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Module: Concept of Invention, Novelty, Inventive Step

and Industrial Application



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Module Detail		
Subject name	Law	
Paper name	Intellectual Property	
Module name/ Title	Concept of Invention, Novelty, Inventive Step and Industrial Application	
Module Id	Law/IP/#09	
Pre- requisites	Introduction to Intellectual Property; Justifications; legal principles of property; economics of patents	
Objectives	To understand the concept of patents. To study the principles of novelty and non obviousness governing patent law. Principles of patent law.	
Key words	Patents, inventive step, invention, novelty, non-obviousness, hindsight bias, teaching away, Intellectual Property, industrial application.	







Introduction

Patent is granted for an "invention" – this is a universally accepted principle of patent law¹. The patent specification describes the invention² and if the application is granted by the Patent Office, the patentee is entitled to exclusive rights over the "invention" As you may see, in many ways, the concept of invention forms the foundation of patent law. The sections below elaborate on this concept.

Section 2(j) of the Patents Act, 1970 defines the term invention in the following terms:

""invention" means a new product or process involving an inventive step and capable of industrial application"

For ease of understanding, let's break down this definition into its constituent parts:

- The invention must be a "product" or a "process".
- In order to qualify as an invention, a product or process:
 - o Must be "new"; and
 - o Must involves an "inventive step"; and
 - o Must be "capable of industrial application"

Learning Outcome:

- To understand the need/ context of Patent Laws.
- To examine the concept of Invention and novelty
- To comprehensively study underlying the obviousness analysis
- To study in detail the concept of Hindsight Bias
- To understand the concept of Teaching Away
- To explain the need for industrial applicability of an invention.

It is critical to note that the abovementioned requirements are conjunctive i.e. all the above need to be satisfied for a product or process to be considered an invention. While we will elaborate further on the concepts of "new", "inventive step" and "industrial application" in later sections of this module, it may already be evident to you that these requirements conjunctively create a fairly high threshold (as compared to copyright and trademark law) for a patentee to clear. Adoption of such a threshold is with good reason – the grant of a patent

¹ See Article 27.1 of the Agreement on Trade Related Aspects of Intellectual Property ("TRIPS Agreement"), which states "Subject to the provisions of paragraphs 2 and 3, patents shall be available for any inventions..."

² See Section 10 of the Patents Act, 1970 which states "

³ See Section 48 of the Patents Act, 1970 which states "







confers on the patentee exclusive right that often enable it to eliminate competition⁴. Thus the law seeks to ensure that such a monopoly is granted with caution and only where the patentee is able to show that the product or process is truly worthy of such a monopoly.

Statutory exclusions

Apart from Section 2(j) discussed above, Section 3 also provides guidance regarding the scope of the concept of inventions. The Supreme Court in the now landmark case of *Novartis AG versus Union of India and Ors.*⁵, categorized Section 3 of the Act into two parts: The Supreme Court found that subsections such as (d) and (e) are 'deeming' provisions that "declare that certain things shall not be deemed to be inventions"; other sub-sections of Section 3 such as (b) provide that even though resulting from an invention, some things may not be granted a patent for "other considerations".

For now, we are only concerned with the first of two categories mentioned above i.e. those subsections of Section 3 that declare that certain things shall be deemed not to be inventions. Section 3 declares that certain things – new forms of known chemical substances⁶, process for the medicinal, surgical, curative, prophylactic, diagnostic, therapeutic or other treatment of human beings⁷, algorithms⁸, mathematical methods⁹, business methods¹⁰, computer programmes per se¹¹ etc. – will not be considered as inventions even if they satisfy the requirements of Section 2(j). Thus, the statute excludes certain categories from things from the concept of "invention" thereby creating a list of products or processes that will not be considered as inventions and will thus not be entitled to patent protection even if they are new, involve an inventive step and are capable of industrial application.

