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J. T. Gaskill

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3D Printing and Patent Liability

BY [J.T. GASKILL](#) / ON FEBRUARY 19, 2015

Dr. Hideo Kodama developed the first three-dimensional printing technology, called Rapid Prototyping ("RP"), in 1980. Kodama developed his RP technology for creating industrial prototypes. Kodama unfortunately failed to file the full patent specification before the one-year deadline. Six years later, the United States Patent Office issued Charles Hull the first patent for his stereolithography apparatus ("SLA"), constituting the genesis of [modern 3D printing technology](#). Numerous new 3D printing methods were developed and patented between the 1980s and early 2000s. Within the past ten years, the 3D printing sector has settled into two distinct emphases.

One end of the 3D printing spectrum is high-end, highly engineered industrial parts, with growing applications in the aerospace, medical, automotive industries among others. The other end of the spectrum existed the concept modelers. Concept modelers had a focus on cost-effective concept development and functional prototyping, in a similar vein to the early printers of the 1980s. Concept modelers constitute a precursor to today's desktop models, though purposed for industry at the time. In January 2009, the first commercially available printer was put on the market, the BfB RapMan 3D printer. Sometimes called the second or third Industrial Revolution, 3D printing has had an undeniable impact on the industrial sector and has enormous potential for future consumers.

Though most 3D printers are designed for the industrial market, a number of printers using a plastic filament medium are available in the consumer market at accessible prices. [MakerBot](#) currently sells their Replicator Mini 3D printer for about \$1,400 and their standard Replicator for about \$2,900. Other 3D printer companies sell similar printers in similar price ranges. MakerBot sold 5,500 units of the original Replicator model in the first seven months post-release in January 2012. Some consumers do not want the expense of ownership and upkeep of home machines, but remain interested in 3D printed goods. [Shapeways](#) allows consumers to upload designs to their website, upon which Shapeways will print and mail the printed designs to the consumer.

Since most consumers are not familiar with computer-aided design ("CAD"), the utility of 3D printers rests upon access to object design resources. Two major collections currently exist: Shapeways, which makes available a large number of assorted, user-designed objects, with no opportunity to purchase or license the designs, and; Thingiverse by MakerBot, where object designers can share designs and improve upon the designs of others. Thingiverse allows users to download CAD files, while Shapeways focuses on object sales. Access to the CAD files means consumers can print objects with a personal 3D printer without purchasing a physical object.

At first glance, intellectual property concerns with 3D printing seem limited to copyright infringement, regarding the printed objects and the CAD files. Many 3D printed objects are useful, however, and therefore potentially patentable or patented. Thingiverse and Shapeways (collectively, the "Design Databases") allow the capacity for large-scale patent infringement across the Internet. The infringing capabilities can only inflate with advancements in 3D printing technology and commercial acceptance.

Independent creation is not a defense to patent infringement cases, unlike in copyright infringement cases. It is possible that a Design Databases user independently creates a design for an infringing object, and then shares the infringing design through the design databases. [This hypothetical presents a few potential infringement claims](#)

- liability for an individual who "makes, uses, offers to sell, or sells any patented invention;"
- liability for one who "actively induces infringement of a patent;" and,
- liability for an individual who "offers to sell or sells ... a component of a patented machine, manufacture, combination or composition, or a material or apparatus for use in practicing a patented process, constituting a material part of the invention."

Parties acting in good faith likely want to avoid expensive and time-consuming patent litigation. Patent law gives inadequate guidance to our hypothetical of an independent user's uploaded, infringing design. The threat of secondary liability may make the Design Databases' business model unsustainable for fear of massive legal risk. It is even feasible that patentees could lose the power to assert patent rights if their infringed design becomes popular on the Design Databases. Patent law requires a remedy allowing legitimate patentees to assert their rights while conserving the benefits of publicly sharing 3D printed object designs.