

# Quality counts

Consistently securing quality patents for your clients is a tough job. An *IAM/Ocean Tomo* collaboration reveals which US firms are doing just that and looks at the secrets of their success

By Sara-Jayne Clover

“The difference between a very valuable patent and a patent that is essentially worthless is just a few words,” stresses Steven Lundberg, managing shareholder at Schwegman, Lundberg & Woessner. “There’s really no point in squandering an engineer’s inventive capital by doing a poor job.” Quality is what counts, Lundberg believes. And he should know: his firm is one of those that feature in this year’s *IAM/Ocean Tomo PatentRatings* ranking of law firms that secure the highest-quality US patents for their clients.

Like last year, the PatentRatings team at Ocean Tomo have focused on four areas – healthcare, information technology, consumer electronics and industrials – in their search for top firms. In addition, they have put together an overall ranking encompassing all technology areas. You can find those tables on the following pages.

While it’s true that there is no one-size-fits-all approach to getting a patent granted from the US Patent and Trademark Office (USPTO), there are certain key stages that applicants and their representatives must focus on in order to succeed. And if quality is an additional goal, then it means devoting real expertise and working hard to get the job done. *IAM* spoke with attorneys from several of the firms featured in this year’s rankings, as well as some of their clients, to identify the stages and, crucially,

to explain what they are doing at each point to ensure that the patents they are creating together are best in class.

## Start at the beginning

“From an in-house perspective, to get quality patents you have to start with a quality product,” states Russell Slifer, chief patent counsel at Micron Technology. This process begins with investment in the training of engineers and in sufficient resources to facilitate the R&D process. Differentiating between what has the potential to become a quality product relevant to your business and what is simply a patentable invention is a vital step, Slifer explains: “My team spends a lot of time going through the inventions and working with senior engineers to find those that best fit our overall business strategy. It’s not a case of taking what shows up and patenting it.”

John Acres, CEO of casino gaming company Acres 4.0, agrees that there is a lot of work to be done internally before drafting in outside counsel. There are several questions he asks himself before deciding to do so: “Does the idea have commercial value and is it within my grasp to develop that value? Is the idea defensible? Is my invention different enough to proceed? What prior art can I immediately find in other patents and applications?” Only once he is happy with the answers to these questions does he turn to outside patent attorneys.

## Communicate and collaborate

The relationship between the client and the attorney drafting the patent is crucial to the quality of the end product. Typically, the collaboration begins with the submission of an invention disclosure in which the inventor outlines the invention and how it can be used. Information from this

**Ocean Tomo Patent Ratings explained**

**1. What we mean by quality**

We think about patent “quality” not in the context of public policy debate, but in the context of capital asset pricing within an investment framework. In particular, we believe that quality can be defined and measured by the actions of patent holders in their decisions to maintain patents they believe have value and abandon patents they believe have little or no value. We measure patent quality in terms of the relative probability that a particular patent will be either maintained or abandoned by its owner.

**2. How we assess quality**

Investing in patent assets, like any investment, requires an investment thesis and carefully developed risk-reward expectations consistent with near and long-term investment objectives. Fundamental to this process is a deep understanding of the mechanisms for value creation and extraction and the primary underlying risks that create inevitable value uncertainty.

Patent investment activities focusing on securing and maintaining patents on inventions and technologies core to an organisation’s profitability are generally approached from an internal investment perspective. The investment thesis is usually a desire to increase net operating revenues. The initial investment hurdle is overcome when expected returns exceed the cost of the required investment(s) given the underlying risks and the investment objectives.

Once a patent is obtained, unique value is derived from the legal rights it secures to the patent holder, namely the right to exclude competition in the patented technology. But not all patents have value. In fact, in the United States most patents (about 57%) are actually abandoned before they reach the end of their full statutory term. As in most countries, US patent owners are required to pay periodic maintenance fees in order to maintain the patent in force. The natural attrition effect of the maintenance fee system is to discourage renewal of less valuable, lower-quality patents by placing substantial recurring costs on all patents.

Significant value insights can be gleaned from analysing past renewal decisions of patent owners within the framework of an internal investment exercise. Maintenance fees create a recurring investment hurdle that not all patents can overcome based on the owner’s own internally generated value and risk expectations. Patent owners are uniquely knowledgeable and well qualified to make internal patent value and risk assessments of their own patent holdings, and they are economically and financially motivated to make accurate judgements and sound investment decisions based thereon.

