By Michael Hages

Designers can take significant steps to making patent searches less daunting and more useful by becoming more involved in the process. By looking at patents within an overall design strategy, it's possible to lessen the conflict that often arises between design and patent lawyers.

The Other Side of Patents: What Design Can Gain from Looking Beyond the Lawsuits

GENERALLY SPEAKING, DESIGNERS THINK PATENTS ARE a pain. Sure, designers see patents as a way to prevent being ripped off and at times seek out patents because of this view. Overall, though, the attitude designers have toward patents is often that they are too adversarial, unpredictable and costly to want to have anything but minimal involvement with them. Add to this the fact that patents, and much of IP law in general, can be incredibly dry and you can see why many designers want to leave as much of the patent process as they can to others.

For some simply dealing with patents, with the inherent interruptions and diverted time, is bothersome, but it can get even worse when a project

gets derailed because 'the lawyers' say that something can't be done. For designers, this may be the most aggravating scenario to arise out of the patent process because it always seems to happen at the worst possible time in a project. Becoming jaded against patents entirely won't help, though. What's needed is a real solution.

My experience working with designers in a patent setting has shown me that many of the unpleasant or annoying aspects of patent work simply come from—or are made worse by—the current relationship between patent work and design work, which is far too separated.

This isn't necessarily the fault of designers, but designers can take significant steps to making patents less daunting and more useful by becoming more involved with them.

By looking at patents within an overall design strategy, it's possible to lessen the conflict that often arises between design and patents,

including significantly reducing the number of times that lawyers have to step in and insist on a change in course. There is actually a fair amount of insight to be gained from looking at that situation more closely, so that's where we'll start. Beyond simply removing some difficulties, I'll show how integrating patent considerations into design work can even help design gain insight, further innovation, and increase implementation of the solutions it produces.

Integrating patent search helps design stay head of patent issues so they don't become catastrophic problems

Most often, the path to a major patent problem starts with a simple patent search. Usually, an outside patent attorney or agent will conduct this search in parallel with the design team's continued work on the project itself. By the time the search

Notes
1. Donald Norman, "Time for a
   Change: Design in the Post-
   Disciplinary Era," Innovation, vol.
   18, no. 2 (summer 1999).

2. Brown, Tim (2009-09-16). Change
   by Design (p. 18). HarperCollins.
   Kindle Edition.

results come back, the design work has often advanced to the point where bad results (namely, a patent claim that has been found and may cover the design team's work) cause huge headaches.

Resolving these patent infringement concerns at such a late point can be difficult and time-consuming. Doing so may require complete overhauls or changes of direction and can disrupt already established timetables.

The solution, therefore, lies in working to get information that can help avoid problems earlier, most effectively starting during the research and exploration part of the design process. This means having patent research done at a time where decisions can be made that avoid problem areas altogether, as a part of regular design work, and well before it's 'too late' to make any changes.

Finding out that your brilliant new idea is neither brilliant nor new is never pleasant, but it can be beneficial to find out before you put in too much time, effort or money into an idea that you can't protect or implement. It's going to be more pleasant to find roadblocks early on and adapt than to hear it from your project manager or client that a concept needs significant change or cannot be implemented at all.

Don Norman has written about the struggles that designers face in having designs ruined or scrapped by 'other people'. In response to this, he tells designers:

—

Design cannot be separated from the other considerations of a product. The person who 'ruined' the design probably was trying to improve some other dimension of the product. The design must have been unsatisfactory in some way. This happens when the industrial design team's work is completed without consideration of all the relevant variables and then the team is frozen out of the final decision process.

—

He concludes that "[a]ll design is a series of tradeoffs."[1] This idea isn't exactly new, and I suspect many designers are now used to resolving some of the issues that Norman has in mind. Beyond that, design is being integrated more closely with the "other people" that are likely the subject of

Norman's advice, namely engineers and marketers. But there's no reason that we can't at least consider patent experts as a part of this group.

