in the Supreme Court case last year, *KSR v. Teleflex*, which explored the tests for finding inventions obvious and therefore unpatentable. The patent system is struggling with the notion of incremental innovation in the predictable arts: How do you determine when there is enough innovation, enough newness and enough non-obviousness to justify granting a patent? Patent examiners tend to look at small, incremental innovations with a great deal of skepticism, so obtaining patents in the predictable arts is a lot more problematic. You generally find that you have to slice and dice the technology a little more in order to get any meaningful protection. You have to file more patents, and write patents with more ways to describe things so that you increase the chances that you will actually get a patent. That makes the process more expensive. Bigger innovations are usually easier to recognize than the incremental ones, but many innovations today are incremental.

Q: Would you now explain how this applies to what you called the "unpredictable arts?"

A: Unpredictable arts, on the other hand, are technologies where properties of things can't necessarily be readily predicted ahead of time. Many biotechnologies and chemicals and materials exhibit properties that are unexpected. For example, in a recent case a diabetes drug researcher discovered that a certain compound had anti-convulsive properties. Who would have figured that diabetes research would lead to a drug for epilepsy? And, we are at the borderline of some new stuff. We're finding that the properties of materials at the nanotechnology scale, for example, are turning out to be unpredictable. So we are adding nanotechnology to the unpredictable arts along with the biotechnologies. Chemistry and biochemistry and gene sequencing and things like this are much more difficult to predict. The patent system seems to be having some trouble figuring out how to accommodate both predictable arts and unpredictable arts.

Q: Your practice gives you a broad view of the marketplace. What are you seeing as the hottest areas for emerging technologies — where you think opportunities exist for entrepreneurs to create the most value?

A: Well, as I said, nanotechnology is very interesting. But in some respects it's almost like we've gotten to a point in science and technology where we are struggling to find the next major innovation. People are looking for the next laser beam or what comes after the Internet or how to use gene sequencing to make a particular kind of human cell. Human beings have pretty well figured out, with respect to the predictable arts, how to make mechanical and electronic devices, and the progress on some of these seems to have slowed. We've gotten about as small as you can get on microprocessors, given what we know now about the laws of physics and science — so we are waiting for nanotechnology to deliver. Are we going to find products and materials at the nano scale that are surprising? I think so. There is also promise in biotechnology and the life sciences. There are a lot of things that we do not know about how the DNA molecule operates to tell a stem cell how to turn into a heart muscle cell or a neuron or a bone cell. Scientists are just really beginning to figure out how the DNA molecule causes things to happen at various stages in the embryonic form. As those mysteries get solved, business opportunities will occur and patents will get filed. Also, alternative energy is a big area for development with oil and gas prices so high. People are looking for improved engines, improved efficiency in existing engines, new kinds of combustion technology, new fuels and new energy resources. The energy issue is part of the larger area of green technologies, which are very hot and popular, and include recycling and the technologies to do it more efficiently and effectively. Also, food science and agriculture are areas of opportunity, given rising commodity prices and inflation. The diversion of food crops into biofuel has contributed to the rise in prices, so opportunities for improving crop yields and creating food more efficiently are all areas that hold promise.

Q: In closing, do you have any further advice regarding intellectual property or patent strategy that entrepreneurs should consider?

A: Something we haven't talked about much is the problem of OPPs — Other People's Patents. We've spent most of our discussion here talking about getting your own patents because entrepreneurs are mostly concerned with identifying their own intellectual property and protecting it. But a startup company can be significantly threatened if it runs afoul of other people's patents. One of the first things an entrepreneur should do is to get an idea of where his technology fits with respect to everybody else's patents. If you don't steer clear of OPPs, you could find yourself the subject

of a patent infringement lawsuit, and find that your cost structure has been significantly modified to the point of unprofitability because of having to pay royalties or having to pay damages from a lawsuit. Not understanding what and who else is in your space could effectively shut you down. Investors and acquiring companies will ask about IP when they do the due diligence on your company, but they will not only be interested in what you have filed but what else is out there and what you have done to avoid the patents of other people.