By specifically examining the characteristics of patents that were previously renewed versus those that were previously abandoned, we can build informative models that can help make predictive assessments about the quality and likely value of current in-force patents.

**3. What information the determinations were based on**

The Ocean Tomo model comparatively scores individual patent assets based on all of the identified patent metrics (predictor variables)

determined to have a statistically significant correlation to observed patent maintenance rates. Some of the more pertinent metrics included technology classifications, number of independent and dependent claims, average claim length, shortest independent claim, number of different words per claim, length of written specification, forward citation rate, number and age of cited prior art references, length of prosecution, number and country of origin of related family members, and the presence or absence of specific limiting claim language.

**4. What the points mean**

The regression model calculates a raw probability score for each patent according to the extracted metrics for that patent. Raw scores represent the simple probability that each patent would be maintained for the full statutory term. For convenience, these raw scores are mathematically adjusted to provide a normalised mean or nominal expected score of 100. This adjusted score, dubbed IPQ, is akin to the familiar intelligence quotient or IQ used to score human intelligence. Thus, a score of 100 on the IPQ scale generally corresponds to an expected normal or median quality (average expected maintenance rate). An IPQ higher than 100 indicates above-average quality (higher expected maintenance rate), while an IPQ lower than 100 indicates below average quality (lower expected maintenance rate). Of course, as with IQ, the IPQ score provides only part of the equation for determining patent quality/value. Thus, a high IPQ does not guarantee high quality/value and *vice versa*. It only establishes a statistical correlation based on the body of available data.

**5. The minimum number of patents a firm needs to have secured in order to qualify for assessment**

We first selected the top 50 law firms according to the number of US utility patents issued over the trailing three years within each sector, and selected the top 100 law firms for overall. According to this methodology, the minimum patent count for each sector was as follows.

To segment the law firms by four representative industry groups, we used patents that have both a prosecuting attorney on the issued patent and an assignee. Patents that have no assignee on the record are excluded for this analysis. Patents with prosecuting attorney on the record along with the assignee (company) that can be properly categorised per established industry grouping by public data sources (eg, Capital IQ) are considered for this analysis. For rankings, we selected top 100 (overall) or 50 law firms (each sector) based on three-year patent count; we then sorted the resulting set based on average IPQ score of those patents, top down.

Sector	Minimum patent count	Median patent count
Industrials	163	297
Consumer electronics	243	512
Healthcare	109	179
Information technology	610	1,149
Overall	787	1,444

document is what forms the body of the patent and is the foundation from which the claims will be framed. “This means that it needs to be written with a lot of strategy in mind and with plenty of flexibility,” explains Gerard von Hoffmann, a partner at Knobbe Martens. “It’s my job to explore what variations a competitor might introduce and

what content we can add to the disclosure to pre-empt that.”

Defining the scope of the invention begins with an interview between the attorney and the inventor, in-house counsel and/or business managers, depending on the structure of the company. “This interview process is one of the most important



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 Managing shareholder at TraskBritt  
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stages,” explains Edgar Cataxinos, managing shareholder at TraskBritt. “It involves communicating with the client to ascertain the specific goals and IP strategies they want to pursue.”

Many companies with in-house counsel will have guidelines outlining their expectations in terms of the resulting work product and the costs involved. Some will even do as much of the work in-house as they possibly can in an effort to save money and retain control of the process. “Some companies that file hundreds of applications each year will often have patent agents working for them internally,” says Song Jung, partner at McKenna Long & Aldridge. “These people aren’t attorneys, but they have a lot of experience in their specific industry and are well versed in the technology, and they’re able to draft applications more cost effectively than an outside patent attorney.”

#### **Do your homework**

However, assuming that outside counsel are employed for the drafting of the patent application, the consensus is that appointing a lawyer with a speciality in the client’s field of technology from the beginning is essential. “You have to have credibility with the inventor,” explains Jung. “They need to trust that you understand the technology at issue. In lots of companies the inventor doesn’t have a lot of time to give you and will expect for you to prepare the patent application pretty much on your own once the invention is explained.” This means that it is essential that the outside counsel goes into the initial meeting having done his research. “Inventors want to feel like they’re working with a technical peer and that they’re not wasting their time having to explain what seem to them like rudimentary processes or theories,” says Steven Shumaker, partner at Shumaker & Sieffert.