Again, I've seen first hand that patents can also cause these types of conflicts because of separation. Unlike other disciplines, not much has been done to bring design and patents closer together. I suggest that at least some patent matters should be thought of within the tradeoffs mentioned above, which means working to reduce the separation between patent work and design work, both in time and in the overall level of attention given to patents.

Beyond considering patents as a necessary tradeoff to creating designs that can be implemented, there's actually a great deal of insight to be gained from removing the separation between design and patent considerations. The key is to do this at an early and ongoing basis, but to do so without adding a significant burden to the design process.

Steps to integrating patents with design

A more integrated approach to patents has particular value to design because design work can be very open-ended and is increasingly given leeway to innovate and implement new solutions based on broad-based research, needfinding and focused creativity. This often results in a number of potential directions being explored at any given time. What it means from a patent standpoint, is that, by considering patent issues on an appropriate level at the right points in the design process, patent research can inform the design decisions that help point things toward a better final solution, just like other front-end design work.

Put a little differently, it's possible to turn patents from roadblocks into constraints along the lines of what design is used to dealing with. Design is full of constraints, but designers in particular look for opportunities within the constraints that face them. As Tim Brown has pointed out "[t]he willing and even enthusiastic acceptance of *competing* constraints is the foundation of design thinking."[2] Putting

Design, with its desire to innovate and improve, is particularly able to capitalize from this side of the patent system through developing alternative technology or solutions that are simpler to use, more efficient or better looking than what's found in the existing state of the art.

patent concerns on the level of other common feasibility constraints (cost, client direction, manufacturability, etc.), both in timing and overall attention when balancing with other constraints, can take a lot of the sting out of dealing with patents and can even make them beneficial.

EMBRACE PATENTS AS ANOTHER TOOL TO DRIVE INNOVATION

The first step is to simply think of patents differently. To do this, it's helpful to look at why the patent system exists in the first place and what that means for designers. As most are aware, the broad justification for patents is to foster innovation. Most are also aware that one of the ways that the system seeks to encourage innovation is by granting a limited monopoly to those who invent new and useful things as a way to protect their investment. This is the aspect of patent law that gives patent holders the ability to sue to enforce that monopoly.

There's a tradeoff, though, to getting a patent monopoly, and that's the requirement that a patent must disclose the protected invention fully. With an eye to encourage innovation, the patent disclosure is made public, showing the public something that it can't do, but also giving away the details behind it so that others are able to build on the patented invention to arrive at a new and better advancements.

Design, with its desire to innovate and improve, is particularly able to capitalize from this side of the patent system through developing alternative technology or solutions that are simpler to use, more efficient or better looking than what's found in the existing state of the art. Because of this, the basis for integrating patents and design can involve using patents as a research tool for design, showing where opportunities for these types of design-driven advancements exist.

The information within patents can be like competitive analysis taken to another level. Not only can it be linked to what the competition is selling, but it can also give insight into previous failures by showing what's been tried but never actually resulted in a product. It also shows how

products and devices work without the need for teardowns or reverse engineering. In this way, patent research can directly relate not only to convergent thinking by eliminating potential solutions, but can also inform divergent thinking.

The particular ways in which design can use the various types of information available through patents can actually vary quite significantly and will depend on the specifics of any given situation. This means that what's set out here is really a starting point and that designers can use this as a framework to come up with their own particular solutions, as situations permit. To develop a solution that works for them, designers will need to know what they're looking for, how to extract the right guidance from it, and what it means to actually integrate patents and patent research with the design process.

GET THE RIGHT RESEARCH AT THE RIGHT TIME

Almost all companies already have some type of patent searching conducted on inventions and innovative concepts. There can be valuable patent research embedded in the results of these patent searches. The problem is that the research isn't always useful to the design process itself. Again, this is often an issue of timing, but the fact that the research is done with priorities remote from those of the design process doesn't help things either.

