The essential guide to patents

Shashank Sharma tackles the complicated subject of patent laws in light of the ongoing Apple vs Samsung saga.

The world of men is broken. They file and get patents for unimaginably trivial things in the name of driving innovation. The time of the Elves is ending. Or so we imagine Lord Elrond might react to the way things are now.

The surprise billion-dollar Apple vs Samsung verdict will definitely be appealed before the Federal Court in Washington, but it'll be a long time before people get over the strange verdict, and indeed how we got there. For now, Samsung has requested a fresh trial on a number of grounds. It's not easy to understand the absurdity of some of the patents that have been granted to tech companies in recent times, not when we're constantly being told that the point of patents is to drive innovation.

> **"To most mere mortals, patents may seem as strange as Elvish spells."**

To most mere mortals, patents may seem as strange as Elvish spells, and they are mostly written as such, but this guide will help you to decipher the complexities of patent law. We'll also discuss how the patent laws in the EU differ from those in the US.

We won't go fully into the history of patents and trace their origins in 15th-century Italy and England, for that's not what we're here to discuss. Instead, let's focus on how patents were introduced to the European Union. While this may seem irrelevant, it's important to understand how the different EU nations, and indeed the rest of the world, treat patents.

Our story starts in 1973, when Belgium, West Germany, France, Luxembourg, Netherlands, Switzerland, and the UK agreed to a multilateral treaty called the European Patent Convention (EPC), to form a unified patent system in Europe. The EPC eventually led to the formation of the European Patents Office (EPO). Patents in Europe can be obtained on a national level, or via the EPO.

EPC and the EU, however, are not synonymous, as some EPC states, such as Croatia, Iceland, Turkey, etc, are not part of the EU. So, a patentee can file an application for a patent under the prevalent patent laws of the country, or under the EPO, if the country is one of the EPC states.

As a result, the European Patent granted under the EPC, despite the name, is still only enforceable nationally, or under the specified member states of the EPC as specified in the application, and not the entire EU. So, if a patent is granted under the EPC it is enforceable only in the EPC states as specified by the applicant in his or her patent application. There is no provision as yet for an EU-wide patent.

Understanding patents

Patents involve the granting of exclusive rights by a state to the inventor for a specific period of time. In return for these exclusive rights, the patentee agrees to a public disclosure of the invention. The exclusive right refers to the right to exclude all others from using, making, selling or distributing the patented invention without prior permission.

The exact process of filing or granting of a patent, the term for which it's granted and the extent of the exclusive rights depends on the patent and other national laws, and can thus vary from country to country.

Before a patent is granted, each application is subjected to the test of patentability. That is, the invention must satisfy a number of criteria before it is deemed patentable. At the very least, the invention must be new and original and non-obvious, and the subject matter must be patentable.

The patent laws of various countries explicitly provide subject matters which cannot be patented. For example, the EPC considers discoveries, scientific theories and mathematical methods not to be inventions, and so these can't be patented.

'Non-obvious' is a term often used in US patent law. The equivalent term in European patent law is 'inventive step'. The idea is to ensure that patents are not granted for obvious and natural use of the design. So, a saw will not be granted a patent for use in cutting wood. But if someone were to use a saw, with some modifications, to create swimwear for deep sea exploration, that is a non-obvious invention, or an invention involving 'inventive step', and so it will be afforded protection under patent law.

'Novelty' is another requirement for patentability. This is where the often-heard term 'prior art' comes in. If an invention has been disclosed to the public, prior to the filing of the patent application, this is proof that the invention is not new or original. Such inventions are not granted protection. All publications amount to disclosure, so prior art search involves only proof of publication of the invention prior to the filing of the patent.

A patent can be enforced against anyone who uses the patented technology, regardless of whether or not there is any wilful infringement or copying of the patented technology. Independent development of an infringing device is not a recognised defence.

A patent in the UK is granted for 20 years, so long as one pays the renewal fees each year. A period of 18-20 years is standard for almost all countries, depending on when the time period starts – date of filing for the patent, or date of grant of the patent.

Patentability requirements are nearly uniform across Europe, so if something is unpatentable in the UK because of the subject matter, it most likely will be unpatentable in other European countries.