Part of the preparation for this initial interview can involve understanding what prior art is already out there surrounding – and possibly covering – the invention that the client is looking to patent. Whether a prior art search is done in-house, by the instructed private practitioner, by a search

company or indeed at all depends on the individual company, its policy and resources. While some firms leave the searching for the USPTO once the application is filed, the trend these days is much more in favour of prior art searches. “In the past, the searches weren’t as popular as they are now,” states Lundberg. “The cost often outweighed the benefit.”

If you are after a quality patent, a policy of entering into the application process blind is not one that is generally advocated by private practitioners. “My philosophy is that I would rather know what the prior art discloses, as it helps me write claims that are tailored so they’re more likely to be relevant when the examiner looks at them,” explains Jonathan Richards, partner at Workman Nydegger. “If you do a thorough search and you find something close to the client’s invention, you need to decide whether there is anything of value left to protect.” For John Acres, a prior art review is an essential step towards deciding whether to file an application. It is one, he says, that need not be either labour intensive or expensive: “Today, I can get a good sense of [what prior art is out there] with an internet search and it is well worth several hours of my time to do so before proceeding to an attorney.” If he decides that it is warranted, this initial search is then supplemented by a more thorough search conducted by his outside counsel.

#### **Commercial strategy is key**

As well as an understanding of the invention, an appreciation of the strategy underpinning the filing is essential. “You don’t seek a patent to cover a product; you seek a patent to create a barrier against entry of competition into a relevant product market within which you sell a product,” explains von Hoffmann. While it is the inventor who can talk the patent attorney through the intricacies of the invention, it is more often the businesspeople and in-house counsel who can offer guidance in terms of overall strategy. “Our outside counsel really need to listen to us,” explains Micron’s Slifer. “They need to understand our business and know why we’re filing this application. The patent in itself is not the end goal.” Without this strategic

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information, the attorney is effectively going into the drafting stage blind. “It’s impossible to write a quality patent in a vacuum,” states Cataxinis. “You need to understand the industry, your client’s specific business, their IP strategy and commercial goals to make sure you’re protecting the right components and particular area from competitors.”

Input from the client is crucial here. It’s not enough for the inventor to give the attorney a few sentences in an invention disclosure and expect him to go away and draft a robust patent that will effectively exclude competitors and allow the patentee to commercialise the invention. “It’s important not to abdicate patent responsibility to the attorneys,” explains Acres. “Without consistent involvement, the invention’s potential for future expansion is lost.”

Once the private practitioner has a clear understanding of exactly how the client plans to utilise the patent, what its strategy is and precisely what the invention covers, he then needs to use his drafting skills to

**Top 10 firms: Healthcare (pharma/bio)**

Rank	Firm name	Avg IPQ
1	Shumaker & Sieffert PA	139.1
2	Squire, Sanders & Dempsey LLP	138.5
3	Schwegman, Lundberg & Woessner PA	132.3
4	Vista IP Law Group LLP	132.2
5	Seager, Tufte & Wickhem LLC	130.9
6	Vidas, Arrett & Steinkraus PA	130.3
7	Hamilton, Brook, Smith & Reynolds PC	128.0
8	Hollingsworth & Funk LLC	127.8
9	Knobbe Martens Olson & Bear LLP	127.7
10	Kilpatrick Townsend & Stockton LLP	126.8
Min 126.8    Max 139.1    Median 130.6		



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 Chief patent counsel at Micron Technology  
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ensure that the application’s claims cover all these angles and potentially more. “You need to be a good excavator and dig deep into the details of the invention to present a credible practical implementation,” states Shumaker. “But you also need to be a good extrapolator and help the inventor to explore alternatives or extensions that fall within their inventive concepts and look for other potential claims. If we lock the invention down to just one particular implementation that the inventor has in mind, we haven’t done our job.”

**Know your audience**

Having collaborated with the client on all of the above elements, it is now time for the attorney to step back and start putting pen to paper. Depending on the industry, the drafting of a strong patent application can take a great deal of time, but attorneys say that the average is around one week. During the drafting process, the attorney may go back to the inventor with specific technical questions to ensure that the claims are drafted as precisely and accurately as possible.

Once the first draft is ready, it is sent back to the client for review. The nature of the internal review process depends on the company, but ideally, if there is an in-house team this will appraise the draft with the inventor. “My in-house attorneys check that the work product meets our legal standards and that the claim structure is drafted in the way we think it needs to be to give us the best protection,” explains Slifer. Acres agrees that careful review is essential before the application is submitted: “Someone with market knowledge and vision must review each concept and ensure that the potential of each invention is fully contained within the specification and claims.”