Relationship between the concept of invention and statutory exclusions

The Supreme Court in the *Novartis* case clarified that Section 3 creates a "second tier of qualifying standards" quite apart from those mentioned in Section 2(j). It may be helpful to conceptualize the relationship between as two filters – the first filter comprises of the three requirements the patentee has to establish i.e. that the product or process is new, has an inventive step and is capable of industrial application. The second filter comprises of the statutory exclusions mentioned in Section 3. An invention has to pass through both these filters to be eligible for grant of a patent.

When is an invention considered 'new'?

The term 'new' is not defined by the Act. ¹²While the Act defines the term "new invention", this definition is redundant since the term is not used anywhere else in the Act. In these circumstances, one has to use the common law meaning of the term to understand the

⁴ See *Ibid*.

⁵ (2013) 6 SCC 1

⁶ Section 3(d) of the Patents Act, 1970

⁷ Section 3(i) of the Patents Act, 1970

⁸ Section 3(k) of the Patents Act, 1970

⁹ Section 3(k) of the Patents Act, 1970

¹⁰ Section 3(k) of the Patents Act, 1970

¹¹ Section 3(k) of the Patents Act, 1970

¹² The Act does define the term 'new invention'. Oddly, however, the term 'new invention' is not used in the Act, thus rendering the definition redundant.







meaning of the term new. A commonly used definition of "new"/ "novelty" is this – a claim is considered new if all the elements of the claimcannot be found in a single prior art reference¹³. At this point, it is important for you to understand the concept of prior art – prior art means everything made available to the public by means of a written or oral description, by use, or in any other way, before the priority date of the invention¹⁴. The most commonly used prior art are written documents – both previously published patents and other articles published in journals. Now let's again examine the definition of "new". If there exists any single document where all the elements of a claim can be found, the claim is said to lack novelty.

Let's take an example. An inventor felt that existing three – legged chairs were too unstable and thus came up (for the first time) with a four – legged chair. A claim for a four-legged chair can read as under:

"A device for resting comprising of a seating platform, four legs, a backrest and an armrest."

The element of this patent are:

- 1. It is a device (a product patent) which must be used for resting
- 2. It must have a seating platform
- 3. It must have four legs
- 4. It must have a backrest
- 5. It must have an armrest

Let's say there is a prior patent that discloses three-legged chair having a seating platform, a backrest and an armrest. Even though all other elements of our four – legged chair are known, since element '3' described above is missing from the prior art document, the claim on the four legged chair can be considered 'new'. Now let's say another patent discloses a four – legged stool which has a seating platform and four legs. Does this patent alone make our four – legged chair not 'new'? The answer is no. This is because elements '4' and '5' of the chair identified above are missing from the four – legged stool. You may be wondering if one can combine the disclosures made in the patent relating to the three – legged chair and the four-legged stool to destroy the novelty of the four – legged stool. The law does not permit this combination or 'mosaicing' 15. As mentioned above, to destroy novelty of a claim, all the elements of the claim must be found in a <u>single</u> prior art reference and thus combination of two prior art documents is not possible in the novelty context. Remember that this analysis is only limited to 'novelty' and, as you will see, different rules apply when we analyze whether a claim has an inventive step.

When is an invention said to have an "inventive step"?

While, as aforementioned, the statute does not define the term 'new' or 'novelty', it does provide the following definition for the term inventive step under Section 2(ja):

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¹³Glaverbel SA vs. Dave Rose and Ors., 2010 (43) PTC 630Farbewerke Hoechst AktiengesellschaftVormals Meister Lucius &Bruning Corporation Vs. Unichem Laboratories and Ors., AIR 1969 Bombay 255

¹⁴ The term "state of the art" has been defined under Section 2(2) of the UK Patents Act, 1977

¹⁵Von Heyden versus Neustadt, (1928) 45 RPC 48; Glaverbel SA vs. Dave Rose and Ors., 2010 (43) PTC 630







"Inventive step" means a feature of an invention that involves technical advance as compared to the existing knowledge or having economic significance or both and that makes the invention not obvious to a person skilled in the art;

The Supreme Court in the aforementioned *Novartis* case broke down Section 2(ja) into its elements in the following way:

"It [The product] must come into being as a result of an invention which has a feature that:

(a) entails technical advance over existing knowledge;

Or

(b) has an economic significance

And

(c) makes the invention not obvious to a person skilled in the art"

This question - what is "obvious" - has been the subject of a large part of patent litigation and continues to be one of the most vexed questions in all of patent law.