Most often, a company uses patent searches to either assess the patentability of an invention or to uncover any infringement issues before a product hits the market. The motivation behind both of these activities is reducing overhead and minimizing potential liability. Not surprisingly, this rationale is often as banal as it sounds and has little to do with the actual design priorities. As a result, it's not organized or presented to designers in a way that is intended to be actually useful within design itself. Sometimes, it's not even made accessible to designers at all.

The key to turning the tables here is to have information available when it's best used in the design process for guidance and influencing decisions. Since we're using patents to gain insight, we'll be looking for patent research that

Notes

3. See eg., Damien Newman, The Process of Design Squiggle, Central Office of Design, available at http://cargocollective.com/central/The-Design-Squiggle, July, 2010.

4. Tim Fletcher. Misunderstood Failure and the Oort Cloud of Possibilities. http://www.onebusinessdesign.com/blog/2015/12/8/observation-004-misunderstood-of-failure-and-the-oort-cloud-of-possibilities. December 8, 2015.

FIGURE 1
The basic design process, annotated
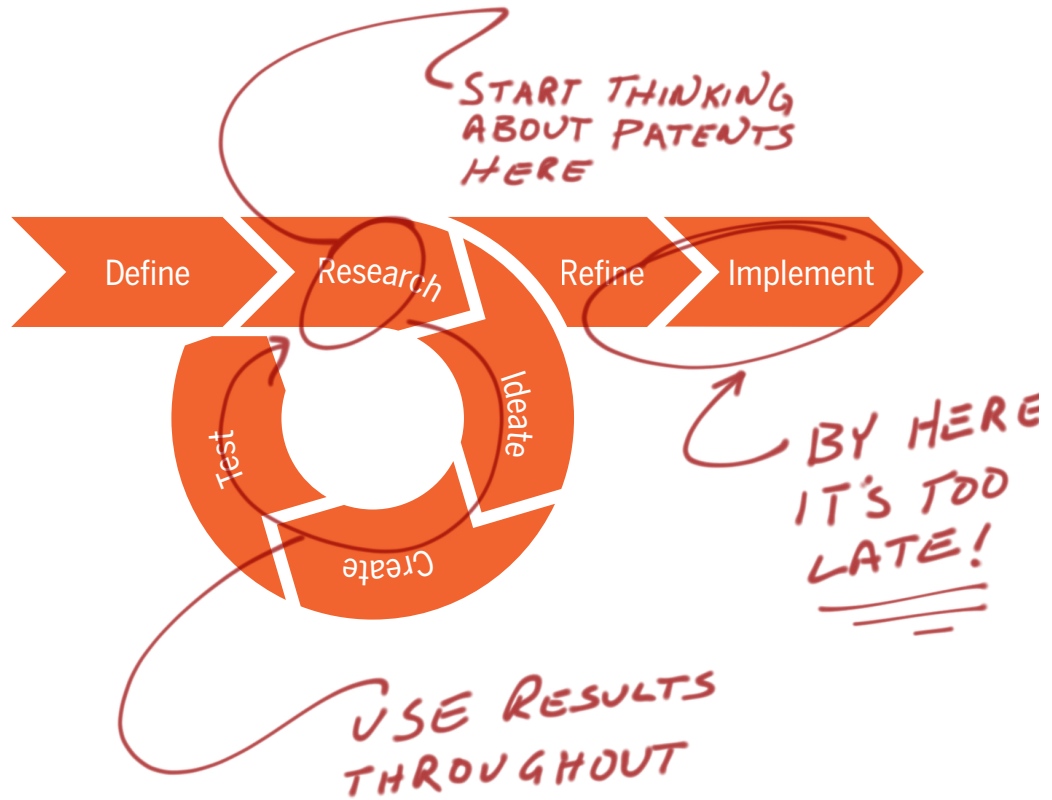
aligns with the decisions and considerations relevant at that point in the overall process. The key is to conduct patent research at the same time as other design research and to match its scope.

