

AN ANALYSIS OF OBVIOUSNESS STANDARD IN PATENT LAW- US AND INDIAN PERSPECTIVE

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Introduction:

The patent is granted to the patentee for an invention. The Patent System finds its justification in the assumption that it stimulates innovation; however, with the current pace of technology only a modest amount of empirical evidence is present to support this assumption. The number of patent applications is no longer a proxy for innovation¹ because the current legal system tries to foster innovation without appreciating innovation as it is. In order to be patentable, the invention should qualify the patent eligibility criteria and patentability criteria as prescribed by TRIPS² as well as Patent Act specific to jurisdiction where invention needs to be protected. The patentability criteria's includes (i) Novelty, (ii) Non-obviousness, and (iii) Industrial Applicability. The purpose of Non-obviousness criteria is to make a balance

¹ Dr. Andrew W. Torrance & Dr. Bill Tomlinson, *Patents and the Regress of Useful Arts*, Colum. Sci. & Tech. L. Rev. 10 (2009): 130

² Article 27.2 Members may exclude from patentability inventions, the prevention within their territory of the commercial exploitation of which is necessary to protect ordre public or morality, including to protect human, animal or plant life or health or to avoid serious prejudice to the environment, provided that such exclusion is not made merely because the exploitation is prohibited by their law. Article 27.3 Members may also exclude from patentability:

(a) diagnostic, therapeutic and surgical methods for the treatment of humans or animals;

(b) plants and animals other than micro-organisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes. However, Members shall provide for the protection of plant varieties either by patents or by an effective sui generis system or by any combination thereof. The provisions of this subparagraph shall be reviewed four years after the date of entry into force of the WTO Agreement.

between incentive to patentee and social cost³. But lot of issues involves in determining the Non-obviousness e.g Prior Art, Person skilled in the art, relevant date, Knowledge, Jury trial, Objective consideration, and Secondary consideration etc.⁴. The non-obviousness standard is difficult to determine as there are various factors involves in it. This article attempts to revisit the foundational principle of non-obviousness standard with a contemporary and factual understanding of the gap between the standard and the theory of innovation. **Part I** of the article deals with evolution of obviousness and its justification with various theories behind patent system. **Part II** of the article deals with various model to determine obviousness standard.

PART- I

Evolution of Obviousness Standard

The first hint of the requirement of obviousness was seen in the Venetian Act⁵ which required the device to be an ‘ingenious device’; this is reflected in the preamble of the Venetian Act.⁶ The English Monopolies Act of 1623⁷ prescribed monopolies by way of granting of patents on inventions for fourteen years. The legislation again, recognized that an incentive must be provided to encourage the creation of inventions. However, the English Monopolies Act, does not specifically state that these grants were dependent on them being ‘ingenious’ but these grants we required not to be "contrary to the law nor mischievous to the state, by raising prices of commodities at home, or hurt trade, or generally inconvenient."

In the French Patent Law 1791⁸, inventions that were mere “changemens de formes ou de proportions” (changes to an old invention’s forms or proportions) were deemed to have not satisfied the threshold of the obviousness standard. This interpretation found its way into the US patent jurisprudence in the case of *Evans v. Eaton*, where the court indicated that inventions are not patentable in light of prior art “if they were the same in principle, and

³ Barton, John H. (2003). "[Non-Obviousness](#)". *IDEA* **43** (3): 475–506. "Only research beyond that done as part of normal product design and development should be rewarded with a patent. Routine redesign should not be enough, for there is no need for monopolies as an incentive for such research."

⁴ Amy L. Landers, *Ordinary Creativity In Patent Law: The Artist Within The Scientist*, 75 Missouri Law Review (2010)

⁵ Venetian Patent Act of 1474

⁶ Mandich, Venetian Patents (1450-1550), 30 J. PAT. OFF. Soc'Y 166, 176-77 (1948)

⁷ Statute of Monopolies, 1623, 21Jac. I, ch. 3

⁸ Law Of May 25, 1791 Decree On Regulations On The Ownership Of The Authors Of Inventions And Discoveries

merely differed in form and proportion”⁹. Similarly, in *Allen v. Blunt*¹⁰ the court pointed out that differences which were mere changes of one known mechanical equivalent for another were not patentable.

This infantile understanding of obviousness was given a new dimension in the case of *Hotchkiss v. Greenwood*¹¹ where the Court introduced the concept of a notional Person Having Ordinary Skill in the Art to evaluate the patentability of an invention. The case involved a patent that provided for the substitution of porcelain or potters clay for the metal portion of a doorknob. The Supreme Court held that the innovation must be that of an inventor and not merely of a skilful mechanic.¹² However, in a dissenting judgment Justice Woodberry opposed the usage of the PHOSITA construct and argued that the 1790 Patent Act granted a patent if the invention was found to be “sufficiently useful and important.” The patent statute of 1836 also contained a clause that said the Patent Office could deny a patent to an invention if the Commissioner found that it deemed to be “insufficiently useful and important.” Therefore, *Hotchkiss* judgment was a clear case of judicial activism.

The significance of this case is that the Supreme Court utilised the said hypothetical construct of a person having ordinary skill in the art, to determine whether the innovation was ingenious enough. By doing so, the judgement introduced into patent jurisprudence the need for having an elementary understanding of the relevant art while assessing patentability of an invention. Therefore, the *Hotchkiss* case is a watershed in history where the threshold for inventions surpassed the requirement of mere existence of labour and utility but also requiring value addition. This hypothetical construct does not stand alone, in other words the PHOSITA standard involves assessment of other considerations such as level of the art and the definition of non-analogous art.