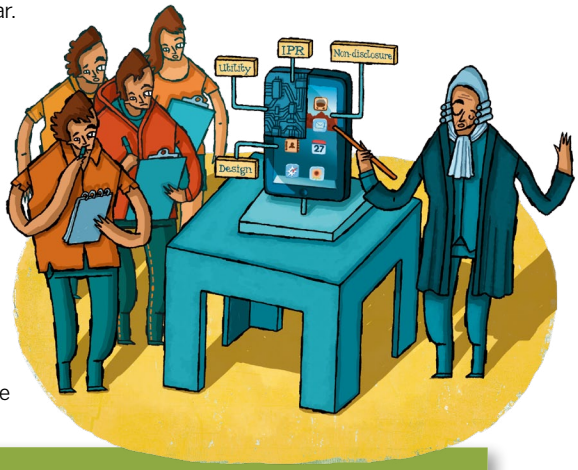
Let's quickly discuss utility and design patents, which are at the heart of Apple's suit against Samsung. All patents that cover inventions that produce some useful result are known as utility patents. When you hear the term patent, what is usually being referred to is a utility patent, as utility patents cover the most common categories of innovation. To qualify for a utility patent, the invention must be covered by one of the following categories of subject matters:

- **machines, comprising moving parts**
- **manufactured objects**
- **composition of matter, such as chemical compounds and pharmaceutical drugs**
- **processes which describe a stepwise method (this covers software)**

Just about everything that is invented by an application of the mind can be granted protection as a utility patent, the only criteria being that it must produce some useful result. The patent application for a utility patent must include a detailed description of how the invention was created, along with drawings.

Design patents cover strictly unique ornamental design of an article or object. The uniqueness of the shape or design must be purely for aesthetic reasons. If the shape is for aesthetic and also functional purpose, then it's considered a utility patent. If the novel feature is incorporated solely for the purpose of ornamentation and its removal doesn't impair the functioning of the device, it's a design patent. Design patents refer to shape or design that enhances the aesthetic appeal of an object.

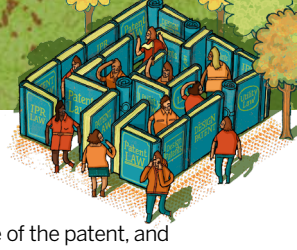
At the core of the Apple suit against Samsung are the design patents it holds in regards to the iPhone and iPad. Under UK laws, you won't find any mention of the term design patents. The equivalent term in the UK is 'registered design'. While there isn't any symbol to denote a registered patent, as there is for



The genesis of IPR

The term intellectual property first crept up some time in the 19th Century, but it wasn't until the 20th Century that it became popular. The term intellectual property rights (IPR) is used frequently to describe many different types of laws, such as copyrights, patents, trademarks, geographical indication, trade secrets, etc, all of which describe something that is created by an application of mind. Like other property or business assets, intellectual property can be sold, bought, hired or rented. Under the various IPR laws, the owners are granted certain exclusive rights, for a period of time, for economic exploitation.

Despite the rising popularity of IPR, there are strong critics of the term. Chief among them is Richard Stallman, the grand ol' champion of free software. He doesn't approve of the term intellectual property rights because it lumps together disparate laws that have different and distinct origins and cover different activities. This is understood easily when you realise that copyrights and patents originated nearly a century apart!



copyright and trademark, the term 'registered design' is used if the shape or design of an object is registered in the UK.

The purpose of 'trade dress' is to help one create a unique identity that helps the object stand apart from other similar objects. You should be able, by looking at an object, to immediately identify it, without necessarily reading the label. Thus, any combination of colour, font, packaging and labelling that helps one immediately recognise the source of the object qualifies as trade dress. In most jurisdictions, trade dress is considered part of the trademark laws, as the purpose of both is to create recognition and help customers easily identify the source of the product.

US and EU patents

Patents are territorial in nature, effected under the national laws of the country, but there is a growing focus towards conformity of the patent laws across different countries. The TRIPs Agreement, administered by the World Trade Organisation, describes the minimum standard for many different forms of intellectual properties. It requires that member nations of the WTO enact uniform laws for copyrights, trademarks, patents, etc, and provides for remedies, enforcement and dispute resolution procedures. Membership of the WTO now requires a strict implementation of the intellectual property laws, as per the TRIPS agreement. Despite this, there are a few fundamental differences between the patent laws of some countries, eg, the US and EU states.