However, when drafting, it is not just the client that the patent attorney needs to bear in mind. The application and subsequent patent will be read by several different audiences at various stages of its life. Clearly, the first external hurdle is the examiner, and if you don’t clear that one then nothing else matters. But assuming that you do, there may also be judges, juries, potential licensees, potential investors and more to factor in.

**Devil’s advocate**

Part of the review process before the application is submitted to the USPTO involves the private practitioner scrutinising his own work. Many firms have a peer review policy, but ultimately it is down to the drafting lawyer to ensure that he has plugged as many of the holes that could be exploited by competitors as possible.

An effective way of doing this is to imagine oneself in the shoes of a potential competitor to look for possible ways to design around the claims and specification to create a competing product. “You don’t have to be a genius to do this,” explains Jung. “You just have to go through the process and, because you’re in a different mindset, you can see the holes. I’ve been litigating for a long time and I think that’s helped me see how incredible the attacks can be and where the patent will be most vulnerable.”

Von Hoffmann agrees that the insight some experience of disputes can bring when drafting an application is invaluable. As a result, he encourages associates to spend time in the litigation process. “It’s a certainty that once you’ve spent a fair amount of time in patent infringement litigation, you’ll never write a patent application the same way again. You just look at life in a different way after that,” von Hoffmann says.

**Don’t scrimp**

One of the toughest challenges facing patent attorneys looking to write a top-quality, robust patent is the pressure on fees. Completing the task and following best practices can be very difficult when there are tight budgetary constraints. This means that patent applications can suffer when insufficient money – and therefore time – is spent on them. Limiting funds at the initial stages could well come back to haunt an applicant further down the line. “The best patent applications have larger technical disclosures, larger specifications, more information,” states Stephen Glazier, partner at K&L Gates. “You can increase the value of the patent and decrease the cost of prosecution by incorporating those elements. This may cost a bit more, but you get what you pay for.”

The focus on patent quality and the amount of money that companies are prepared to spend on individual patent applications vary from industry to industry and from company to company. Glazier is surprised by the discrepancies, but claims that they can work in the favour of savvy operators. “For those companies that do want to invest in a strong strategy and robust

**Top 10 firms: Industrials**

Rank	Firm name	Avg IPQ
1	Kilpatrick Townsend & Stockton LLP	115.1
2	Knobbe Martens Olson & Bear LLP	114.0
3	Schwegman, Lundberg & Woessner PA	110.8
4	Nixon Peabody LLP	109.9
5	Klarquist Sparkman LLP	109.2
6	Fish & Richardson PC	106.9
7	Oliff & Berridge PLC	105.4
8	Harness, Dickey & Pierce PLC	105.0
9	Bachman & LaPointe PC	104.0
10	Sterne, Kessler, Goldstein & Fox PLLC	103.9
<b>Min 103.9</b>		<b>Max 115.1</b>
		<b>Median 108.0</b>

patents, the fact that others within the same industry are not interested in doing the same gives them a great opportunity to gain an advantage over competitors.”

The ultimate goal is to create a patent that acts as a barrier against entry of competition into a client’s product market. Budgetary constraints can seriously hamper this. “When people restrict the amount of money they’ll spend on patenting an invention or don’t understand its strategic objectives, they may get a patent on the device as it sits on the table, but will likely fail to block the competitive alternatives to that device. And really, what’s the point?” asks von Hoffmann. As an applicant and patent owner, Acres is in firm agreement. “One thing is certain: quality does not arise from putting a patent attorney on a fixed budget for each application.”

**Time to prosecute**

Upon application to the USPTO the patent enters the prosecution phase. It will receive an initial review to ascertain whether all of the necessary information has been submitted. Assuming that all is present and correct, the application will be checked to ensure that it covers only one invention. If it is felt to cover more, the applicant will be asked to split it and advise which part is being submitted for examination. Any further inventions can be filed in separate applications and, if filed while the initial application is still pending, will be back-



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CEO of Acres 4.0

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dated to the initial filing date.

