

## Changing Dynamics of the Patent Regime: An Economic Understanding

Kaushik Laik and Rohit Raj<sup>†</sup>

The WB National University of Juridical Sciences, NUJS Bhavan, 12 LB Block, Sector-III, Salt Lake City, Kolkata 700 098

*Received 22 December 2006, revised 22 January 2007*

'Protect in haste, invent at leisure' is a sarcastic statement to subtly depict the dismal state of the present regime of patent laws. A regime that was intended to balance the societal interests with that of private individual interests has undergone a sea change over the years, with the general tendency being to cater the least for the latter. Individual firms and applicants, in general, have used the lacunas in the law to their advantage and developed a mechanism whereby the patent granted to inventions (some, being undeserving of patent protection) are so wide in ambit, that the same leaves no scope for technological innovations and competition in the particular area where the former invention belonged.

Having said this, it would also be patently incorrect to assume that broad patents should be avoided at all times and that patents should always be narrow in nature. Both broad and narrow patents have their significance, the authorities need to realize this and judicially limit the breadth of patents in specific case instances. The economic rationales behind the law of patent infringement warrants due consideration and analysis.

The paper is thus an endeavour to comprehend the issue primarily from the aspect of economic theories, which founded the patent regime and the laws as regards infringement claims.

**Keywords:** Patent regime, patent breadth, broad patent, narrow patent, Doctrine of Equivalence, fence post, Doctrine of colourable imitation, incentive to invent theory

'Today the court jettisons more than two hundred years of jurisprudence and eviscerates the role of the jury preserved by the Seventh Amendment of the Constitution of the United States; it marks a sea change in the course of patent law that is nothing short of bizarre. Sadly, this decision represents a secession from the mainstream of law'<sup>1</sup>

The law of patents has undergone radical metamorphosis over the years perhaps comparable to no other realm of law. This is not just because of the growing significance of the subject, rather the perplexing jurisprudence that seems to be inextricably glued to the laws in this regard. It is thus not a matter of surprise that the regime has found itself entangled in the webs of manipulative interpretations, a fall out of a plethora of causes and reasons. The paper delves into one such aspect of patent law, which has indeed revolutionized the jurisprudence of the subject, something diametrically different which had founded the same.

It is no more a secret that the patent authorities grant 'over broadly' patents,<sup>2</sup> perhaps due to the lack of access to the knowledge engrained in the public

domain, more commonly referred to as the 'state of the art'. The propensity of the authorities in granting patents considering the shallow resources to public knowledge has become something acceptable, something that is a paradigm of the manipulation of the system despite the fact that consequential repercussions might be disastrous, much more than the theoretical understanding of the 'tragedy of the commons'.<sup>3</sup>

Infact, given the problems that have been tormenting this revolutionary regime over the years, the notion of prior art itself seems to have lost its significance<sup>4</sup> amidst the myriads of scientific and technological hypocrisy. Cases of granting patent protection to undeserving inventions has become ubiquitous, a practice so diabolical in nature which has the potential to jettison the objectives of the patent system and moreover trigger unwarranted societal impacts-calculated, manipulative and colourable imitation being one of them.

It is this aspect of innovation and 'colourable imitation' of patented products that should be the focus of a discussion envisaging analysing the probable and plausible lacunas in the regime that governs the intellectual growth of national economies.

<sup>†</sup>Email: Corresponding author: venusrohit@yahoo.co.in

Notable is the fact that despite there being a vastly deliberated and jurisprudentially grown arena of infringement laws in the patent regime, problems as contemplated by this paper emerge and continue to perplex the intelligencia of intellectual property law. With the Doctrines of Equivalence<sup>5</sup> and fence post<sup>6</sup> being expounded by the American and English courts over the years, emergence of such practical flaws in the system is indeed a predicament, certainly much more than a mere travesty of justice, that warrants urgent solutions and alternatives.