The biggest difference is 'first-to-file' versus 'first-to-invent'. In the EU, the filing date is most important, as the person who files for the patent first is awarded the patent, even if the second applicant was the first to invent. On the other hand, the first party to invent is awarded the patent in the US, irrespective of the filing date. In this, the US stands in contrast to almost all other countries. The patent, in case of several applications for the same invention, is awarded to the party that can prove decisively it invented it first.

Another difference between the EU and US is in regard to the publication of the invention. In the UK, if the invention is publicly available in any form before the filing of the patent application, the patent is not granted.

The publication in this case includes articles in a magazine or newspaper, a lecture about the invention, sharing the invention with an investor without first signing a non-disclosure agreement, etc. To constitute publication, it is irrelevant who makes the invention publicly available: the inventor, one of the inventors or an independent third party. In contrast, inventors in the US have a grace period of one year from the date of publication to file for a patent. The US also provides for the granting of provisional patents. An inventor can file for a patent before the invention is production-ready, just to be able to prove a prior filing date. The provisional patent doesn't automatically mature into a regular patent. For that, the inventor has a period of one year, within which to file for a proper non-provisional patent.

> **"There is a growing focus towards conformity of the laws across countries."**

Finally, software patents are not granted in the EU, unless a technical problem is solved. In the US, however, patent protection is granted to all software (see box).

A registered patent grants the inventor the right to exclude all others from making, selling, using and distributing the subject matter covered by the patent. The exact nature of what is covered by the patent is described as 'claims'. Each patent application thus includes claims which define the exact scope of the patent, and a single patent can have many claims. A patent claim shows that the owner has the right to exclude others from using, selling or making the things that are described by the claims.

Claims are a relatively new addition to patent laws, especially in European countries, where there was no mention of claims in patent applications until the mid 20th Century. In contrast, the enactment of the Patents Act of 1836 made claims a strict requirement for all patent applications in the US.

A typical US patent application lists all the claims at the end of the application. For example, Apple's 7,469,381 utility patent has 20 claims, and Samsung was found to infringe claim 19, which states:

"A device comprising; a touch screen display; one or more processors; memory; and one or more programs, wherein the one or more programs are stored in the memory and configured to be executed by the one or more processors..."

We've included only a brief portion of claim 19. While claims comprise a single sentence, it's not uncommon to find claims that are spread over half a page, or more. To make reading them easier, such lengthy claims are often written in outline form.

Design patents have only a single claim. As the design is described by way of drawings in the patent application, the claim for a design patent usually reads "we claim the design as shown," or some variation thereof.

The claim for Apple's '889 design patent, which describes an electronic device, states: "We claim the ornamental design for an electronic device, substantially as shown and described."

The patents are referred to by the last three digits, so patent '889 is, in fact, the USD504889 patent.

Software patents in the EU

We've already discussed patentability and subject matter of patents, which defines the core areas of innovation that can be protected under the patent laws.

The most important criteria in the granting of a patent is new and useful innovation. As per Article 52 of the European Patent Convention (EPC), programs for computers are not regarded as inventions, and thus cannot be protected.

Despite this, the European Patent Office (EPO) regularly issues patents for what it describes as 'computer-implemented inventions' (CII). To be declared as patentable 'computer-implemented invention', all one has to do is prove that it has a technical nature and solves a technical problem. Next, the invention needs to be new, or involve an inventive technical contribution to the prior art. The translation for this jargon dressed as a sentence is that if the program solves a technical problem, it can be patented, but not otherwise.

This is explained best by quoting from the EPO website: "A patent application for an internet auction system was not granted because the system used conventional computer technology and computer networks – which meant it made no inventive technical contribution to the level of existing technology. Such a system may provide business advancement to its users, but that is not the type of advancement required by the EPO.

On the flip side, the problem of improving signal strengths between mobile phones is a technical problem, even if it is solved by modifications to the phone software rather than its hardware. Such an invention would obtain a patent, provided that the solution is also novel and inventive."

THE ROOT OF APPLE VS SAMSUNG

Since 2011, Apple has filed dozens of suits against Samsung and other device manufacturers, such as HTC, alleging infringements of its patents and trademarks, among other things. Samsung, in turn, counter-sued Apple, and both have since won decisions in their favour in different countries.

In its first complaint in the US, Apple alleged that Samsung had infringed on a number of its utility and design patents and various trademarks: "Samsung's Galaxy family of mobile products, introduced in 2010, is exemplary. The copying is so pervasive, that the Samsung Galaxy products appear to be actual Apple products — with the same rectangular shape with rounded corners, silver edging, a flat surface face with substantial top and bottom black borders, gently curving edges on the back, and a display of colourful square icons with rounded corners. When a Samsung Galaxy phone is used in public, there can be little doubt that it would be viewed as an Apple product based upon the design alone."