Over the years this criteria of ingenuity was taken a notch higher, requiring the innovation to be a “flash of genius”. This requirement was laid down in the case of *Cuno Eng’g Corp. v. Automatic Devices Corp.*¹³ In the case, the Supreme Court concluded that to be patentable; an invention “must reveal the flash of creative genius, not merely the skill of

⁹ *Evans v. Eaton*, 16 U.S. 454 (1818)

¹⁰ *Allen v. Blunt* aFed.Cas.No.215, 1 Blatchf. 480

¹¹ *Hotchkiss v. Greenwood* 12 F. Cas. 551 (C.C.D. Oh. 1848) (No. 6718).

¹² *Id* at 553

¹³ *Cuno Eng’g Corp. v. Automatic Devices Corp.*, 314 U.S. 84 (1941).

the calling.” Therefore, it concluded that even though “ingenuity was required to effect the adaptation; it was no more than that to be expected of a skilled mechanic in the art”. The Court by this judgment raised the bar of patentability by making most innovations obvious. This high standard of obviousness met resistance, as decisions that followed drew rational from interpretations prior to the flash of genius standard. This can be seen from the case of *In re Shortell*¹⁴. The Court of Customs and Patent Appeals declined to apply any distinct “flash of genius” rather, the court expressly interpreted the term “flash of creative genius” as to mean nothing more than the requirement of patentable inventions to involve more than the skill of the art to which it relates¹⁵. In view of the resistance to the “flash of genius” standard and counter this stringent standard of obviousness; a statutory obviousness requirement was introduced in the year 1952.

In due course of time the flash of creative genius standard proved to be an entirely unworkable as a legal standard, especially because of the reluctance of the judiciary to apply this legal principal.¹⁶ Justice Learned Hand also opined that the patentability standard had become “as fugitive, impalpable, wayward, and vague a phantom as exists in the whole paraphernalia of legal concepts.”¹⁷ This lack of uniformity and predictability in the patentability analysis led to the appointment of the National Patent Planning Commission. The Commission in its report stated that “the most serious weakness in the present patent system is the lack of a uniform test or standard for determining whether the particular contribution of an invention merits the award of the patent grant.”¹⁸ The Commission’s report also noted that the legal standard applied by the courts diverged from that which was applied in the U.S. Patent Office. Thus, Section 103(a) of the US Patent Act, a first of its kind, came into existence. Section 103(a) states that a patent may not be obtained where the subject matter of the invention as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be refused by the manner in which the invention was made¹⁹. Further, to explicitly circumvent the *Cuno Engg. Case*, the Revision Notes of the Commission report

¹⁴ *In re Shortell*, 142 F.2d 292 (C.C.P.A. 1944).

¹⁵ *Id.* at 295.

¹⁶ *Deering Milliken Research Corp. v. Elec. Furnace Corp.*, 261 F.2d 619, 621 (6th Cir. 1958) The Federal Circuit Court noted that the “flash of creative genius” test may not have proved too useful a solution of the problem of patentability

¹⁷ *Harries v. Air King Prods. Co.*, 183 F.2d 158, 162 (2d Cir. 1950)

¹⁸ National Patent Planning Commission, *The American Patent System* (1943), Reprinted In 25 J. Pat. Off. Society 455, 462

¹⁹ 35 USC § 103(a)

states that “it is immaterial whether the invention resulted from long toil and experimentation or from a flash of genius”²⁰

The new Obviousness standard in the form of Section 103(a) of the US Patent Act was truly interpreted for the first time in the case of *Graham v. John Deere*²¹. The Court explicitly stated that reliance cannot be placed on the flash of genius standard. The *Graham* case related to a modification done on a plow. The mounting of the shank of the plow was intended to absorb the shock caused when the blade of the plow hits rocks in the ground. It was argued by the patentees that modified arrangement allowed the shank to bend along its entire length unlike the prior arrangement. The Court set out a test for assessing the patentability of an invention under Section 103(a) of the US Patent Act. The Court stated that “*While the ultimate question of patent validity is one of the law, the Section 103 condition, lends itself to several basic factual inquiries. Under Section 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or non-obviousness of the subject matter is determined.*”²²

While critically discussing the newly introduced section 103 and the obviousness standard, the court in the case of *Graham vs John Deere* revived the Hotchkiss ratio. It laid down a similar methodology to analyse the obviousness, which relied on: determination of the previous work, determination of the difference between previous work and the new innovation, and determination the level of ordinary skill in the relevant field. In the plethora of cases which followed, the Courts formulated various other relevant factors in determining the obviousness of an invention which include “(1) the educational level of the inventor; (2) type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of active workers in the field”²³ etc. *Graham vs John Deere* case is one of the most significant cases relating to the Obviousness Standard, as it is on the lines of these *Graham* factors that the USPTO decides the patentability of an invention. However, it must be noted that the amount of investment and labour put into arriving at the invention finds no mention

²⁰ Historical And Revision Notes of U.S. Patent Act 1952

²¹ *Graham v. John Deere Co.*, 383 U.S.1(1966)

²² *Id* at 17

²³ *Envyl. Designs, Ltd. v. Union Oil Co.*, 713 F.2d 693, 696 (Fed. Cir 1983).

in the tests laid down in *Graham* case. This obviousness standard, attempts to objectify the process of analysing an invention, but the actual success of this standard is debateable.