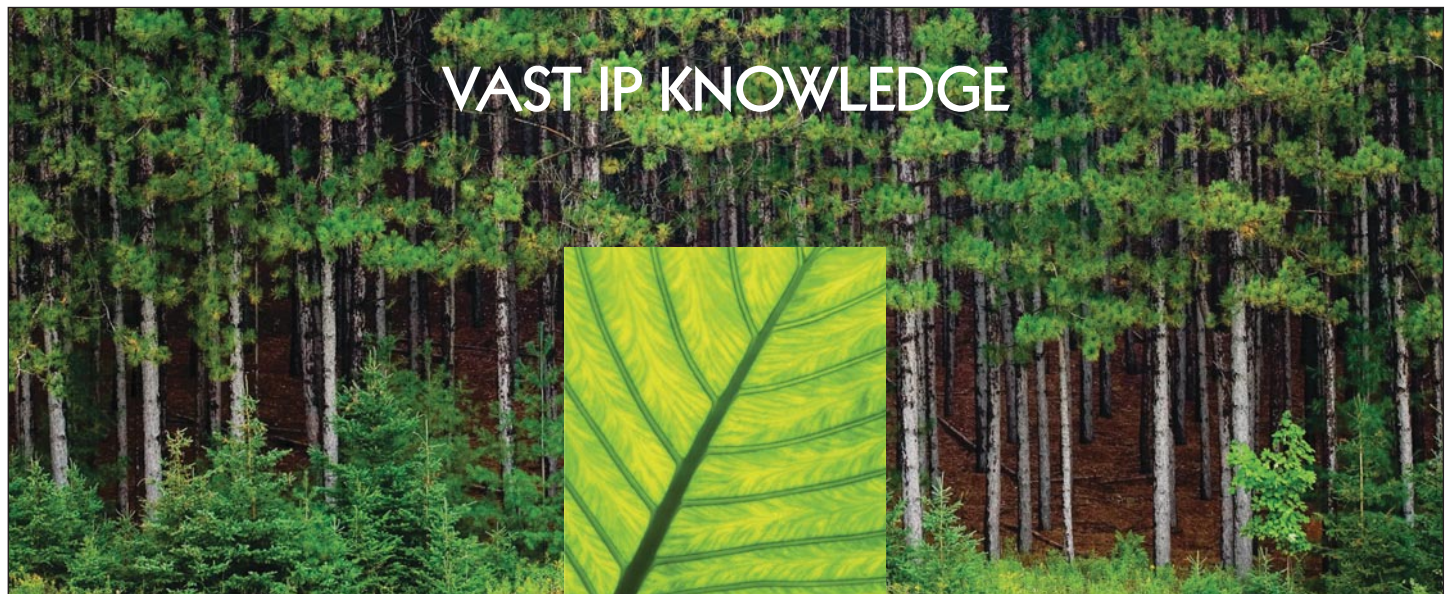
Next comes the waiting game. How long it takes for an examiner to get to an application and contact the applicant depends on the technology sector and the complexity of the invention covered, but on average, the wait is expected to be approximately two and a half years. The applicant is then notified of the examiner's response to the application through the first office action. This is a rejection of any claims that the examiner believes to be covered by prior art, which are unpatentable subject matter or which are deemed to be obvious. It is not a surprise that many, if not all, of the claims are rejected by the examiner at this point.

**Get to know your examiner**

Once the attorney receives the office action, he must collaborate with the client to decide how to proceed with the response. Micron's Slifer likes to monitor this delicate procedure closely. "How you react to the office actions and allowances can significantly affect the quality of the

**Top 10 firms: Information technology**

Rank	Firm name	Avg IPQ
1	Lee & Hayes PLLC	138.1
2	McAndrews, Held & Malloy Ltd	129.6
3	Volentine & Whitt PLLC	127.1
4	Perkins Coie LLP	125.9
5	Marger Johnson & McCollom PC	125.6
6	Sterne, Kessler, Goldstein & Fox PLLC	124.2
7	Knobbe Martens Olson & Bear LLP	123.3
8	Workman Nydegger PC	122.8
9	Meyertons, Hood, Kivlin, Kowert & Goetzel PC	122.2
10	Schwegman, Lundberg & Woessner PA	122.0
Min 122.0    Max 138.1    Median 124.9		



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**Top 10 firms: Consumer electronics/discretionary**

Rank	Firm name	Avg IPQ
1	Wolf, Greenfield & Sacks PC	115.2
2	Fish & Richardson PC	111.8
3	McKenna Long & Aldridge LLP	110.4
4	Snell & Wilmer LLP	108.9
5	Oliff & Berridge PLC	108.7
6	Harness, Dickey & Pierce PLC	108.6
7	Renner, Otto, Boisselle & Sklar LLP	107.5
8	KED & Associates LLP	106.5
9	Morrison & Foerster LLP	105.9
10	K&L Gates LLP	105.5
Min 105.5	Max 115.2	Median 108.6

finished patent,” he explains. “You need to make sure that counsel are saying what you want them to say and not saying what you don’t want them to say.”

