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3D printing in intellectual property law: A French Overview.

Martial PERNET

*PhD – CREDIMI Laboratory
Burgundy-Franche-Comté University*

Abstract :

Technological developments and the expiry of patents in three-dimensional printing are making this technology less and less expensive and with increased performance. Now widespread in the manufacturing industry, 3D printing is about to cross the threshold of our homes. The dematerialization of objects into exchangeable digital files raises many questions about the enforcement of intellectual property rights in French Law.

KEYWORDS: 3D PRINTING – FRENCH INTELLECTUAL PROPERTY LAW – COUNTERFEITING – INTERNET – HADOPI LAW – DAVSI LAW – TECHNICAL PROTECTION MEASURES – LCEN LAW – PIRACY – TAX ON REPRODUCTION OR PRINTING DEVICES – REMUNERATION FOR PRIVATE COPYING – AUTHOR – DESIGN AND MODEL – PATENT – TRADEMARK – SPARE PART.



The emergence of three-dimensional printing. This technology, dreamt of in a 1972¹ animated film where Professor Cuthbert Calculus wanted to "*make a kind of photocopy in relief*", seems to have come out of a science fiction film. Nevertheless, at the same time, a whole series of processes were being developed behind closed doors in laboratories, allowing for precise replication of objects in various materials (metal, plastic, wood, resin, polymer,...). As FDM² printing technology became royalty-free in the 2000s, the cost of purchasing a printer gradually dropped. Now affordable, the technology allows anyone to print any kind of object, whether it comes from a file created entirely by computer or after scanning an existing object.

Some professionals are announcing that another printing technology, SLS technology³, will give a real boost to the sector. Indeed, the latter, which is more efficient, saw a whole series of key patents⁴ placed in the public domain recently, making it widely accessible.

A technology with a worrying industrial impact. The growing accessibility of these printing technologies is beginning to challenge the intellectual property community. Admittedly, this is not the first legal difficulty linked to the replication of protected content (i.e.: printers becoming affordable; audio and video cassettes in the 1990s; "Peer to Peer" file sharing in the 2000s) but these techniques have had little or no impact other than on the film and music industries. The novelty here is that any everyday object can be digitized and reproduce an infinite number of times, thus sparing no

¹ RAYMOND, Leblanc. "Tintin and the lake of sharks", 1972.

² "Fuse Deposition Modeling": printing by adding layers of material.

³ "Selective Laser Sintering": printing via laser powder melting.

⁴ i.e. US Patent 5,184,307 of 02 February 1993 "Method and Apparatus for Production of High Resolution Three-dimensional Objects by Stereolithography".

sector. Years ago, an MP of the French National Assembly⁵ asked to the Minister for Productive Recovery about the plans envisaged concerning the dangers of "*the future distribution of 3D printers [allowing] the reproduction of any type of small object, from toys to spare parts for household appliances, without any property rights, as long as [an individual] finds the plans of the latter on the Internet*". Indeed, in addition to these questions of intellectual property, States will have to worry about the risks for the consumer of 3D reproduction might not comply with basic standards concerning certain objects requiring particular mechanical, physical and health properties. France will equally have to anticipate the questions concerning the printing of objects that are out of trade⁶, such as printed weapons⁷ or printed human organs⁸ in its legal system.

3D printing and digital counterfeiting. It is instinctive, in terms of intellectual property, to draw a parallel with the issue of piracy of protected files as it is discussed in other areas such as music copyright theft. Files allowing 3D modeling are for example also accessible from download platforms. Enforcing the law on geographically dispersed illegal users is for that reason made equally difficult (access to the foreign judge, high costs and delays). Hindsight from the field of piracy is therefore highly instructive when anticipating the legal future.

⁵ CORNUT-GENTILLE, François. Question n° 32786, J.O.R.F. [Official Gazette of the French Republic] of 16 July 2013, at. 7397.

⁶ i.e. Art. 16-1 al.3 of the French Civil Code: "The human body, its elements and its products may not form the subject of a patrimonial right"; Art. 1162 of the French Civil Code: "A contract cannot derogate from public policy either by its stipulations or by its purpose, whether or not this was known by all the parties".