The Obviousness analysis also involved few other tests, such as the “teaching-suggestion-motivation” (“TSM”) test and the “obvious to try” standard. The “TSM” test is invariably applied in relation to inventions that involved several elements that were already known in the art. The test provides that, to render a patent obvious there must be some teaching, suggestion or motivation available in the prior art²⁴. Thus, the inquiry is whether the prior art suggested that the combination of known elements was desirable. This test was used to offset the hindsight bias. In other words, to ensure that the Obviousness analysis is done keeping in mind the available resources when the invention was conceived and not when the patent is granted²⁵. The significance of this test is that it firmly appreciates the fact that most inventions are based on known elements. The “obvious to try” test was derived from the *Graham factors*, it essential speaks for itself i.e. it means that the only inquiry that is to be made is whether the invention was obvious to try from the perspective of a PHOSITA, in relation to the prior art available. This test suffers from certain inherent issues, primary issue is that that the test is a mere restatement of the Obviousness standard and does not help with its interpretation. The secondary issue is that the test could be applied with hindsight bias because it uses the inventor’s reasoning to solve the problem against him/her.

The obviousness analysis shifted towards a diluted version of the “flash of genius” patentability standard when the Court in *KSR v. Teleflex*, differentiated between “ordinary innovation” and “real innovation” and accorded exclusive rights under patent law only to real innovation²⁶. Further the Court held that the hypothetical person of ordinary skill is a person capable of learning from the prior art and “a person of ordinary creativity, not an automaton.”²⁷.

²⁴ *Winner Int'l Royalty Corp. v. Wang*, 202 F.3d. 1340, 1348

²⁵ *In re Kahn*, Fed. Cir. 2006

²⁶ *KSR v. Teleflex Inc.*, 2007, p. 1741

“Granting patent protection to advances that would occur in the ordinary course without real innovation retards progress and may, in the case of patents combining previously known elements, deprive prior inventions of their value or utility”

²⁷ *Id*

In the *KSR Case*, Teleflex had patented a gas pedal. The gas pedal comprised of the following elements (1) a pre-existing type of “adjustable pedal,” and (2) a pre-existing type of “electronic control” found in newer cars. KSR moved the District Court to invalidate the patent, through a summary motion. The District Court on application of the “TSM” test found that the invention was obvious. The CAFC vacated and remanded the District Court judgment and held the application of the “TSM” test was incomplete as the District Court failed to make “specific findings” that would have acted motivation to one skilled in the art to combine the references to achieve the invention.

The Supreme Court in its decision propounded an “expansive and flexible approach” such that Section 103(a) was grounded in the interpretation as provided in the *Graham factors*. The Court also provided that another predictability of the invention could also be another consideration, by stating that “A court must ask whether the improvement is more than the predictable use of prior-art elements according to their established functions.” However, the Court declined to elaborate how this predictability factor had to be applied. The Supreme Court held that the “TSM” test should not be applied rigidly by stating that “The obviousness analysis cannot be confined by a formalistic conception of the words teaching, suggestion, and motivation or by overemphasis on the importance of published articles and the explicit content of issued patents... There is no necessary inconsistency between the idea underlying the TSM test and the Graham analysis. But when a court transforms the general principle into a rigid rule that limits the obviousness inquiry...”

Effectively the scope of prior art was expanded to include design trends within the relevant industry and “a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ”²⁸. The notion of predictable innovation was given deeper texture with the Court holding that “when there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp”²⁹. Following the KSR ratio, in the case of *Pharmastem Therapeutics, Inc. v.*

²⁸ *Id*

²⁹ *Id*

*Viacell Inc*³⁰ the Federal Circuit Court held that “Scientific confirmation of what was already believed to be true may be a valuable contribution, but it does not give rise to a patentable invention.”³¹

KSR v. Teleflex was responsible in reviving the *Graham factors*, but it did not limit itself to the factors, and thus causing indeterminacy in the application of the Obviousness standard. With the introduction of “common sense” notion in the obviousness analysis, there are few issues that need to put into perspective, i.e. how different is the notion of “common general knowledge” and “common sense”; should there be any difference in their understanding and application? The next question that follows is, what is the ambit of “common sense” and how far can the “common sense” be pushed? And how easy is it to find such “common sense” while arriving at an invention.

Further, the various issues like jury trial, expert opinion, and secondary indicia of non-obviousness have been discussed in various cases. Recently,

Therefore, it can be seen that through the years the jurisprudence of the Obviousness standard has revolved in circles. The *Graham factors* lend objectivity to the Obviousness standard, but the question at hand is whether these factors truly account for the way innovation takes place in an organization. USPTO codified seven exemplary rationales standard for obviousness based rejection. Post *KSR*, the various circuit court decisions has analyzed those rationales and suggested to apply the test for predictable variations of known elements at the time of the invention. The following section describes the evolution of Obviousness doctrine in the Indian context.

