VIDEOS

3D Printing: The Technology

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3D Printing: Technology; Copyright's Conceptual Separability Test

3D printing took a while to find solid footing, but in recent years it has gained notable attention. The use of 3D printing has exponentially accelerated due to technological advancements and the expiration of key patents. Since 2011, 3D printing companies raised nearly $4 billion in public offerings, compared to just $300 million in its infancy from 1987 to 2010.

At our first 2015 3D printing conference, which was held last year at The Rock and Roll Hall of Fame and Museum, we talked about being able to print out a functioning cell phone in 10 years. The conversation continued at our 2016 conference, which was held at the Ritz-Carlton hotel in Cleveland (more than 300 representatives from major industrial, consumer products, educational, health care, and community organizations attended).

If you missed the April 2016 conference, embedded in this bulletin is a Benesch film summarizing certain advancements in 3D printing technology that occurred over the last year. The film (through terrific guest speakers) explains some of the profound return-on-investment dividends that additive manufacturing can provide to traditional manufacturing companies.

In addition to the film, here is an interesting article published on May 15, 2016 entitled "How Expiring Patents Are Ushering in the Next Generation of 3D Printing." Author Filemon Schoffer states: "Considered by many to be the 'Holy Grail' of additive manufacturing processes, metal 3D printing technologies - or more specifically, Selective Laser Melting (SLM) and Driect Metal Laser Sintering (DMLS) - are already being used to create custom metal parts for a wide variety of manufacturing applications ranging from custom race car parts to parts used by SpaceX for launching into the outer atmosphere." We use this quote to segue to other related news.

On May 2, 2016, the U.S. Supreme Court granted a petition for writ of certiorari to clarify an important test: how is copyright protection applied to articles that are "mixed," i.e., that are both functional (like custom race car parts) and also have expressive features (sometimes like custom race car parts)? The case is *Varsity Brands, Inc. v. Star Athletica, LLC*, 799 F.3d 468 (6th Cir. 2015), and it does not concern custom race car parts.

Varsity Brands concerns the copyrightability of articles of clothing, which are useful and functional (in this case, cheerleader uniforms). Under the Copyright Act, a "useful article" such as a dress or cheerleader's uniform (or a pair of sneakers, a bicycle rack, a lamp, an ornate chair, a belt buckle, a mannequin, or many other useful articles such as replacement parts for airplanes, automobiles or other big machines) fundamentally cannot be copyrighted. 17 U.S.C. § 101. However, a useful

article's component, expressive features may be protected if they can be "identified separately from, and . . . existing independently of the utilitarian aspects of the article." *Id.*

Star Athletica states the problem in its petition: "Circuit courts, the Copyright Office, and academics have proposed at least nine different tests to analyze this separability. The Sixth Circuit rejected them all and created a tenth." So, what is the appropriate test to determine when a feature of a useful article is protectable under § 101 of the Copyright Act? It seems now the Supreme Court will provide an answer, perhaps later this year or in early 2017.

In addition to providing clarification for the apparel industry, a predictable test for conceptual separability is important for the growth of the 3D printing industry. 3D printing, of course, allows the production of objects through scanning existing articles or through the creation of digital blueprint files (or through a mix of both methods). Many 3D printed objects contain both functional and expressive features and they will be created by consumers, large companies, and entrepreneurs - and ultimately sold, licensed, or otherwise shared over the Internet. Remember what happened in the music industry. Pirate Bay, the notorious torrent site that has traded music and movie files for years, is now trading files in a whole new category: PHYSIBLES, i.e., 3D files for 3D printing. In a blog post, Pirate Bay wrote: "Today most data is born digitally. It's not about the transition from analogue to digital anymore. We don't talk about how to rip anything without losing quality since we make perfect one to one digital copies of things. Music, movies, books, all come from the digital sphere. But we're physical people and we need objects to touch sometimes as well!" Pirate Bay's site administrators further stated: "We believe that things like three-dimensional printers, scanners and such are the just the first step. We believe that in the nearby future you will print your spare parts for your vehicles. You will download your sneakers within 20 years."

To be sure, illegal file-sharing sites will not care about navigating the conceptual separability test for sneakers. On the other hand, established companies like Shapeways and Thingiverse, who respect the intellectual property rights of others, do care. Both Shapeways and Thingiverse host thousands of 3D digital models for a variety of articles, sometimes only expressive and sometimes only useful - but often a mix of everything in between. Can the Copyright Act be leveraged by the owner of the design of a lamp to demand that Shapeways (through a DMCA take-down notice) take it down and its displayed 2D photo/rendering? (Assume it was scanned and posted by a third party to Shapeways' site without the owner's permission.) Yes, if the lamp itself is protected by copyright law, which begs the question. We know a basic no-frills lamp would not be protected by the Copyright Act. We know that a lamp as expressive as the famous "leg lamp" in the *Christmas Story* movie would be protected by the Copyright Act. And, as for the myriad of lamp styles that fall along the continuum in between, it gets blurry. As succinctly stated in Shapeways' amicus brief in support of Star Athletica's petition, "Shapeways and its users will often be called on to navigate the landscape of conceptual separability and would benefit from the certainty and clarity of a single test."

There are a number of reasons why a physical article may not be protected by copyright, including that the article is merely useful. Notwithstanding this, many people will automatically send take-down notices. These content owners have been trained in the YouTube era where take-down notices are the norm (and mostly appropriate) to take down copyrighted movies, television clips, and music - though, even with respect to these creative works, fair use clouds the issue.

We will write more about the impact of *Varsity Brands* over the coming weeks, and we look forward to the Supreme Court's decision. Similar to what digitization did for music, books, and movies, 3D printing facilitates the sharing of physical articles' digital models over the Internet. As Dave Pierson from Magnet states in our embedded technology film, 3D printing is on an asymptotic growth curve. Expect to see many more people demanding take-downs because they assume their works are copyright-protected. But, as you now appreciate, these works may not be protected by copyright and sites like Shapeways and Thingiverse (who host user content and provide a marketplace for it) must grapple with uncertainty. A clear standard articulating when a feature of a useful article is protected by copyright will remove some uncertainty.

Almost every business doing long-term planning should be thinking about 3D printing and the impact it will have on its business. Our 3D Printing Industry Group is here to help.

3D Printing will impact the way we make almost everything. Because the technology will change our clients' businesses, Benesch has formed a 3D Printing Industry Group, a multidisciplinary team led by core members of the firm's Innovations, Information Technology & Intellectual (3iP) Property Group.

For more general information and to learn more (including by viewing more than 20 Benesch-produced videos on 3D printing), click here.

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