Given the well settled laws on infringement, the legal justifications behind them, and the sequel of paradoxical lacunas in the patent regime, one needs to approach the issue through the locus of an inconspicuous path, though of paramount significance, which beholds all the answers that could rationalize the errors in this branch of intellectual property law, that being, the locus of economics behind the law. Infact, the nexus between law and economics as independent areas of analysis and study is perhaps inextricable. Scholarly researches by stalwarts like Steven Shavell,<sup>7</sup> Justice Posner<sup>8</sup> and David Friedman<sup>9</sup> have not just proved this assertion but have also revealed the importance and need for any law to take into consideration economic principles. The law of patents is no exception to this presumption and thus the significance being given to it in the present discussion. Seemingly irrelevant to most lawyers, the economic rationales behind the law of patents need to be comprehended as that forms the foundational pedestal of the regime<sup>10</sup>, incorporation of which, in the judicial and legislative dicta, is of immense importance so as to have a holistic approach to the problem at hand.

The Doctrine of Equivalence is crucially linked to the economic concept of patent breadth, which defines the scope of the patent and thereby creates a hypothetical 'fence' within which the patentee would be exercising monopolistic and exclusive rights.<sup>11</sup> This issue of patent breadth has been a matter of great study and analysis by both economists and patent attorneys in the past. The breadth of a patent defines the range of products that are encompassed by the claims of the patent and thus protects the patent holder against potential imitators. This would, in other words imply that, lesser the specificity of the claim of the product or process, the broader the patent over it.<sup>12</sup> Hence, patent breadth depends upon the claims put forth by the patentee and is also a feature over which

the patent office has some discretion. Clearly the breadth of the patent draws in two self-conflicting implications; a reduction in the breadth of patents would induce more competition, which benefits consumers on one hand and on the other, too narrow a patent reduces the incentive to innovate.<sup>13</sup>

A simplistic and perhaps a more socialistic answer to this predicament of patent breadth is the view that narrow and long (i.e., in terms of duration) patents should be preferred to broader patents, since broad patents are costly for the society in that they give excessive monopoly power to the patent holder.<sup>14</sup> However, it is submitted that a clear understanding of the subject and a deeper introspection on the same might not suggest such a simplistic and monosyllabic answer as this. It is certainly correct to assume that broader patents have a detrimental impact on the societal cause and as such would discourage innovation. Given this assumption, it is perhaps even more desirable to analyse what certain American economists presume. The economics of patents would suggest that a broad patent would imply strong protection of pioneer discoveries and promote innovation and technological research on one hand and on the other it may negatively influence the development of applications or improvements.<sup>15</sup> Another theory suggests that whereas broad patents encourage fast and duplicative research, narrow patents would imply slower and complementary developments.<sup>16</sup>

The Coase theorem in economics<sup>17</sup> may seem to justify the allocation of rights in any sphere of activity and to this effect might even have a role in the law of patents. In fact, Coase would suggest that for a regime like that of patents, there need not be any allocation of rights as the concerned parties would come to the most economically efficient outcome themselves. This contemplates a situation where the patent holder would bargain with the alleged infringer and arrive at a solution, which would serve the interests of both of them.<sup>18</sup> This would also, to a certain degree, imply that the breadth of a patent would have negligible impact on the technological research and progress within the competitive market.<sup>19</sup> However, these assumptions are unrealistic since the real world is characterized by high transaction and administrative costs, all the more in case of equivalent inventions. Hence in these conditions, an efficient outcome would be least probable<sup>20</sup> and certainly not reliable. Given this fact, the importance of the Coase theorem, despite

the inherent fallacies, reveals the need for laws in the realm of patents, and certainly in the arena of infringement claims, thereby justifying the purpose of the Doctrines of Equivalence and 'fence post'.

There are other economic theories that justify the regime of intellectual property rights, one amongst them being the 'consequentialist' theory.<sup>17</sup> This theory attempts to justify the need of IP on the basis of the benefits flowing from their recognition, generally manifested in the form of advancement in knowledge, industrial progress and economic efficiency. The notions of utilitarianism, which is a consequential sequel to this branch of jurisprudence, if applied to the case of patents would suggest that a particular invention needs special protection (that being the patent regime) till the social benefits exceed the social costs.<sup>21</sup> The social benefits derived from the patent regime, particularly concerning the breadth of patents, are the 'incentive to invent', the 'incentive to disclose' and the 'incentive to innovate'. These benefits, even though center around the individual patent holder, the innovator and their 'incentives',<sup>22</sup> yet the implication on the entire society, when viewed macro-economically, is immense.

