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Additive manufacturing, increasing intellectual property

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Distributed counterfeiting, out-of-control infringement, Napster of olden days — to many attorneys and other legal professionals, the rise of additive manufacturing (or 3-D printing) invokes fears of the demise of intellectual property.

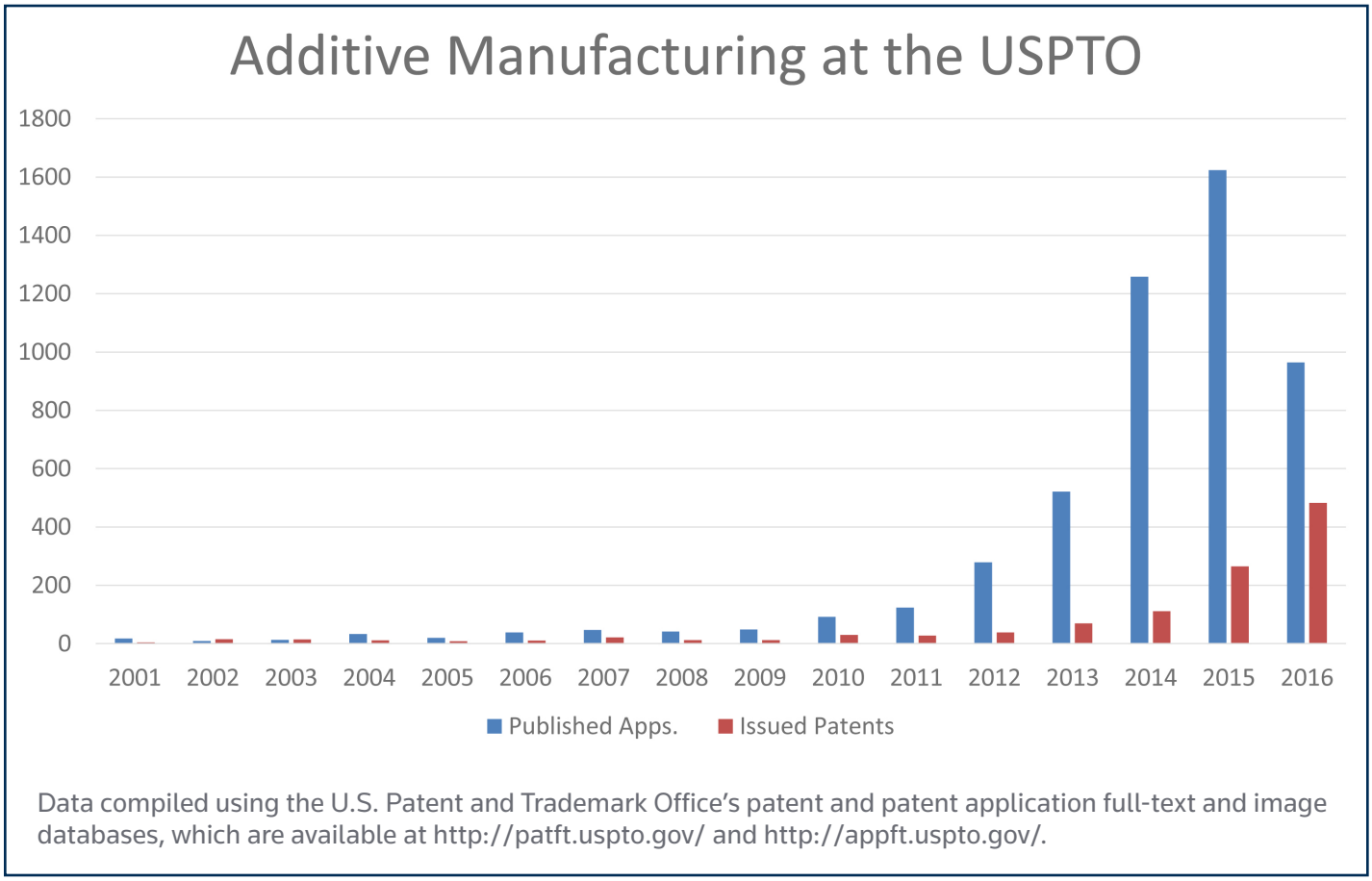
To date, however, few of the feared abuses of additive manufacturing have materialized. Instead, the industries and intellectual property surrounding additive manufacturing are healthy and robust.

Engineers and scientists are using additive manufacturing for innovations in a wide range of industries, including consumer products, aeronautics, medical devices and surgical tools, tissue and organ engineering, and pharmaceuticals.