Indian Perspective on Obviousness

The semblance of the *Graham factors* can also be seen in the Indian perspective on the Obviousness standard; however the jurisprudence on this patentability criterion is stunted, because the obviousness standard was incorporated in the Patent Act only in the year 2003. The 1970 Patent Act merely provides that lack “inventive step” under Section 25(1) (e) and under Section 64 (1) (f) is a ground for opposition and revocation respectively; but it does not define it. The only related definition is that of “invention”³², which meant *any new and useful- (i) art, process, method or manner of manufacture; (ii) machine, apparatus or other article; (iii) substance produced by manufacture*. Since there was no mention of the term

³⁰ *Pharmastem Therapeutics, Inc. v. Viacell Inc* 491 F.3d 1342 (Fed. Cir. 2007).

³¹ *Id*

³² Section 2(1) (j) of The Patent Act 1970

“inventive step” in the definition of “invention” there was no such analysis during examination. Therefore, it meant that the onus of showing lack of inventive step in an invention was on the person interested and not on the person seeking a patent.

The definition of “invention” remained the same till 2003, when the definition of “invention” was changed to *a new product and process involving an inventive step and capable of industrial application*. In the 2003 Amendment the definition of “inventive step” was provided, thereby making it a point of consideration during patent examination. The meaning accorded to “inventive step” was as under Section 2 (1)(ja) of the Patents Act is as follows *“inventive step” means a feature that makes the invention not obvious to a person skilled in the art*”.

The current understanding on the Obviousness standard was incorporated in the Patent Act through the 2005 Amendment Act which came into effect retrospectively, from 01.01.2005. The definition of “inventive step” was revised to what the law currently provides under Section 2(1)(ja) to mean *a feature of an invention that involve 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 definition enlarged the meaning of “inventive step” as compared to the 2003 Amending Act, to include economic significance within the patentability standard. But the expression “or” signifies that economic significance is given similar weight compared as to technical advancement and both have to be read in terms of knowledge of the person skilled in art.

The approach of Indian Patent Office in assessing the “inventive step” can be derived from the manual of patent practice and procedure, published by the Office. On a perusal of the draft manual, it can be seen that the “inventive step” criterion is often assessed along with novelty³³. Section 3.14 of the manual titled “Determination of Inventive Step, provides the steps in Determination of Inventive Step, as follows

- a) Determining scope and content of the prior art to which the invention pertains;
- b) Assessing the technical result (or effect) and economic value achieved by the claimed invention;

³³ *Bilcare Limited v. Amartara (P) Ltd.* IA Nos. 10848/2006, 13971/2006 and 11160/2006 in CSOS No.1847/2006

“whether an alleged invention involves novelty and an inventive step, is a mixed question of law and fact, depending largely on the circumstances of the case.”

- c) Assessing differences between the relevant prior art and the claimed invention
- d) Defining the technical problem to be solved as the object of the invention to achieve the result;
- e) Final determination of non-obviousness, which is made by deciding whether a person of ordinary skill could bridge the differences between the relevant prior art and the claims at issue.

The determination of the “inventive step” therefore hinges on the definition of Person Ordinarily Skilled in the Art. This hypothetical person would then decide the scope and content of the prior art, the significance of technical result and the difference between the invention and the prior art. The manual also throws light into the definition of Person Ordinarily Skilled in the Art in the section 3.15. The hypothetical construct is presumed to know the following

- a) common general knowledge in the art at the relevant date
- b) average skill
- c) state of the art

The definition of POSHITA in turn hinges on the definition of the state of art and skill.

*Bishwanath Prasad Radhey Shyam v. Hindustan Metal Industries*³⁴ is the only Indian Supreme Court judgment on “inventive step” to this day. In this case Appellant sought to revoke the patent held Hindustan Metal on a means of holding utensils, the Court revoked the patent due to lack of novelty and inventive step. The Court went on to state that minor modification in the patented invention would make it obvious to any skilled worker based on knowledge available at the date of patent. In relation to “inventive step” the Supreme Court laid down the following principles that need to be kept in mind.

“For the determination several forms of the question have been suggested... ‘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.’... ‘Had the document been placed in the hands of a competent draftsman (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 patent invention, would have arrived at the

³⁴ *Bishwanath Prasad Radhey Shyam v. Hindustan Metal Industries*, AIR1982SC1444

invention”³⁵In simple words, the Supreme Court re-worded the “obvious to try” test to come to the conclusion that the patent lacked inventive step.

The “obvious to try” test has been used by the Delhi High Court in the case of *F. Hoffmann-La Roche Ltd. v. Cipla Ltd.*³⁶ where the Court relied on the *Bishwanath Prasad Case* and observed that “*the same (person ordinarily skilled in the art) cannot be read to mean that there has to exist other qualities in the said person like un-imaginary nature of the person or any other kind of person having distinct qualities...*”³⁷ In the case of *Hoechst v. Unichem Laboratories and Ors*³⁸.the Bombay High Court laid down that “... *an invention usually involves three stages, (1) the definition of the problem to be solved, or the difficulty to be overcome, (2) the choice of the general principle to be applied in solving the problem overcoming the difficulty; and (3) the choice of the particular means to be used... merit in any one of these stages, or in the whole combined, may support the invention, and it is, therefore, probably more important to consider the advance in knowledge due to the inventor rather than to examine in detail the variations from the former product.*”³⁹ The stages provided by the Bombay High Court is essentially the same as provided in the *Graham Case*.