Most designers are surely familiar with the various diagrams of the design process. Although shown in various ways (with various degrees of simplification or oversimplification), most will in some way illustrate the iterative nature of the process, like what's shown in Figure 1.

At a basic level, every time design process iteration brings a team back to the research phase, patents should be considered. To get a sense of the scope, it's helpful to consider other models of the design process. One of these is a commonly used illustration that shows the characteristics of the design process using a line that starts out as a somewhat haphazard 'squiggle', indicating that things might be uncertain in the beginning.[3] The

line gradually straightens out as the illustrated process moves toward a conclusion to indicate that the process, in the end will focus on a 'single point of clarity.'

While I think that the squiggle-based model makes its intended point as an illustration of the way design gets less messy and more focused as a project progresses, the single point of clarity might be a little misleading. Looking at another concept originated by Tim Fletcher[4] that is reproduced and adapted here, we can see that within the design process some of the many design iteration cycles will guide a project away from certain solutions and toward others, cause divergence to multiple solutions, require stepping back to revisit earlier work, or even result in explorations that fail to lead to any solution. (See Figure 2 on next page)

Keeping all three of these models in mind, we can see that early on in the design process,

FIGURE 2
The exploratory nature of the design process opens the door to a different way of thinking about patents.
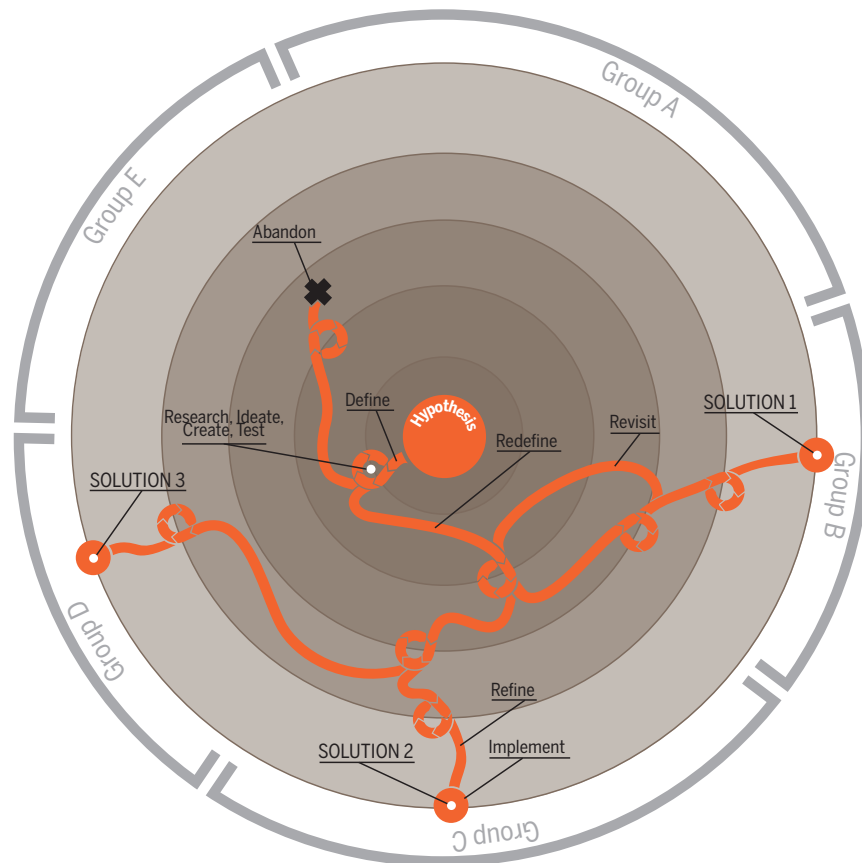
it doesn't make a tremendous amount of sense to wade into the minutiae of dozens or even hundreds of patents relating to components of very specific solutions in areas still just being considered. What's needed, instead, is a broader sweep of a search, looking from the inner starting point toward the outer ring of Fletcher's model, to capture the wide array of possible solutions that may be relevant at a thousand-foot view, while understanding that the ultimate direction is currently unclear.