2.6.1. Policy underlying the obviousness analysis

The policy underlying the obviousness analysis is well illustrated by Lord Hoffmann's following words:

"The words 'obvious' and 'inventive step' involve questions of fact and degree which must be answered in accordance with the general policy of the Patents Act to reward and encourage inventors without inhibiting improvements of existing technology by others. The question is therefore whether in accordance with this policy the patent discloses something sufficiently inventive to deserve the grant of a monopoly."

The inventive step analysis thus lies at the heart of the debate on patentability. This requirement is an important lever that countries use to define the level and kinds of innovation that they wish to encourage, though this of course must be done within the limits prescribed by the TRIPS Agreement.

2.6.2. Obvious from whose point of view

The last few words of Section 2(ja) – "to a person skilled in the art" – introduce us to another important concept of patent law. Whether or not a product or process has an inventive step is to be adjudged from the point of view of a "person skilled in the art". In other jurisdictions such as the United States, the term used for the analogous concept is 'Person Having Ordinary Skill In The Art' (in short also referred to as 'PHOSITA').







The person of ordinary skill is not inventive but a person with average, normal skills¹⁶. The work expected from such a person is of a routine nature and nothing extraordinary or out of the way. The person of ordinary skill is not expected to know the solution to the problem or else the analysis would be on the basis of hindsight. The person of ordinary skill in the art is conservative and does not take risks or go against the established prejudices¹⁷.

It is well settled that the more choices or decisions that the person of ordinary skill will have to make in reaching the solution, the less obvious the said solution. The greater the complexity and the more instructions there are on the path to the invention the less obvious it is.

2.6.3 Obvious with respect to what

There is another important expression in Section 2(ja) – "technical advance <u>over existing knowledge</u>". As explained above, mosaicing is not permissible while carrying out a novelty analysis. Is it permissible while carrying out an inventive step analysis? The answer is yes, provided that such a combination of prior art references would have been carried out by an unimaginative man with no inventive capacity¹⁸. Thus while carrying out an obviousness analysis, the disclosures made in one prior art document may be supplemented by disclosures in another prior art document if a person skilled in the art would have thought it obvious to consult the latter after referring to the former in light of the problem he had set out to solve. Such combination is particularly likely where the disclosures made in one prior art document *lead* the person skilled in the art to another prior art document – a good example of this is where one document cites or cross – refers another document¹⁹.

2.6.4 The test for obviousness

It is safe to say that there does not exist one uniform approach to determining obviousness and even in jurisdictions where one approach has been adopted, different judges have applied the law differently. In India, the Supreme Court of India dealt with this question expressly in *Biswanath Prasad RadheyShyamvs Hindustan Metal Industries*²⁰ which is a three – judge bench decision of the Hon'ble Supreme Court. The Delhi High Court in the *F. Hoffmann La Roche versus Cipla Ltd.*²¹ adopted the Supreme Court test and held as under:

"The 'obviousness' has to be strictly and objectively judged. For this determination several forms of the question have been suggested. The one suggested by Salmond L. J. in Rado v. John Tye& Son Ltd. is apposite. It is: "Whether the alleged discovery lies so much out of the track of what was known before as not naturally to suggest itself to a person thinking on the subject, it must not be the obvious or natural suggestion of what was previously known."