The infringement in the above quoted paragraph refers to various 'trade dress' elements that Apple had registered in regards to the iPhone:

"U.S. Registration No. 3,470,983 is for the overall design of the product, including the rectangular shape, the rounded corners, the silver edges, the black face, and the display of sixteen colourful icons.

"U.S. Registration No. 3,457,218 is for the configuration of a rectangular handheld mobile digital electronic device with rounded corners.

"U.S. Registration No. 3,475,327 is for a rectangular handheld mobile digital electronic device with a gray rectangular portion in the center, a black band above and below the gray rectangle and on the curved corners, and a silver outer border and side. "

The original complaint, despite alleging that Samsung had infringed seven utility and three design patents, didn't include the complete list of infringed patents. Patent '889, for instance, which describes the design of the iPad, was included in the final verdict form. The jury returned with a verdict in favour of Apple, awarding it more than $2 billion in damages, declaring Samsung had wilfully infringed on a number of Apple's patents, and registered trade dress.

The fact that the jury delivered the verdict after just three days of deliberation seems monumental when you consider the verdict form spanned 20 pages and covered many different areas of law – patent, trademark, trade dress, etc.

The 20 pages of the verdict form included several tables for each of the infringing devices, with more than 500 YES/NO questions in all. What's more, District Judge Lucy Koh provided the jury with more than 100 pages of instructions, detailing what was expected of the jurors, what constituted evidence, what was proof, the patents in question and many other things – which highlights the magnitude of care and responsibility that was expected from the jury.

The jury was required to decide uniformly on all the questions, and many lawyers and other legal experts have since declared the near impossibility of reaching a uniform decision on the 500 questions in a matter of a few days, while legitimately discussing the entirety of the case – the evidence, the arguments and defences.

Fearing that the jury might make mistakes on the verdict form, Samsung had filed a motion for time to study the verdict as turned in by the jury to ensure there weren't any glaring mistakes in it. The Judge saw sense in this request and granted it.

As it turned out, the jury did indeed goof up, awarding $2 million to Apple for inducement by a device it concluded didn't infringe on Apple's patents. The jury was asked to redo the maths and deliberate again on these issues.

The jury members, including the foreman, have since given several interviews, at times contradicting each other, and constantly providing evidence that might help Samsung get the decision overturned.

For instance, instruction number 35 in the mammoth 109-page instruction set reads:

"The amount of those damages must be adequate to compensate the patent holder for the infringement. A damages award should put the patent holder in approximately the financial position it would have been in had the infringement not occurred, but in no event may the damages award be less than a reasonable royalty. You should keep in mind that the damages you award are meant to compensate the patent holder and not to punish an infringer."

Despite this, the foreman has since been quoted as saying: "We wanted to make sure the message we sent was not just a slap on the wrist," and: "We wanted to make sure it was sufficiently high to be painful, but not unreasonable."

This blatant deviation from the judge's instruction is just one of the reasons why Samsung is seeking a fresh trial.

The proxy war against Google

Apple's tactic of going after manufacturers that create and sell devices powered by Android, the Google product Apple contends violates many of its patent, has been termed as a proxy war against Google. In fact, Steve Jobs believed firmly that Android was a stolen product, which copied blatantly the innovations made by Apple.

So why is Apple suing Samsung repeatedly instead of going after Google? Here are a few facts to set the record straight:

Google freely licenses Android to device manufacturers and generates revenue through its advertising model. The device manufacturers, such as Samsung, make money by selling Android-powered devices. In its suits against the device manufacturers, Apple has claimed loss of revenues due to their competing devices. However, in this case, contrary to Apple's original claim of more than $2 billion, the jury awarded only $1 billion in damages.

Another aspect of the case is that Apple had sought injunctions against various Samsung products which it contends infringe upon Apple's registered patents. This leads us to the second reason for the proxy war.

Once a verdict is announced in favour of Apple, it can get the International Trade Commission to halt permanently the sales of infringing products in the US. Since the infringing products run on Android, Apple can effectively bar the sale of Android products in the US!

Or so Apple hopes. With Samsung seeking a fresh trial, we're far from such an outcome. And it probably won't ever happen. LXF