⁷ If in early 2013 the medias were moved by the fact that an American student had put plans on a website to print a small functional plastic gun at home, at the same time, in November 2013, a company ("Solid Concepts C^{ie}") proposed a way to print a steel Colt M 1911.

⁸ An American patient received a 3D printed implant replacing two-thirds of his skull after a marketing agreement from the Food and Drugs Administration (Decision K 121818 of Feb. 07, 2013).

As we know, in France for example, it is now accepted that current digital laws are showing their limits in containing and preventing piracy due to a half-hearted French policy. Indeed, host of illegal content are benefiting from reduced liability under the law "for confidence in the digital economy". According to this, the law is only considered to have been breached if the content is not removed quickly⁹ and if failure to fulfill monitoring obligation is proved¹⁰. Consequently, this law systematically shifts the responsibility for counterfeits onto the content providers, who are often individuals, too numerous, and whose responsibility is difficult to establish. However, the French legislator has continued to target dissuasive coercive measures at a growing mass of users. The HADOPI¹¹ law thereby continues to punish the owner of the internet subscription for not monitoring their internet connection¹² in case of illegal activities committed by every user of their connection. Thus, the transfer of this type of liability to the case of illegal downloading of 3D printing files, lead us to think that the success of this law in reducing current 3D piracy will be limited, just as in other digital piracy area. The sharing of 3D files will be therefore inevitably increase over the coming years.

Within the framework of the DAVSI law, the French legislator has tried to respond to the desire of manufacturers to set up technical protection measures (e.g. copy control on CD's), by instating penalties in the event of circumvention by users¹³. However, it is now clear that the industrialists have forfeited this option, which is too expensive and not very effective. When it comes to 3D printing, even if there were a will to do

⁹ Art. 6. I.3, LCEN [Law for confidence in the digital economy].

¹⁰ Art. 6. I.2, LCEN.

¹¹ Law No 2009-669 of 12 June 2009 "promoting the dissemination and protection of creation on the Internet".

¹² Art L. 335-7 *seq.*, CPI [French Intellectual Property Code].

¹³ Art. L. 331-5 *seq.*, CPI.

so, it is clear that protecting objects will be equally difficult. Some suggest a mandatory installation of a punch in the print file, which would materialize legally duplicated 3D objects. Those who did not benefit from the hallmark would then be presumed counterfeit. However, the question arises as to whether it would always be possible to differentiate spontaneously between real objects and unauthorized copies. It is highly unlikely. Others propose to authenticate objects remotely, with a server that would allow a legal copy of the object to be made. A patent was filed at the end of 2012 in that way¹⁴. But the danger of this system would be that a company qualified as a “troll company” could use digital rights management (DRM) to impose its own control system through multiple patent filings. The sector could then experience the same negative consequences on its development as the music sector did a few years ago. The current proposals are therefore far from adequate!

To conclude on this point, let us add that while the French tax on reproduction or printing equipment¹⁵ currently only applies to devices that allow “*printing in paper format*”¹⁶, the logic of the law could lead us to wonder whether the legislator would be inclined to subject 3D printers to this tax or to a similar tax. It seems that this may be the case in the future. Further on, we know that some machines currently allow basic print circuits to be reproduced. But if they were to print small data storage devices in the future, would this amount to applying private copying remuneration tax (RCP) to 3D printing? Should we then consider printer supplies as “media” in the sense of L. 311-1 CPI¹⁷? Given the nature and diversity

¹⁴ US Patent 8,286,236 “Manufacturing Control System” of Oct. 10, 2012.

¹⁵ Art. 1609 *terdecies*, CGI [General Tax Code].

¹⁶ Circular of 09/08/2010 “Taxe sur les appareils de reproduction ou d'impression” of the Ministry of the Budget, Public Accounts and State Reform.

