

3D PRINTING WILL POSE A MULTIFACETED CHALLENGE TO OUR CURRENT INTELLECTUAL PROPERTY LAWS

01 July 2014

3D printing is not a new technology. The first 3D printing patents were filed over thirty years ago. Since its humble beginnings, 3D printing has continuously been refined and new uses have been developed. As the technology becomes ubiquitous, many aspects of the surrounding legal landscape are tested, particularly concerning intellectual property rights. This article will introduce 3D printing and the multifaceted IP challenges that are implicated by its use both commercially and directly by consumers.

What is 3D printing?

3D printing is a generic term for a number of different techniques that use “additive manufacturing” technology to create three-dimensional objects, layer by layer, using a digital blueprint. Although the technology is not new, it is often heralded as the harbinger of the new Industrial Revolution as it enables consumers to print customized products from home. Over the past few years a number of 3D printing patents have expired opening the door for others to bring additional 3D printing technologies to the market without fear of infringing underlying 3D printing patents. As a result, the price of personal printing units has fallen, while the quality of the products these small modules produce has increased. Notably, the patents for Selective Laser Sintering (SLS), a process that allows consumers to print high quality products using a variety of materials including metals, have expired this year.

While 3D printing is currently limited in scope to relatively small products made of plastics, the technology will soon exist to allow consumers to personally print anything from customized toys and jewellery, to functional goods such as replacement parts for lawn mowers. NASA has even undertaken an initiative to 3D print food in space. 3D printing has the potential to democratise manufacturing by decentralizing where products are made. Like all technologies that have the ability to alter the business or social arena, 3D printing implicates a plethora of legal challenges, particularly related to unauthorized reproduction

of products protected by intellectual property law.

Copyright and industrial design

Copyright protected works face a significant threat from the increasingly widespread availability of 3D printers. Much as the music industry was significantly altered when peer-to-peer file sharing was introduced, product designers may be undermined if digital blueprints of works are shared electronically and subsequently printed at home. Electronic sharing is difficult to detect and even more difficult to control. Compounding this threat, the Copyright Act contains exemptions for users where a copy of a work is made for personal use under appropriate circumstances. For example, if consumers are not exploiting any economic benefit from the act of reproduction, they may escape liability.

A further difficulty is that copyright generally does not extend to protect functional components of a work — this is the realm of patents. Difficulty arises when the design of a work is partially functional. A recent decision from the United States Court of Appeals for the Ninth Circuit, *Inhale Inc v. Starbuzz Tobacco Inc*, speaks to this issue: the Court found that the shape of a hookah (a long pipe for smoking tobacco) was inseparable from its function and therefore not protected by copyright. As a result, the defendant's reproduction of the hookah was free of any intellectual property violation. This decision may be used as precedent in 3D printing jurisprudence as the case suggests that the reproduction of any useful article will not be protected by copyright. It remains to be seen how Canadian courts will handle such issues.

One way to protect against infringements facilitated by 3D printing is to apply for industrial design registration, which protects aesthetic features of utilitarian products. Although the scope of protection excludes functional components, visual aspects like shape, configuration, and ornamentation would be protected.

This potentially critical tool of enforcement has some important limitations. Industrial design infringement is only triggered when a copy is produced that is nearly identical in both look and feel. Through even slight customization, consumers can avoid infringement. Consequently, rights-holders must either anticipate potential points of customization and apply for protection of a range of variations, or only protect the components that are unlikely to be altered.

Trademark

Users can easily circumvent infringement by removing the trademarked name or logo from products before printing. A more complex issue arises when the trade dress or distinguishing guise of a product, free of any mark, has acquired a secondary meaning that is clearly indicative of its source. However, the Trademarks Act generally requires “use” of the mark in the commercial sense in order to constitute an infringement. Therefore, it is conceivable that using a 3D printer to replicate trademarked goods for personal use may not be actionable under the statute.

Patent

As the number of materials that can be used as the “ink” in 3D printers increases, potential patent infringements become increasingly imminent. The threat extends as far as the pharmaceutical realm, where a chemist in Glasgow, Scotland, has developed a “chemputer” that is capable of 3D printing medicines.

Unlike the Acts protecting copyright and trademark, the Patent Act does not contain an explicit or implicit personal use exemption. It is conceivable that the proliferation of 3D printers will bring an increase in patent infringement actions. On the other hand, it may be extraordinarily difficult to monitor home use of 3D printers, and therefore infringement could go widely undetected.

Conclusion

3D printing is extremely versatile, and will pose a multifaceted challenge to current intellectual property laws. The issues arising from 3D printing capabilities are gaining notoriety, and organizations such as the United States Patent and Trademark Office have responded by hosting an annual Additive Manufacturing Partnership Meeting to share ideas and insights on the emerging technology in 2013. Furthermore, companies that offer third party high quality 3D printing services to the public, such as Shapeways, have been dealing with IP issues through a disclaimer in their terms and conditions indemnifying the company against intellectual property claims.

Ultimately, it may be that, due to the difficulty in detecting infringements on an individual level or small scale, rights owners will focus enforcement efforts on entities that may seek to profit from the unlawful and widespread exploitation of 3D printing technology.

3D printing is not the first idea to shake the IP world, nor will it be the last innovation to

alter the legal landscape. Only time will tell if and when the law will evolve to match this change.

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