In another case⁴⁰ the Bombay High Court held that “*The matter of obviousness is to be judged by reference to the state of the art in the light of all that was previously known by persons versed in that art derived from experience of what was practically employed, as well as from the contents of previous writing, specification textbooks and other documents.*”⁴¹ ... By *Lopes LJ in Savage v. Harris & sons 1896 13 RPC 364* . the test laid down is that:-- “*The material question to be considered in a case like this is: whether the alleged discovery lies so much out of the track of what was known before as not neutrally to suggest itself a person’s thinking on the subject it must not be the obvious or natural suggestion of what was previously known*”.⁴²

³⁵ *Id* at para 24

³⁶ *F. Hoffmann-La Roche Ltd., Switzerland and OSI Pharmaceuticals, Inc., New York v. Cipla Ltd., Mumbai Central, Mumbai*, MIPR2012(3)1

³⁷ *Id* at para 49

³⁸ *Farbwerke Hoechst Aktiengesellschaft Vormals Meister Lucius & Bruning a Corporation etc. v. Unichem Laboratories and Ors*, AIR1969Bom255

³⁹ *Id* at para 16

⁴⁰ *Press Metal Corporation Limited v. Noshir Sorabji Pochkhanawalla and Anr.*, AIR1983Bom144

⁴¹ *Allamana Svenska Elektriska A/B/ v. The Burntisland Shipbuilding C. Ltd.* 1951 69 R. P. C. 63 See Terrel on the Law of Patents page 125 307

⁴² *Id* at paras 38 and 39

It must also be noted that the subject matter exclusions under Section 3 relate to the obviousness criteria and are often read together. This line of thought can also be derived from case-laws, in the Supreme Court judgment of *Bishwanath Prasad Radhey Shyam v. Hindustan Metal Industries* where Section 3(j), exclusion based on mere arrangement and rearrangement was read along with Section 2(ja). In landmark case of *Novartis AG v. UOI*⁴³, the Madras High Court, while reading Section 3(d) of the Patent Act discussed the concept of the selection patent and various pointers that need to be considered. It must be noted that in foreign jurisdictions, the concept of selection patents is inbuilt into the understanding of the Obviousness Standard. In the case of *Eli Lilly Canada Inc v. Novopharm Limited*⁴⁴ the Canadian Federal Court of Appeal noted that the inventive step of a selection patent is whether the selected compound manifests advantages over the other compounds in the genus. This concept was recognized in US in the case of *Sinclair & Carroll Co. v. Interchemical Corp.*⁴⁵, where the Supreme Court held that if there is any indication that suggests the selection of a compound/ structure, a *prima facie* case of obviousness is established. Therefore, while considering the Obviousness standard in the Indian context it must be read along with the subject matter exclusions in Section 3 of the Patent Act. As seen above, the framers of the Indian Patent Act incorporated the requirement of a higher burden of proof in certain cases⁴⁶ as a part of the statute as compared to other jurisdictions, where it has been incorporated through case laws. Also, the various decisions consider the relevant prior art on the date of patent to determine obviousness.

On analyzing the Indian jurisprudence on the Obviousness Standard, it is observed that the Indian take on the standard runs along the same lines as indicated in the first part, which discussed the evolution of the Obviousness standard itself. The fluctuating threshold of Obviousness must be seen along with the jurisprudence given by the patent theories.

Theory behind Patent System and Obviousness Standard

The theory and reasoning behind the Patent System is often dubbed as the foundation on which the patentability criteria draw its essence. On revisiting the history of patent law, it is seen that the obviousness criterion has strayed away from its roots as suggested by the

⁴³ *Novartis AG v. Union of India (UOI) and Ors.*, MIPR2009(2)345

⁴⁴ *Eli Lilly Canada Inc v. Novopharm Limited*, 2010 FCA 197

⁴⁵ *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945)

⁴⁶ Section 3(d) of the Patent Act shifts the onus of proof onto the patentee to show that there is an increased efficacy.

patent theories. To briefly recapitulate, there are four main theories justifying the patent system, they are Economic justification and Incentive Theory, Labour Theory/Lockean Theory, Contract Theory and Personality Theory/Hegelian Theory.

Economic justification and incentive theory, provides for the fact that research and development is invariably costlier than mere imitation, hence without incentive firms will have little incentive to invest in innovation. Patents and other forms of intellectual property aim at incentivizing innovation by delaying the arrival of imitators thus assisting firms in “recouping the sunk costs”.⁴⁷ Applied logically, an invention that involves higher cost must be accorded greater patent protection, yet the law draws no distinction between the two. Also, the patent assessment process takes no account of how the invention was created, whether by prolonged research, accident, or genius. It can be seen later in the article that this inconsistency arises from the fact that Obviousness standard is based on the notion of the inventor as hero and a genius, this image does not accord with the current innovation cycle. The economic justification behind obviousness criteria is to lower the social cost of innovation.

The Lockean labour theory is the primary justification for providing private property interest⁴⁸. This theory of giving property rights stems from the basic principle that every man is entitled to the fruits of his own labour. There are two interpretations to this theory; the first aspect is the acknowledgment of the fact that labour by itself is strenuous and has to be incentivized. The second is the fact that such labour is beneficiary to the society and appropriate reward people for labour that adds value to something that benefits others. In this second interpretation it is not merely the labour that deserves reward, but the value created out of the labour is to be awarded. The process of innovation invariably involves large amount of labour resources, but how far has the labour theory justifications been extended. The Obviousness criterion ensures that the grant of patents for mere labour is avoided. The criterion requires that the labour be of more than just significance but it should also not be easily deductible from available knowledge pool. This means that obviousness measures the value addition not on an objective scale but considering the subjective elements.