Our envisioned composite model shows that the design process can lead to solutions in different categories, but it also shows a path to those solutions that takes several twists and turns, even as it begins to move toward possible solutions. Even within one category of a solution like a product, there are still multiple individual solutions that design can work toward and explore with shifts and branches in direction, both small and large, caused by any of a number of different factors.

Patent research can work within this model. When design research is carried at or near the beginning of a project, it can simply give inspiration or direction to initial concept exploration in a manner similar to other forms of early-stage design research. This can include looking at patents for clear indications that certain solutions or technologies should be avoided because of heavy or broad patenting. Outside of patent infringement concerns, this research can also show solutions that have been widely tried in the past and may give insight into why those solutions didn't work.

As clarity increases designers can look more deeply at smaller groups of patents that relate to or may impact the concepts or insights that are being explored. That doesn't necessarily mean a

Companies that value innovation often look to patent generation as an indicator of success, along with sales and profits. Design needs to express value in the same terms as the overall organization, both up front and over time to increase the perceived value of their contribution.

fresh round of patent research is always needed with each iteration. A simple check of earlier patent research in comparison to the scope of the change can often show if more patent research is needed. In some cases, all that will be needed is to revisit existing results.

When work begins to coalesce around specific solutions and designs, the patent research can get more specific to mirror the narrowing scope of the progressing design work. Given that design isn't a linear process, other opportunities for research will also present themselves as a project evolves, such as when development or validation work requires a shift or change in direction for some reason (which may or may not be patent-related), and may require a re-broadening of scope.

All the shifts and turns in a design process can be made for a number of reasons, some of which may be minor. If we consider patents from early in the iteration process, they may cause some changes in direction, but those changes may result in a final solution that is just as good or better, when considering all factors.

From the standpoint of avoiding patent infringement issues, working patent research into regular design research in this broad-to-narrow scheme can keep designers from working too far toward a solution that will only result in complications down the road. This helps design stay at least a step ahead of the patents that can impact potential solutions as they are designed, without requiring an overwhelmingly large patent search. It also gives information that, as discussed above, can be directly useful to design in a way that's relevant to the work being done at any given point in the process.

Getting the right kind of patent research at the right time is a significant first step. As we've seen, numerous benefits can be realized once this starts to happen. The key, though, to unlocking these benefits lies largely in how, and how well, the research gets used.

USE DESIGN TOOLS TO DECODE THE *PATENT SPEAK*
There is a wealth of information in a patent search results. The problem for designers is that

this information is often buried in the patents themselves, and it doesn't seem like a productive task for a design team to repeatedly dig through a growing pile of patent documents. If a design team just blindly asks for patent research on a given topic, they are likely to get a list of patent numbers and maybe a zip file with a dozen or so (maybe more) patent documents. What a design team needs to do in this situation is to anticipate how they're going to use the information and aim for results that are presented with this information already teased out in some way.

As I mentioned above, the information from patent research that is relevant to the design process is generally similar to what design research looks to get from other research that's already being done. Depending on the designer, the company or the firm, there will likely be various techniques in use for cataloging or visualizing that research in some way that makes it easy to reference and to draw out specific insights of guidance.

It then follows that the results of patent research can be fit into these schemes and tools. The benefit here is that it allows the team to quickly move beyond the patent research work and back into the process as close as possible to what the team is accustomed. Whether that research is presented in the form of radar maps, dual-axis priority maps, functional analysis annotations or is simply tacked up on a board, fitting patent research in will helps to use patent research just like other research. (See Figure 3 on the next page).

Designers can adapt these research tools to patents and can use them give results that they can deal with in familiar way and can find a way to effectively conduct and use IP research that is flexible, clear, and interesting. This gives an actual design opportunity to *design* research presentation and implementation tools to handle with patent research on an upfront level.