26. Another test of whether a document is a publication which would negative existence of novelty or an "inventive step" is suggested, as under:

¹⁶General Tire & Rubber Co v Firestone Tyre& Rubber Co Ltd., [1972] RPC 457

¹⁷Genentech/ Boehringer Manheim, T 0455/91

¹⁸Technograph versus Mills and Rockley, [1972] RPC 346 at p. 355

 $^{^{19}}$ Pfizer Ltd. 's patent, 2001 FSR 16 at paragraphs 65 - 66.

²⁰ (1979) 2 SCC 511

²¹ 2012 (52) PTC 1 (Del)







"Had the document been placed in the hands of a competent craftsman (or engineer as distinguished from a mere artisan), endowed with the common general knowledge at the 'priority date', who was faced with the problem solved by the patentee but without knowledge of the patented invention, would he have said, "this gives me what I want?" (Encyclopedia Britannica; ibid). To put it in another form: "Was it for practical purposes obvious to a skilled worker, in the field concerned, in the state of knowledge existing at the date of the patent to be found in the literature then available to him, that he would or should make the invention the subject of the claim concerned?""

As is evident from the tests formulated above, the test of obviousness is ultimately a subjective one ²² and involves value judgment ²³. This introduces a significant amount of unpredictability in patent law and this, in my view, is the cause of a large part of patent litigation.

2.6.5 Hindsight bias

An oft – talked about phenomenon in the obviousness context is hindsight bias. Simply put, hindsight bias refers to the phenomenon in which inventions seem obvious after the fact even though they would not have been obvious before they were invented. It has been scientifically proven that once humans have learnt something, it is difficult for them to ignore it. Once armed with the knowledge of the invention, it is difficult for humans to retrace the forward looking steps that the inventor took and are more likely to simply piece together the teachings of the prior art to reach the invention and then perceive the invention as obvious. In other words, when viewed through the lens of hindsight, Courts are more biased to find an invention obvious.

As you can imagine, hindsight bias is quite unfair to patentees. Courts have thus repeatedly cautioned against it. Courts have held that the person skilled in the art should treat the invention as a "template" to piece together the teachings of the prior art and then claim that the said prior art made the invention obvious²⁴. Similarly, in the $Ortho-McNeil\ case^{25}$, the court said that it is impermissible to simply retrace the path of the inventor with hindsight and discount the number and complexity of the alternatives that are faced by the person skilled in the art should he attempt to reach the invention from the prior art.

In the European Community, the obviousness test is often referred to as the 'could – would' test. According to this test, the point is not whether the skilled person could have arrived at the invention by adapting or modifying the closest prior art, but whether he would have done so because the prior art incited him to do so in the hope of solving the objective technical problem or in expectation of some improvement or advantage. This focus on the 'would' rather than the 'could' helps the Courts guard against the hindsight bias.

2.6.6. Teaching away

²² Kirsch Manufacturing Co. v. Gould Mersereau Co., 6 F.2d 793

²⁵Ortho-McNeil Pharmaceutical, Inc. v. Mylan Laboratories, Inc., No. 07-1223 (Fed. Cir. Mar. 31, 2008)

²³Picard v. United Aircraft Corporation, 128 F.2d 632.

²⁴In Re John R Fritch, 972 F.2d. 1260

²⁶http://www.epo.org/law-practice/legal-texts/html/guidelines/e/g_vii_5_3.htm







Patent law has long recognized the concept of "teaching away". According to this concept, if the prior art "teaches away" or prejudices the person of ordinary skill in the art from embarking on the path chosen by the inventor, then the invention is non – obvious. This concept is succinctly explained in the Pozzoli case²⁷ where the Court held that:

"Patentability is justified because the prior idea which was thought not to work must, as a piece of prior art, be taken as it would be understood by the person skilled in the art. He will read it with the prejudice of such a person. So that which forms part of the state of the art really consists of two things in combination, the idea and the prejudice that it would not work or be impractical. A patentee who contributes something new by showing that, contrary to the mistaken prejudice, the idea will work or is practical has shown something new. He has shown that an apparent "lion in the path" is merely a paper tiger. Then his contribution is novel and non-obvious and he deserves his patent."