⁴⁷ Alexander Tabarrok, Patent Theory versus Patent Law, *Contributions to Economic Analysis & Policy* Vol. 1 [2002], No. 1, Article 9

⁴⁸ Donald S Chisum, Craig Allen Nard, Herbert F Schwartz, Pauline Newman and F Scott Kieff *Principles of Patent Law* (2 ed, Foundation Press, New York, 2001)

The social contract involves a transition from the state of nature and instinct, to the creation of organized society regulated by social rules and conventions. Social contract rests on two principles: consent and promise.⁴⁹ Consent limits the powers of the state. Promise binds one citizen to another and the state to its citizens.⁵⁰ The inventor consents to share his knowledge and technical expertise with the promise of monopoly rights. This is reflected in the patent law through the written description requirement. The written description requirement provides that a patent document must fully and sufficiently describe an invention, so as to enable a person ordinarily skilled in the art to practice it⁵¹. However, the promise to give patent protection is vitiated by lack of predictability in the patentability assessment process; since the threshold for providing monopoly is the inherently vague requirement that the invention be unknown to a person skilled in the art.

The Hegelian theory suggests greater compensation to be directed at those inventors and artists whose creative processes cause them to inject more of their personalities into their resulting products. Patents or technical creativity is often compared to labour and investment and has lesser relation to expression of personality. This reality is based on the fact that certain technological arts where inventions are rooted in the concept of incremental innovation⁵², inventions are a mechanical outcome rather than an expression of personality. Furthermore inventions of late are ‘patent-induced’⁵³ rather than personality-induced. Therefore, the personhood theory is a very subjective notion that cannot be covered under the obviousness standard, which in itself suffers from lack of objectivity.

It can be seen that the Labour Theory and the Incentive Theory are the most relevant theories that need to be considered before crucially examining the Obviousness standard. To analyze this patentability standard, the incorporation of the Obviousness into the patent system must be seen. Table 1 shows the apparent differences between theories and law.

⁴⁹ Justin Hughes, *The Philosophy of Intellectual Property*, 77 GEO. L. J. 287, 300-315 (1988)

⁵⁰ John Locke, *Treatise of Civil Government and a Letter Concerning Toleration* 22 (Charles L. Sherman ed., 1937) (1689).

⁵¹ Section 10 (4) of Patent Act 1970 and Section 112 of the US Patent Act

⁵² Analysis of many innovations has found that most of the productivity gain is achieved via improvements to the original innovation. See James Bessen and Eric Maskin, *Sequential Innovation, Patents, and Imitation*, Massachusetts Institute of Technology

⁵³ A. Samuel Oddi, *Beyond Obviousness: Invention Protection in The Twenty-First Century*, The American University Law Review [Vol. 38:1097]

Table 1: Illustration of the apparent differences between Patent Theories and Patent Law on the Obviousness standard

PATENT THEORY	OBLIVIOUS OBVIOUSNESS
<p>Economic/ Incentive Theory More investment=Greater IP protection</p>	<p>Obviousness Analysis does not incorporate R&D expenditure in the assessment Secondary Considerations are almost never considered (several subjective analysis like obvious to try, TSM, Common sense)</p>
<p>Labour Theory Value addition dependent on labour invested</p>	<p>“it is immaterial whether the invention resulted from long toil and experimentation or from a flash of genius” Patentability shall not be negated by the manner in which the invention was made Scientific confirmation of what was already believed to be true maybe a valuable contribution</p>
<p>Social Contract Every consent of the inventor to share knowledge must be reciprocated by an equivalent promise</p>	<p>Consent and Promise not kept: A subjective legal system consents to IP protection on indeterminate standards Varying technical and social utility of patent-unaccounted for</p>
<p>Personhood/Hegelian</p>	<p>Technical creativity rooted in the concept of incremental innovation. Inventions are ‘patent-induced’ rather than personality-induced</p>

As indicated at various stages, the recited chronological development of the Obviousness standard at every stage, leads to the singular conclusion that the standard is indeterminate. In spite of codifying the Obviousness standard as a statutory requirement the

threshold remains unclear. **Part II** of this article has analyzed the various models to determine obviousness standard.

PART-II

Obviousness standard and various models

To harmonize above stated discrepancies in determination of obviousness standard, the several models have been suggested. It can be seen that there are two primary modes; first mode involves procedural changes in the current patent system using several tools that appreciate objective considerations while assessing Obviousness. The Obviousness Master again involves a new entity in the patent system, thereby giving rise to the need to define the ambit and responsibilities of this new entity. The final model involving several prediction tools to assess patentability can be used to appreciate the invention objectively, but these models on their own may not be able to incorporate the spectrum of innovation that takes place.