¹⁷ “The authors and performers of works fixed on phonograms or videograms and the producers of such phonograms or videograms shall be entitled to remuneration for the reproduction of such works [...]The authors and publishers of works fixed on any

of materials currently used as raw materials and the variety of their use, a taxation on the ground of this law would be extremely difficult.

Intellectual property laws facing the 3D printing challenge.

The 3D sector has many specific features. For example, unlike other areas concerned by piracy, all intellectual property rights are mobilized here (design, patent and copyright laws). We will discuss them later. But moreover, the vertical character of the industry, who is the holder of intellectual property rights (e.g. in the music industry), makes them not transferable to the user-consumer in 3D's scope. Indeed, the sharing of 3D files is currently essentially based on creations designed by the users themselves who, most of the time, share them under the Creative Commons regime through which they can modulate the scope of their rights. The analysis of file exchange and remote printing platforms also reflects this idea of network and exchange: the licensing regime to which the object is subject is rarely indicated, whereas the general conditions of use strongly recommend use under a free license.

Hence, through 3D printing, each individual will now be able to create or duplicate objects, sometimes unaware that the latter is already patented or incorporating patented elements. Similarly, all manufacturers can now create their own prototypes with no need for a laboratory, whereas being usually aware of intellectual property laws and mechanisms. As much as it is likely that this inflation in creation will further increase the importance of written claims when filing patents¹⁸, we have

other medium are also entitled to remuneration for the reproduction of those works [...]”.

¹⁸ Art. L. 612-6, CPI: “The claims shall define the matter for which protection is sought. They shall be clear and concise and be supported by the description”.

no doubt that it will certainly lead to a future multiplication of disputes concerning the right of prior personal possession¹⁹.

But, generally speaking, in order to consider a copy as a patent infringement²⁰, the object in question must be copied in a commercial context and obtained from an illicit source, even if the use of the object is then private. In such a case, double liability may be incurred. The companies providing a printing service²¹ can be liable to sanctions as "perpetrators" of counterfeiting²², while customers will be liable as ordering customers²³. On the other hand, copying a patented object in a private setting and with one's own equipment would not constitute an infringement if it complies with the derogatory regime of L. 613-5 CPI (non-commercial use)²⁴. Only an illegal download, if it is made from an illegal source, could be condemnable in that case.

¹⁹ Art. L. 613-7, CPI: "Any person who [...] at the filing date or priority date of a patent was, in good faith, in possession of the invention which is the subject matter of the patent shall enjoy a personal right to work that invention despite the existence of the patent".

²⁰ Art. L. 613-3, CPI: "The following shall be prohibited, save consent by the owner of the patent: a) Making, offering, putting on the market or using a product which is the subject matter of the patent, or importing or stocking a product for such purposes; b) Using a process which is the subject matter of the patent or, when the third party knows, or it is obvious in the circumstances, that the use of the process is prohibited without the consent of the owner of the patent, offering the process for use on French territory; c) Offering, putting on the market or using the product obtained directly by a process which is the subject matter of the patent or importing or stocking for such purposes".

²¹ E.g. The 27 November 2013, the French National Post Office Company has equipped three Paris offices with 3D printers for experimentation. Since then, the service has been extended to other offices and enriched with the launch in December 2015 of a website "Innovate and create in 3D".

²² Art. L. 615-1, CPI: "Any violation of the rights of the owner of a patent, as set forth in Articles L613-3 to L613-6, shall constitute an infringement. An infringement shall imply the civil liability of the infringer. However, the offering for sale, putting on the market, use, holding with a view to use or putting on the market of an infringing product, where such acts are committed by a person other than the manufacturer of the infringing product, shall only imply the liability of the person committing them if such acts have been committed in full knowledge of the facts".

²³ Art. L. 613-4 1°, CPI: "It shall also be prohibited, save consent by the owner of the patent, to supply or offer to supply, on French territory, to a person other than a person entitled to work the patented invention, the means of implementing, on that territory, the invention with respect to an essential element thereof where the third party knows, or it is obvious from the circumstances, that such means are suited and intended for putting the invention into effect".

²⁴ "The rights afforded by the patent shall not extend to: a) Acts done privately and for non-commercial purposes [...]".