2.6.7. Objective indicia of non - obviousness

Another critical argument of the patentee is on factors which are the objective indicia of non obviousness as can be seen from paragraph 5.05 of Chisum on the Law of Patents²⁸, there is a natural pitfall in complying their subjective tests of obviousness and these can be overcome by applying objective indicia. As per the said authority:

"The legal conclusion as to whether a given product or process was obvious at the time of invention to one of ordinary skill in the pertinent art who had knowledge of all relevant prior art is a path fraught with pitfalls, including especially the inherent difficulty of making such a hypothetical judgment and the tendency to use (even subconsciously) "hindsight" and the inventor's own work to determine obviousness. The adversary system fails to guide adequately the decision maker along the path; in infringement trials, the opposing sides tend to offer conflicting expert testimony. Consequently, the courts look to objective guideposts – what Judge Learned Hand in his many incisive opinions on he subject called the "history of the art" for aid and assistance"

The importance of such objective indicia of non – obviousness have long been recognized including by the United States Supreme Court in Graham v. John Deere'scase²⁹wherein the court stated that such objective indicia or 'secondary considerations' as (i) commercial success, (ii) long felt but unresolved needs, (iii) failure of others etc. might be utilized to give light to the circumstances surrounding the origin of the invention and may have relevancy as indicia of non – obviousness.

Even though the importance of such secondary considerations is well settled in the United States, the Intellectual Property Appellate Board in India has held that under Indian law, such considerations are not admissible. In *Ajanta Pharma Ltd. versus Allergan Inc.*³⁰, the Board held that "According to our Act, the patent is revoked if the invention is obvious. So the secondary considerations cannot change that. Therefore the secondary objective evidence is not relevant in determining non-obviousness as per law." This decision is under appeal and thus it remains to be seen if India does adopt such secondary considerations will be relevant for determining obviousness under Indian law.

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²⁷Pozzoli SPA versus BDMO SA, [2007] FSR 37

²⁸Donald Chisum, Chisum on Patents: A Treatise on the Law of Patentability, Validity and Infringement

²⁹383 US 1

³⁰Decision in ORA/20/2011/PT/KOL available at http://www.ipab.tn.nic.in/172-2013.htm







We will finish our analysis of the law on obviousness by going back to our chair example (See Section 2.5). Is the claim on the four – legged chair obvious? The first prong of the analysis will require us to determine if a person skilled in the art would combine the disclosures made in the patent relating to the three – legged chair and the four-legged stool given the problem that he had set out to solve i.e. the instability of three – legged chairs. The second prong of the analysis will be as follows – whether, given the disclosures in these prior art references, would it be obvious for a person skilled in the art to increase one leg of the chair to increase the stability of chairs? Would this solution naturally suggest to a person skilled in the art? I leave it to you to form your own answers to these questions.

2.7. When is an invention said to be capable of industrial application?

The term "capable of industrial application "is defined under Section 2(ac) of the Patents Act which states that "in relation to an invention, means that the invention is capable of being made or used in an industry;".It is noteworthy that the words used are "capable of being used" rather than simply "being used". Thus the patentee need not have actually used the invention in an industry to satisfy this requirement and the invention merely needs to be capable of being used in an industry.

Unfortunately, this definition is not very helpful and not many Courts have dealt with this issue in any detail. We will thus have to rely on judicial interpretations in other countries to understand this issue better. A leading case, which summarizes the law as it stands today on this issue, is *Eli Lilly versus Human Genome Sciences Inc.*³¹. In that case, Justice Kitchen summarized the law on this issue as follows:

- a. "The notion of industry must be construed broadly. It includes all manufacturing, extracting and processing activities of enterprises that are carried out continuously, independently and for commercial gain (BDP1 Phosphates/Max-Plank). However, it need not necessarily be conducted for profit (Chiron) and a product which is shown to be useful to cure a rare or orphan disease may be considered capable of industrial application even if it is not intended for use in any trade at all (Hematopoietic cytokine receptor/Zymogenetics).
- b. The capability of industrial exploitation must be derivable by the skilled person from the description read with the benefit of the common general knowledge (PF4A receptors/Genentech).
- c. The description, so read, must disclose a practical way of exploiting the invention in at least one field of industrial activity (BDP1 Phosphates/Max-Plank; Multimeric Receptors/Salk Institute).
- d. More recently, this has been re-formulated as an enquiry as to whether there is a sound and concrete basis for recognising that the contribution could lead to practical application in industry. Nevertheless, there remains a need to disclose in definite technical terms the purpose of the invention and how it can be used to solve a given technical problem. Moreover, there must be a real prospect of exploitation which is derivable directly from the specification, if not already

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^{31[2008]} RPC 29







obvious from the nature of the invention or the background art (Hematopoietic cytokine receptor/Zymogenetics; Serine Protease/Bayer).

- e. Conversely, the requirement will not be satisfied if what is described is merely an interesting research result that might yield a yet to be identified industrial application (Multimeric Receptors/Salk Institute). A speculative indication of possible objectives that might or might not be achievable by carrying out research is not sufficient (BDP1 Phosphatase/Max-Plank). Similarly, it should not be left to the skilled reader to find out how to exploit the invention by carrying out a research programme (Hematopoietic cytokine receptor/Zymogenetics).
- f. It follows that the purpose of granting a patent is not to reserve an unexplored field of research for the applicant (BDP1 Phosphatase/Max-Plank) nor to give the patentee unjustified control over others who are actively investigating in that area and who might eventually find ways actually to exploit it (Hematopoietic cytokine receptor/Zymogenetics).
- g. If a substance is disclosed and its function is essential for human health then the identification of the substance having that function will immediately suggest a practical application. If, on the other hand, the function of that substance is not known or is incompletely understood, and no disease has been identified which is attributable to an excess or a deficiency of it, and no other practical use is suggested for it, then the requirement of industrial applicability is not satisfied. This will be so even though the disclosure may be a scientific achievement of considerable merit (BDP1 Phosphatase/Max-Plank).
- h. Using the claimed invention to find out more about its own activities is not in itself an industrial application (BDP1 Phosphatase/Max-Plank).
- i. Finally, it is no bar to patentability that the invention has been found by homology studies using bioinformatics techniques (Hematopoietic cytokine receptor/Zymogenetics) although this may have a bearing on how the skilled person would understand the disclosure."

The above quoted passage is a summary of both the US and the UK law on the subject. India, in my view, is likely to follow similar trends.







Points to Remember

- 1. Requirements are conjunctive i.e. all the above need to be satisfied for a product or process to be considered an invention.
- 2. Sec 3(b) provides that, that even though resulting from an invention, some things may not be granted a patent for "other considerations
- 3. Sec 3(d) & 3(e) are 'deeming' provisions that "declare that certain things shall not be deemed to be inventions".
- 4. An invention has to pass through both the above filters to be eligible for grant of a patent.
- 5. A claim is considered new if all the elements of the claim cannot be found in a single prior art reference
- 6. Prior art means everything made available to the public by means of a written or oral description, by use, or in any other way, before the priority date of the invention.
- 7. To destroy novelty of a claim, all the elements of the claim must be found in a single_prior art reference and thus combination of two prior art documents is not possible in the novelty context.
- 8. Whether or not a product or process has an inventive step is to be adjudged from the point of view of a "person skilled in the art.
- 9. Hindsight bias refers to the phenomenon in which inventions seem obvious after the fact even though they would not have been obvious before they were invented.

Self-check Exercises away concept- if the prior art "teaches away" or prejudices the person of ordinary skill in the art from embarking on the path chosen by the inventor, then

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 - 11. Capable of industrial application, in relation to an invention, means that the
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- ➤ What is the policy underlying Inventive Step?