Table 2: Analysis of various models

Model	Feature	Advantage	Issues
Obviousness Master ⁵⁴	The model recommends that the determination of obviousness be separated from the other patentability criteria, thereby basing such an analysis solely on the information on the problem	Removes hindsight bias	<ul style="list-style-type: none"> • Redundancy in responsibility • Additional cost to be borne by applicant

⁵⁴ Gregory R. Baden, *Third-Party Assistance in Determining Obviousness*, Texas Law Review Vol. 89:1203

	domain, the relevant prior art, and a description of the ordinary skill in the art.		
Prediction Models ⁵⁵	Prediction tools that assigned weights to secondary considerations to conclude whether Obvious or not.	Very Objective	<ul style="list-style-type: none"> • May not give accurate results. • No proof of success <p>Currently does not consider the investment involved</p>

The advantages and disadvantages of each model that have been recommended by jurists have been shown in the above table 2. The invention may be incremental in nature. Hence incremental part may need to be examined with reference to obviousness standard.

Incremental Invention and Obviousness:

Several jurisdictions like Australia have recognized that patent applications are not a perfect proxy for innovation⁵⁶. The primary reason to come to this conclusion is because many innovators rely on incremental innovation by introducing products better, faster than their competitors. Due to the higher standard required for a patent, innovators use means of

⁵⁵ Gregory Mandel, *The Non-Obvious Problem: How the Indeterminate Nonobviousness Standard Produces Excessive Patent Grants*, (2008) University of California, Davis [Vol. 42:57] See also Shohei Hido et al., *Modeling Patent Quality: A System for Large-scale Patentability Analysis using Text Mining*, Journal of Information Processing Vol.20 No.3 655–667 (July 2012)

⁵⁶ Andrew F. Christie & Sarah L. Moritz, Intellectual Property Research Institute of Australia, *Australia's Second-Tier Patent System: A Preliminary Review* (Report No. 02/04, revised 2005), available at http://www.ipria.org/publications/reports/AU_2nd-tier_Report-revised.pdf

contract law to support their investment. The innovation/utility patent system is intended to bridge the 'gap' that exists when it comes to minor and incremental innovations. This patenting model proposes a quick, less expensive and simple form of protection to 'encourage individuals and small to medium-sized businesses to realise their good ideas'.⁵⁷ In countries like Japan, Germany, Taiwan and China, where Utility Patent system is followed, only a Formal Examination procedure is adopted. However in Australia it is not necessary to have an innovation patent examined before grant (or even at any time after grant). But, an innovation patent must be examined and certified before enforcement of patent rights. This flexibility in the procedure enables innovators to check the market appreciation of their product/ process and thereby protect it effectively.

The whole idea behind a Utility Model is to protect the incremental inventions and encourage innovation, the debate and the necessary evils of the inventive step/ Obviousness standard can be done away. However with the current definition of "innovative step"⁵⁸ it is extremely difficult to achieve a sense of predictability in patent assessment. It is to be noted while the Indian authorities are considering the Utility Model of innovation⁵⁹; there is a need to establish a framework that facilitates innovation and co-operation between the two models of Patent protection.

Legal stability and predictability are a fundamental part of "what people mean by the Rule of Law"⁶⁰ In the absence of stability and predictability in law, citizens have difficulty managing their affairs effectively⁶¹. The indeterminacy stems from the fact that the Obviousness standard hinges on the hypothetical construct of a Person Ordinarily Skilled in The Art; the vagueness and subjectivity of this hypothesis is the biggest short coming of the standard. Due to this unpredictable and fluctuating approach used during the obviousness

⁵⁷ It should be noted that while the cost of receiving an innovation patent is less than the cost of applying for a standard patent, the enforcement of an innovation patent necessitates examination. It is not necessary to have an innovation patent examined before grant (or even at any time after grant). However an innovation patent must be examined and certified before you can enforce your rights. Standard vs Innovation Patent, accessed from <http://www.ipaustralia.gov.au/get-the-right-ip/patents/types-of-patents/standard-vs-innovation-patent/>

⁵⁸ Australian Patents Act 1990 - Sect 7(4)

"an invention is to be taken to involve an innovative step when compared with the prior art base unless the invention would, to a person skilled in the relevant art, in the light of the common general knowledge as it existed (whether in or out of the patent area) before the priority date of the relevant claim, only vary from the kinds of information set out in subsection (5) in ways that make no substantial contribution to the working of the invention."

⁵⁹ DIPP Discuss paper, Utility Models, 13May2011; accessed from http://dipp.nic.in/English/Discuss_paper/Utility_Models_13May2011.pdf

⁶⁰ Stefanie A. Lindquist and Frank C. Cross, Stability, Predictability and The Rule Of Law: Stare Decisis As Reciprocity Norm

⁶¹ *Id*

analysis, the patent system is not efficient, thereby leading to a situation where patentable innovations are rejected and frivolous innovations are granted⁶².

Critical Analysis:

The critical issue seen in the Obviousness analysis is the manner in which knowledge disclosed by the patent applicant creates bias in the minds of the examiners. Known as hindsight bias in patent jurisprudence, this “curse of knowledge”⁶³ has been studied in psychology. The hindsight bias is a psychological concept that refers to the tendency people to believe that they knew the outcome of an event even before its occurring, after the event has taken place. In a psychological study⁶⁴ it was concluded that the reason for such misguided perceptions is that individuals are unable to detach themselves from their own perspective when asked to evaluate the perspective of another. These findings raise serious doubts about the ability of lay decision makers to judge whether an invention would have been obvious to a person of ordinary skill in the art. The study involved participants judging the perception of others who had equal skill and experience. The examiners and judiciary in charge of Obviousness analysis often do not possess the skill of the inventor, hence they not only face the challenges revealed by the curse of knowledge, but they also have to judge the perspectives of individuals who generally have far greater relevant education and training. If individuals usually cannot judge the perspective of an equally trained person, it is highly unlikely that they will be able to judge the perception of a more highly trained person. This task is cognitively impractical, if not impossible in many cases.