More than just avoiding lawsuits
By conducting patent research of the right scope at the right time, designers can look to those patents for guidance in avoiding problems down the road, but will also find valuable information

that fits with what they're looking at with other types of research. This information can be used directly within the design process, but it can also help inform decisions in a way that can help designers protect their own work.
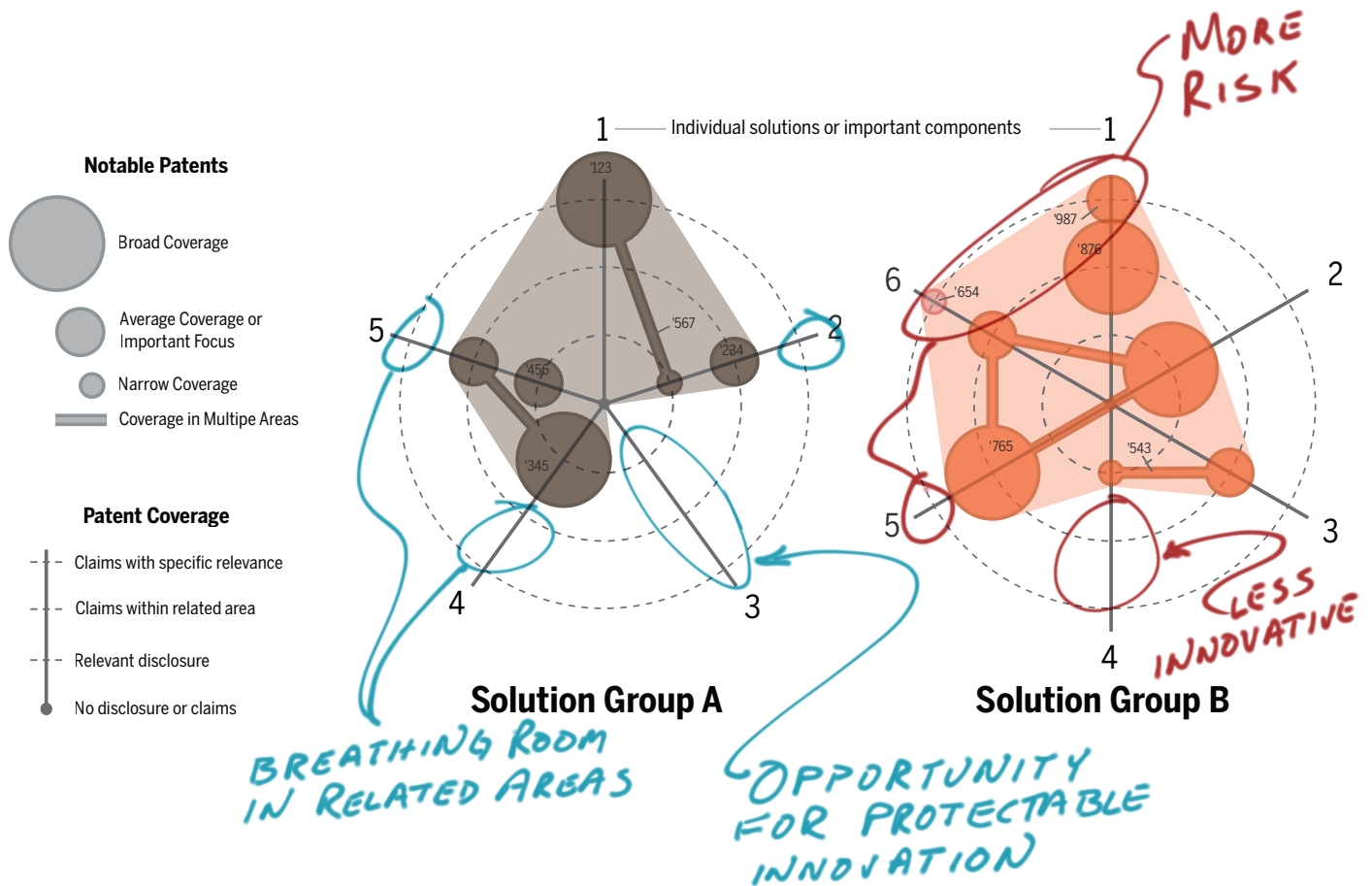
DESIGN WORK RESULTS IN HIGHER 'PROTECTABILITY'
By saying that we should consider the protectability of a concept or design I don't mean that anyone should be designing just to get patents. The results of the patent research that design should be looking for, however, can be used to push aspects of a design in certain directions with the goal of true innovation in mind. If this