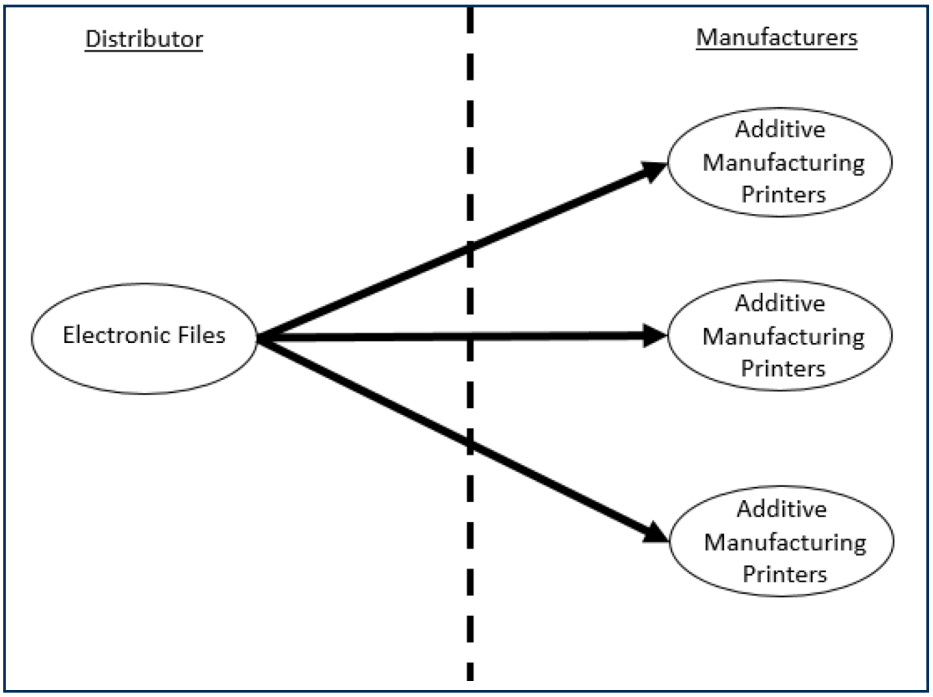
These industries are using new methods of additive manufacturing to make products that unlock the potential of previously untapped geometries and new materials, which can be customized or personalized for a specific use or individual.

Additive manufacturing requires printers with electrical and mechanical components as well as software, and nearly every aspect of additive manufacturing presents an opportunity to capture intellectual property and add value to your portfolio.

Indeed, the chart below illustrates the near-exponential growth of additive manufacturing mentioned in published patent applications and granted patents since 2001.



Data compiled using the U.S. Patent and Trademark Office's patent and patent application full-text and image databases, which are available at http://patft.uspto.gov/ and http://appft.uspto.gov/.



This illustrates an emerging business model where additive manufacturing is offered as an outsourced service.

This abstract glimpse into the mind of patent drafters suggests additive manufacturing has entered the mainstream.

The entire intellectual property spectrum — patents, trademarks, copyrights and trade secrets — can be harnessed in the age of additive manufacturing.

Dealmakers have already utilized license agreements with additive manufacturers to expand their brands and open new revenue streams.

As has always been the case, intellectual property should be carefully crafted to protect your place in the market, whether you are protecting an innovation or guarding your goodwill.

Additive manufacturing presents additional challenges due to the potential speed of innovation (and infringement).

Prioritizing investment in intellectual property requires a keen eye toward both present and potential future infringers, the marketplace, and changes in law and public policy.

Below we examine certain considerations for growing your intellectual property in the age of additive manufacturing.

UTILITY PATENTS

Utility patents should be considered when evaluating how to protect functional aspects of additive manufacturing and the resulting products.

However, many innovations in additive manufacturing sit squarely within the software and life science technologies. These innovations face particular challenges with respect to patentable subject matter. As such, they require careful consideration before filing.[1]

Regardless of the subject matter, patent claims should be drafted with various scopes to target potential infringers.[2]

Targeting infringers using additive manufacturing requires a working knowledge of additive manufacturing in the respective technological field.

For example, some emerging business models are offering additive manufacturing as an outsourced service.

When different parties perform different manufacturing steps, for example, patent claims might be crafted to capture particular steps such that the different parties can fall under one or more of the infringement theories.

For methods of manufacturing, patent claims can be drafted to target either the distributor or the manufacturer.

If one party does not perform all the method steps claimed in the patent, it is possible that neither the distributor nor the manufacturers will be liable for patent infringement.[3]

Awareness of the market and emerging business models is critical to drafting an effective patent claim.

DESIGN PATENTS

Design patents should be considered to protect ornamental aspects of a functional item. Ornamental designs of beverage containers, phones, furniture, computer chips and automotive parts are examples of items covered by design patents.

As a practical matter, the electronic files required for additive manufacturing are often easily rendered to figures for design patents.