The pointers⁶⁵ used by the Courts, to determine the level of obviousness, fail to convey succinctly how such guidelines must be applied. Moreover, these factors are circularly defined, the PHOSITA/POSITA is considered to have knowledge on the following aspects.

- a) common general knowledge in the art at the relevant date
- b) average skill
- c) state of the art

⁶² Gregory Mandel, *Patently Non-Obvious: Empirical Demonstration that the Hindsight Bias Renders Patent Decisions Irrational*, Ohio State Law Journal [Vol. 67:1391], 2006

⁶³ Gregory Mandel, *The Non-Obvious Problem: How The Indeterminate Nonobviousness Standard Produces Excessive Patent Grant*, 42 University of California, Davis (2008) See also Standard Produces Excessive Patent Grants, 42 U.C. Davis L. Rev. 57, 61 (2008)

⁶⁴ *Id* at 45

⁶⁵ Graham factors

However, it can be seen that the level of education is most often used in Courts⁶⁶ as a moniker of the level of skill in an art, and in turn level of education depends on the state of the art, which revolves again on the definition of PHOSITA/POSITA. This approach suffers from the infirmity of hindsight bias, as the PHOSITA is given the stature of an inventor, without considering the subjective nature of the inventor's education, training, skill and understanding of the technical subject matter. Therefore, the invention is viewed not from a perspective of a person with reasonable understanding of the technical subject matter, but is coloured with the perspective of the inventor himself, without considering the psychology behind creating such an invention.

Further, to determine the level of skill of ordinarily present in the art the scope and ambit of the relevant art must be demarcated. This demarcation in itself is contentious especially in light of the development of technology and the KSR judgment⁶⁷. As a result the fine line dividing analogous art and non-analogous art is blurred, thus including remotely related subject-matter into the ambit of obviousness analysis⁶⁸. Additionally, there are several studies which show that ability for an applicant to obtain a patent is in part based on the random draw of the examiner⁶⁹. The studies conclude that since the characteristics of the specific patent examiners in reality plays such a large role in an applicant's ability to obtain a patent the current system fails on two accounts. First, the patent system may not reward some true inventors by issuing too many rejections. Second, our current system may unjustifiably reward others who are able to quickly obtain a patent with broad claims, based entirely on the examiners they draw⁷⁰. These issues are aggravated by the fact that finding prior art can be elusive⁷¹.

⁶⁶ *Supra* at note 71

⁶⁷ Effectively the scope of prior art was expanded to include design trends within the relevant industry and “a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ”

⁶⁸ *Georgej. Meyer Manufacturing Co. v. San Marino Electronic Corp.*, 155 U.S.P.Q. (BNA) 617 (C.D. Cal. 1967) where the Court found a glass-bottle inspecting system, used to check for defects in glass bottles, analogous to a military missile tracking system.

⁶⁹ Sean Tu, *Luck/Unluck of the Draw: An Empirical Study of Examiner Allowance Rates*, 2012 Stan.Tech.L.Rev. 10

⁷⁰ *Id* at para 81 See Douglas Lichtman & Mark Lemley, *Rethinking Patent Law's Presumption of Validity*, 60 Stan. L. Rev. 45 (2007); see also Douglas Lichtman, *Rethinking Prosecution History Estoppel*, 71 U.Chi.L.Rev. 151 (2004).

⁷¹ Mark A. Lemley & Bhaven N. Sampat, *Examining Patent Examination*, 2010 Stan.Tech. L.Rev. 2 (2010)

Another factor seen missing from the obviousness analysis is the consideration of the inventor's subjective mental state and creative process. Understanding the process of creation/invention would assist in understanding the motivation of the inventor. This would require a better understanding of creativity and the manner in which scientists and engineers come up with innovations.

CONCLUSION AND SUGGESTION

The Obviousness standard came into the foray when the lawmakers and the courts sought to define with precision, inventions which should be patentable. The patent theories proposed lay down the foundation for the several theories behind innovation. In this context the evolution of Obviousness standard is appreciated as an outcome of judicial activism and common sense. Courts and lawmakers have used several indices and introduced the hypothesis of person having ordinary skill in the art, to arrive at this elusive definition. At the apex of these indices and hypotheses underlies a determination of "sufficiently creative" versus "ordinarily creative". This distinction of "sufficiently creative" versus "ordinarily creative", has through the years lost touch with how inventions are truly created. The abstract and subjective definition of Obviousness standard has been shown to cause indeterminacy in awarding patents, and thereby appreciating innovation.

The article shows that the patent model must be changed in itself. The following framework is proposed for protection of incremental innovations.

- (a) Procedural Examination-include examination of the basic principles of novelty, utility and whether the invention contains scandalous or obscene matter, to be completed within 6 months
- (b) Substantive Examination restricted to conducting an assessment of what is required in order to provide a substantial contribution to the working of the invention
- (c) Innovative step to be defined in terms of the objective secondary considerations- without using PHOSITA
- (d) Use Probability tools that assign weights to the factors like amount of R&D cost incurred
- (e) Substantive Examination process made obligatory only when the inventor seeks to enforce the invention