Let us now consider the regime of spare parts printed outside the private frame and installed within a patented device. Such a copy shall be authorized if it falls within the scope of the exemption provided by L. 613-4 CPI – specifically the said spare part cannot relate to an essential element of the invention. However, could an object which parts have been repaired many times be considered counterfeit? In fact, due to the programmed obsolescence set up by the manufacturers, we could end up with a situation in which a patented object could contain mostly copied spare parts rather than original parts. In such a case, the answer seems to be the same as given previously: as long as the part duplicated is not a patented item itself or does not pertain to the essential element of the invention, copies are allowed under French Law.

Copyright encompasses many more objects than patent law. Indeed, it is only required that the object be created in order to benefit from this protective regime²⁵. From then on, the copyright will undoubtedly be the main area of tension in 3D matters, unless the copyist does not benefit of an exemption. To benefit of the private copy exception provided for by the French law²⁶, the copy must necessarily be made for private use (without professional use), for private domain (without public use), and in a private manner (without using a paid printing service). In addition, the copy must be based on a lawful source. The legal exemption regime is therefore very restricted. If any of these conditions are missing, then the copy shall be deemed to amount to a copyright fraud.

²⁵ Art. L. 111-1, CPI: “The author of a work of the mind shall enjoy in that work, by the mere fact of its creation, an exclusive incorporeal property right which shall be enforceable against all persons”.

²⁶ Art. L. 122-5 2°, CPI: “Once a work has been disclosed, the author may not prohibit: 1°. private and gratuitous performances carried out exclusively within the family circle; 2°. copies or reproductions reserved strictly for the private use of the copier and not intended for collective use [...]”.

Similarly, in the context of designs, printing objects for private and non-commercial purposes benefits from an exemption regime close to that of copyright law²⁷. But here the question of spare parts arises again. Directive No 98/71/EC (*Article 14*) and Regulation No 6/2002/EC on Community designs (*Article 110*) left it to the States to include a "repair clause" which excludes spare parts from the design protection regime, thus allowing the copying of 3D objects. Should France decide not to go down this path in order to guarantee fair remuneration for innovation²⁸, will this justification still remain appropriate in case of an increase of private copies in consumers' homes? Indeed, how can the protection of spare parts by design law be justified in a commercial transaction, when anyone is be able to copy them at home?

Finally, the intellectual protection of objects can also result from trademark law, whether the object is intrinsically bearing a trademark or whether a trademark is affixed to it. In this case also, the printing of the object must be differentiated according to whether or not it was made by a private person and in a private setting. If the reproduction of a marked object is made at home, the latter shall be authorized without the need to seek the approval of the owner of the mark. This solution pertains to the fact that printing the object itself and reserving it for one's own use makes it quite unlikely to create a risk of confusion as to the origin of the product²⁹. Conversely, the object should be considered as counterfeit.

²⁷ Art. L. 513-6, CPI: "The rights conferred by the registration of a design or model shall not be exercised concerning: a) Acts done privately and for non-commercial purposes [...]".

²⁸ Response from the Secretariat of State for Industry and Consumer Affairs, J.O.R.F. of the French Senate Jul. 03, 2008, at.1351.

²⁹ Art. L. 713-3, CPI: "The following shall be prohibited, unless authorized by the owner, if there is a likelihood of confusion in the mind of the public: a) The reproduction, use or affixing of a mark or use of a reproduced mark for goods or services that are similar to those designated in the registration; b) The imitation of a mark and the use of an imitated mark for goods or services that are identical or similar to those designated in the registration".

Summary of three-dimensional printing. 3D printing is not yet a major source of intellectual property conflict. The reason is that many dematerialized objects are copied for private use, under free license regime. Additionally, the vast majority of manufacturers currently prefer to turn a blind eye on private reproductions that are still marginal, or, if necessary, content themselves with a simple reminder letter to counterfeiters or intermediaries. Nevertheless, once this technology will have reached a critical stage of development in the eyes of the latter, it is certain that intellectual property problems will again arise in the current French legal system.