approach leads to a few extra patents, which it likely will, then all the better.

Again, knowing what's out there from a patent standpoint can be a valuable first step. This is another good reason to have some broad patent landscaping done toward the outset of the design process. Once the patent landscape has been deciphered, the design team can use that information as another way to influence the decision-making process.

There are many instances where designers have to decide between different options, and there are a variety of criteria that designers can use to arrive at an ultimate decision. The ability

FIGURE 3

Design can develop new ways of communicating the results of patent research that fit with existing evaluation frameworks. In this conceptual example, radar graphs compare opportunity and risk of different aspects within two distinct solution groups.

Solution Group A

Solution Group B

Notes

5. See Tim Fletcher. Value Sorting, available at http://www.onebusinessdesign.com/blog/2015/6/29/tools-methods-002-value-sorting. June 29, 2015. An example of this type of matrix is provided here.

6. Michael Hages. The Design of Design Patents, Part III: More Than Just a Patent Number. Available at http://www.core77.com/posts/23234/the-design-of-design-patents-part-3-more-than-just-a-patent-number-by-michael-hages-23234. August 20, 2012.

to obtain a patent for something can be one such criterion. It makes sense to pursue the most protectable design, when all else is equal, given the potential importance of patent rights to an employer or client.

There are a number of ways to track and balance all of the considerations relevant to the design process. These have generally been developed with an eye toward helping design teams focus on the project as a whole, rather than their primary concern at that moment in time, be it a particular function or the product's appearance, for example. To that end, it's relatively easy to simply include patentability in these metrics.[5]

There are a number of different things to consider within the realm of patentability. The most significant of these is that an 'invention' is a scalable concept. This means that there may be a number of aspects of a solution to consider with respect to patentability, but that they might not all be equally important.

In an instance where broad conceptual protection is not particularly likely for an otherwise optimal design solution, designers can consider the likely patentability of individual features within the overall design. In some cases, these more specific protectable features might cover the details that really make the solution work, what resonates with consumers or what makes the solution really elegant. In other words, you don't have to change the design ethos based on getting a patent for this approach to be beneficial.

In some ways, designers can use this aspect of patent integration to help argue for more radical design or just *more* design, particularly with respect to product appearance. I've explained previously[6] that design patents are notoriously easy to get. Recent notable design patent cases, including Apple's substantial jury award against Samsung, have highlighted the potential significance of design patent damages. This only serves to increase the value of design patents from a protection standpoint, as it makes competitors more wary of design infringement issues. It is also a great argument for designers to use in a push to adopt a

more unique or identifiable visual design.

When used properly, this type of strategic work allows a design team to build proprietary assets into a design. In this way, patents can serve as a link between design and business. Whether you're looking for funding, pushing for implementation of a product, or delivering a design to a client, companies view the ability to prevent others from taking advantage of their investment as a critical aspect of a product strategy. Having confidence in how these evaluations will turn out can be empowering for a design team. It also allows a design team to add in one more, concrete criterion to a process that can involve a lot of guesswork (or may at least seem that way to outsiders).

PATENT STRATEGIES EMERGE THAT CAN BE PACKAGED WITH DESIGN DELIVERABLES

When dealing with companies that view their IP as a significant asset, an easy way to communicate the value of design's contribution is to make sure they understand the significance and potential value of the IP (which will mainly be in the form of patents) it's generated.