Accordingly, design patents can be drafted inexpensively, compared with utility patents, and can generally be prosecuted to allowance and issuance within about a year of filing.

Many industries are already utilizing design patents to cover replacement parts — perhaps parts that may be easily made with additive manufacturing — to protect the market for original equipment manufacturers.

Design patents are useful to keep up with the pace of innovation and quickly acquire IP rights.

Like utility patents, a design patent claim can be similarly drafted to cover various aspects of an item.

For example, the illustrated fan below is covered by U.S. Patent No. D602,143 and U.S. Patent No. D605,748.

The '143 patent uses solid lines and effectively claims the entire ornamental design of the depicted fan and its base.

In contrast, the '748 patent uses a mixture of solid and broken lines, claiming ornamental features of the fan but disclaiming its base.

For competitors attempting to avoid infringement, designing a different base may avoid the '143 patent, but such a design-around may still run headlong into the '748 patent. This method of design patent claiming is effective to lock down ornamental features of various scopes and make design-arounds difficult.

COPYRIGHTS

Additive manufacturing provides a new medium of expression and thus increases the capacity for creating copyright-protected expression.

Even the most basic 3-D printers can create sculptures, statuettes, models, figurines, and other creative and artistic expression. In addition to the 3-D creations, the electronic files and source code that provide the printer with instructions for creating the 3-D objects are copyrightable.

Additive manufacturing is also frequently used to create useful objects, such as tools and spare parts.

Useful objects are themselves not protected under the Copyright Act, 17 U.S.C.A. § 101. However, pictorial, graphic or sculptural features of a useful article's design are eligible for copyright protection if those features "can be identified separately from, and are capable of existing independently of, the utilitarian aspects of the article."

In *Star Athletica LLC v. Varsity Brands Inc.*, 137 S. Ct. 1002 (2017), the Supreme Court weighed in on this separability test, stating:

> We hold that a feature incorporated into the design of a useful article is eligible for copyright protection only if the feature (1) can be perceived as a two- or three-dimensional work of art separate from the useful article and (2) would qualify as a protectable pictorial, graphic, or sculptural work — either on its own or fixed in some other tangible medium of

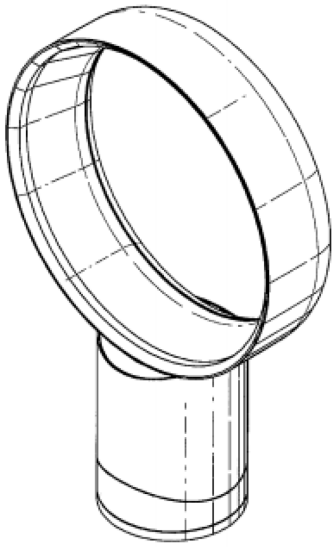


Figure 1 of D602,143

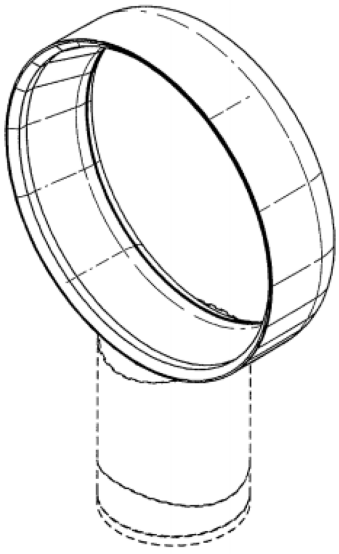


Figure 1 of D605,748

expression — if it were imagined separately from the useful article into which it is incorporated.

The high court also explicitly articulated that 3-D, not just 2-D, design elements on a useful article can also be copyrightable.

As such, design elements added to useful articles, such as a raised emblem or ornamentation, may also be copyrightable, further expanding the scope of intellectual property protection possibilities.

Additive manufacturing has greatly expanded the capacity for infringement and counterfeiting, but it has also expanded licensing opportunities.

To date, existing law has provided an effective means by which to enforce copyright rights against alleged infringers. For example, a copyright holder may use a take-down notice under Section 512 of the Digital Millennium Copyright Act, 17 U.S.C.A. § 512, to assert copyright ownership in television or film characters made into allegedly infringing figurines.

Furthermore, mutually beneficial licensing agreements for additive manufacturers open new revenue streams to copyright owners for the benefit of consumers.[4]

To that end, intellectual property owners should appraise any copyrights they own in their products, including creative artistic works, useful objects (which may include separable protectable design elements), and the electronic files and source code underlying the works.

Going a step further, those seeking to protect useful articles should consider adding design elements to useful articles, such as a raised emblem or ornamentation, to create an additional layer of intellectual property protection.