Writing around the examiner’s objections is a fine art, but one which an experienced and top-notch patent prosecutor should have perfected. Rather than limiting the scope of the patent, it should be a case of reviewing the language until it is acceptable to the examiner. “Writing and rewriting the claims is a tricky word game,” explains von Hoffmann. “But there are many ways to write a claim to gain competitive advantage, so the more you know about your client’s commercial goal, the more easily you can redraft the claims to dodge the examiner’s

rejection while retaining the competitive advantage of the patent.”

Just as important as the attorney’s interaction with the client during this time can be his conversations with the examiner. Before submitting a response to the first office action, many attorneys find it useful to talk to the examiner. This can assist in determining whether the examiner has misread the claims or prior art, or whether he is in fact correct and the claims need to be amended. These interviews also help to put a human touch to the patent, particularly if conducted in person.

Being based in Washington DC, not far from the USPTO, Jung is able to meet with examiners on a regular basis and believes this to be a crucial part of the prosecution process. “I’m not suggesting you do it for every application,” he states. “But imagine your application was rejected by the examiner because he didn’t understand precisely what you were trying to say, for example. If you go there, you can pour your heart out about how important the application is.” This approach is favoured by many prosecuting attorneys and is supported by applicants. “We certainly encourage our outside counsel to interact with the examiners,” says Slifer. “If we work closely with the USPTO, we’re more likely to get a more valuable patent. I don’t want a fast grant; I want a thorough examination.”

**Grant is only the start**

Assuming that the application is at this point accepted by the examiner – which may well not be the case, as a second office action rejecting claims is just as likely to be issued – the applicant will then receive a notice of allowance. But the attorney’s work does not stop here. “We typically meet with the client again to determine whether any continuation applications should be

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Top 20 firms: All industries

Rank	Firm name	Avg IPQ
1	Lee & Hayes PLLC	136.6
2	TraskBritt PC	131.6
3	McAndrews, Held & Malloy Ltd	126.0
4	Volentine & Whitt PLLC	125.9
5	Marger Johnson & McCollom PC	124.4
6	Perkins Coie LLP	123.0
7	Schwegman, Lundberg & Woessner PA	121.8
8	Sterne, Kessler, Goldstein & Fox PLLC	121.7
9	Workman Nydegger PC	120.3
10	Fenwick & West LLP	120.1
11	Meyertons, Hood, Kivlin, Kowert & Goetzel PC	119.9
12	Blakely Sokoloff Taylor & Zafman LLP	119.4
13	Wolf, Greenfield & Sacks PC	119.2
14	Kilpatrick Townsend & Stockton LLP	118.9
15	Squire, Sanders & Dempsey LLP	118.3
16	Nixon Peabody LLP	117.3
17	Fish & Richardson PC	116.7
18	Knobbe Martens Olson & Bear LLP	116.6
19	Patterson & Sheridan LLP	115.8
20	Dorsey & Whitney LLP	115.2
Min 115.2    Max 136.6    Median 120.0		



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Partner at Knobbe Martens

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pursued,” explains Cataxinis. “That way, we can pursue other subject matter that was perhaps restricted out of the application or was not pursued in favour of narrower claims.” The continuation application, if successful, effectively enables a company to prevent competitors which have tried to design around the patent from doing so by extending the scope of the claims. It also allows applicants to pursue claims to inventions that were disclosed but not permitted in the initial application. It has the additional benefit of being dated back to the filing date of the initial application.

And, of course, the grant is only the

beginning for the patentee. K&L Gates’ Glazier is all too aware of this: “Getting the patent granted is only the ticket to ride on the monetisation machine,” he says. “Getting the patent is not the end of the process; it is the beginning of the exploitation phase.” It is a phase, of course, that is more likely to bear fruit if throughout the application process quality has been at the forefront of both the applicant’s and the attorney’s mind. **iam**

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