While it's true that products and their components will usually get mined for all available potential patents at some point, there's tremendous value to be realized by a design team taking more control of this narrative. Separation between a designer and the person evaluating a project for potential patents may mean that ideas aren't shared at the right time or expressed correctly, meaning that the patent process may be initiated too early or that important nuances aren't seen. This may be particularly true when dealing with a design patent strategy to protect important aspects of a product's visual design.

When work has been done to integrate patent considerations into the design process, the patent strategy should already be apparent to the design team. Evaluations have already been made, the importance of patent rights to protecting an overall solution has already been assessed, and devices for communicating the results of this work have been created. If a design team is more involved in a patent strategy, it can help ensure that patent

Michael Hages *is an intellectual property attorney with the firm Price Heneveld LLP® in Grand Rapids MI. He studied industrial design at Pratt Institute in Brooklyn, NY, and has degrees in mechanical engineering from The University of Michigan and law from the University of Dayton. He has seen first hand that the work of industrial designers can produce incredibly nuanced legal issues but suffers because too many lawyers don't even know what industrial design is. Michael has experience in guiding clients through complicated IP issues relating to design and utility patents in areas including consumer electronics, transportation technology, medical devices, footwear, and apparel. He is working to bridge the gap between law and design through education, by working directly with designers and by developing ways to use patent law to better serve the field of design.*

applications are drafted and filed at the right times without surprises or unnecessary work.

How exactly a patent strategy is derived and communicated will depend on how integrated the design group is with the entity that's ultimately responsible for implementing the final design and what the actual deliverable is. The intent of what's being communicated, however, is the same. The first step is to forget about invention disclosure forms and to think of the task of determining what's been invented, instead, as another step in the design project.

The way the IP package is presented should consider the breadth of the potential patents. This can include sharing whether there is a lot of room between the invention and what's already out there or if the goal is to just carve out narrow protection. Again, any of the potential patents with high strategic significance to the overall solution should be highlighted to show that potentially valuable patents are available and that the solution has a high degree of *protectability*.

If design work is being done in a consultancy setting, or by an internal design department that has to make a case for implementation, chances are a proposal is already being made for the solution that presents it in terms of how it's new, innovative and better than what's come before it. With patent research in hand about the individual inventive concepts, their significance, and their assessed patentability, all that's left to be done is to show the link between the two .

If there are multiple presentations at different stages, patentable concepts can be introduced in an ongoing basis along with requests for additional research or evaluation. The number and significance of potential patents can also be tracked as a way to show progress. Designers should also be careful to note when concepts are ready to move toward the patent drafting stage or if further work is needed.

If the designers are integrated within a larger development team, there may not be any formal presentations, but someone on or leading the team will be reporting to someone else and will likely be developing or maintaining a business case for the solutions being developed. This type of information would certainly be valuable in cases like this and should be communicated or made available in a manner that fits within the setting.

Taking these additional final steps can help communicate the value of a design team's work and can help your clients or others in your organization build actual assets around design work. Designers can take control of some of the strategy involved in developing these assets so that they get the deserved amount of credit. Companies that value innovation often look to patent generation as an indicator of success, along with sales and profits. Design needs to express value in the same terms as the overall organization, both up front and over time to increase the perceived value of their contribution.

Design has been holding patent considerations at an arm's length for far too long. Not only can the right type of patent research, carried out at the right time, smooth out the relationship between the design process and the patent process, it can also help designers to innovate and to sell those innovations to key stakeholders. Sure, patent lawsuits can be painful and expensive, but they represent only a fraction of what patents can be used to accomplish. By shifting focus away from lawsuits and toward constructive patent use that respects existing rights, design can continue to lead the way in creating significant, lasting innovation. ■

Note
The views expressed herein are solely those of the author and do not necessarily represent the view of his firm or its clients.