Such action also opens additional copyright enforcement mechanisms, such as the very quick and effective take-down notice process under the Digital Millennium Copyright Act.

TRADEMARKS

Similar to patent applications, trademark applications relating to additive manufacturing have seen a notable uptick in recent years. Hundreds of applications relating to 3-D-printable items have been filed since the beginning of 2016.

These applications have been filed for products ranging from medical instruments and cookie cutters to clothing and jewelry. They have been filed for two-dimensional and three-dimensional marks alike.

Many companies with existing marks have also used the dawn of additive manufacturing as an opportunity to expand and strengthen their brands.

Given the increased number of distribution channels and licensing opportunities afforded by additive manufacturing, these brands have been able to use the technology to expand within their current field and to bring their brands into entirely new markets.

For instance, Hershey's has used the opportunity to diversify its product distribution avenues, developing a chocolate-making machine called a Cocojet for customer use.[5]

Nike, on the other hand, has used the technology to advertise a forthcoming improvement in both the quality of its footwear and the speed with which it can release the same.[6]

Other companies, including Dylan's Candy Bar, Boeing and Coca-Cola have similarly used additive manufacturing to boost sales and innovate within their markets.[7]

All in all, as with the patent and copyright fields discussed above, the growth of additive manufacturing has largely helped — not harmed — many brands in the market.

Nonetheless, for any brand management strategy, it is important to understand how to protect a brand in light of new technological developments. The combination of trademarks and additive manufacturing is no different, and there are particular strategies companies can employ to best protect their brand assets in this environment.

Specifically, it is important for companies to include a registered or recognizable brand signifier on all goods sold.

As mentioned above, useful articles are not protectable under U.S. copyright laws. As a result, goods that are printed without brand authorization, while possibly infringing patent rights, may not infringe any copyright or trademark rights unless they contain a separate copyrightable design element or a registered or recognizable signifier of the brand itself.

The simplest way to include a brand signifier is to include a registered trademark on the product at issue.

However, including a trademark on a product comes with its own limitations, as it only protects the use of the mark itself and does not protect the design or appearance of the item on which the trademark is printed.

To address this loophole, brand owners should also consider utilizing trade dress to identify and protect their products.

This type of branding is particularly useful when it is not easy, or not preferable, to place product logos and other marks on the products themselves. It also means that brands can claim trademark protection outside of pure unauthorized use of their "marks."

For instance, if the Coca-Cola bottle shape was manufactured by an unauthorized party, Coca-Cola would have an actionable trade dress claim against the party even if no "Coke" or "Coca-Cola" mark was used on the resulting product.

Layering trade dress protection on top of trademark registration and use is always a good practice and it can afford brands an especially effective way to protect their goods.

CONCLUSION

Additive manufacturing provides many opportunities for intellectual property growth. Conventional intellectual

property approaches should be reinforced with new strategies better adapted to business models exploiting this nascent technology.

NOTES

[1] *See Alice Corp. v. CLS Bank Int'l*, 134 S. Ct. 2347 (2014), and *Mayo Collaborative Servs. v. Prometheus Labs.*, 132 S. Ct. 1289 (2012).

[2] Potential infringers may be classified under three infringement theories set forth in 35 U.S.C.A. § 271: Direct infringement, induced infringement and contributory infringement.

[3] However, a single entity is responsible for another's performance of claimed steps if the entity "directs or controls" the other's performance or if the entity and the other constitute "a joint enterprise." *Akamai Techs. v. Limelight Networks Inc.*, 797 F.3d 1020, 1022 (Fed. Cir. 2015).

[4] *Design. Sell. Make Money. Repeat. For the Brands You Love*, SHAPEWAYS.COM, https://www.shapeways.com/engage/superfanart (last visited Aug. 5, 2017) (detailing Hasbro's partnership with Shapeways for licensed 3-D printable toys).

[5] Sarah Buhr, *Hershey's Chocolate 3D Printer Whips up Any Sweet Design You Want*, TECHCRUNCH (Sept. 16, 2015), http://tcrn.ch/2wbog7u.

[6] *At Nike the Future Is Faster, and It's 3D*, NIKE (May 17, 2016), https://swoo.sh/2caSMZF.

[7] Sarah Whitten, *Gummy Selfies: Dylan's Candy Bar Goes High-tech*, CNBC (May 20, 2016, 11:16 AM), http://cnb.cx/2vtYM7I; Mirella Moon, *Boeing Uses First FAA-approved 3D-printed Parts for the 787*, ENGADGET (Apr. 11, 2017), http://engt.co/2oTf7A8; Dan Solomon, *Coca-Cola Rewards Fans with Mini 3-D Printed Versions of Themselves*, FAST COMPANY (Aug. 21, 2013), http://bit.ly/2uopUkn.

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