Prior to arriving at a definite conclusion on the viability of broad or narrow patents, a discussion on the viability of a law on infringement may also be investigated. Besides the Coase model mentioned and described above (with all the inherent assumptions almost impractical in the real world), economists Maurer and Scotchmer (2002) had pointed out that 'patents may be inferior to other forms of intellectual property in that 'independent invention' is not a defence to infringement'.<sup>23</sup> Notably, the patent regime does not give any scope for 'mens rea' and the mental element is no defence in infringement suits.<sup>24</sup> So if 'independent invention' were a defence, as per this theory, the continual threat of entry would induce the patent holder to license its technology on terms that commit to lower output price,<sup>25</sup> and this would be where the social benefit would lie. In other words, by compromising on the patent holder's exclusivity in exploiting his invention, the purported social benefit would be arrived at without having to opt for a suit for infringement. Thus, the need for having doctrines like that of equivalence, pith and marrow, or generally, provisions for infringement clauses, which is the subject matter of the present discussion, lies futile.

Given the various justifications for having laws on infringement and that too in the light of doctrines which govern the same, it remains an undisputed fact that in the present society, having solid legal provisions is an inevitable necessity. With such a dilemma at hand, it is perhaps the most rational choice to proceed on the hypothesis that was adopted in the initial part of this paper. The dichotomy of having broad and narrow patents in the context of social and individual benefits need to be harmonized in order to decipher the exact perimeter of the Equivalence or the penumbra of the invention which would be considered sacrosanct, so much so that any transgression into such penumbra would constitute an infringement. As mentioned above broader patents would imply fast and duplicative research as opposed to narrow patents, which would result in slower and complementary innovation.<sup>24</sup> Considering the veracity of such a hypothesis and understanding the practical possibilities of such a scenario, it may be safe to arrive at a certain conclusion.

The difference between broad and narrow patents is primarily concerned and located in the aspect of research and development.<sup>26</sup> A simple analysis of the logic behind the concept of breadth and width of patents would reveal the fact that the criteria of efficiency are apparently in favour of broad patents when the social value of the investment in fundamental and preliminary research (on the patented product) exceeds the social value of investment in developing applications and innovations, while narrow patents should be considered in the contrary cases.<sup>27</sup> In this context, it is pertinent to discuss some of the significant judicial pronouncements and other concepts in the law of infringement of patents and test them in the light of economic justifications and assumptions arrived at. This would help in revealing the presence or absence of the nexus between economics and law, particularly in the realm of such a deliberated topic as that of infringement of patents.

### **The Laws and Judicial Pronouncements**

It is perhaps a travesty of justice that despite various economic researches and dissertations on this subject, most of legal principles and particularly judicial pronouncements fail to recognize and adhere to them. This is notwithstanding the fact that there are quite a number of such legal principles, which do adhere to the economics that drives the patent regime,

yet there are exceptions to be found amongst them. Hence, the discussions to follow would be a search for such instances, both which do and those which do not seem to justify the economic rationales. At the outset it may be noted that the conclusion that was derived in the last discussion was that broad patents are justified when the social value of the investment in fundamental and preliminary research exceeds the social value of investment in developing applications and innovations.<sup>28</sup>

Besides the 'Doctrines of Equivalence', 'fence post',<sup>4</sup> 'pith and marrow',<sup>29</sup> 'all elements',<sup>30</sup> and the like which have acquired special significance in the patent regime, the doctrine of 'colourable imitation' has also made a mark in the laws of infringement.<sup>31</sup> Simplistically, this contemplates a case where a man makes a slight difference in the parts of a machine, thereby giving a hue to the suggestion that he is not infringing the patented machine where he is really using mere substitutes for portions of the machine so as to get the same result for the same purpose.<sup>32</sup> It is submitted that this doctrine, in essence, amounts to the same principles as that of equivalence, yet a deep analysis of the same would denote certain minute though significant differences. The expression 'colourable imitation' connotes no more than that the infringer has adopted all the essential features claimed in the patent but has altered one or more unessential features, or has added some additional feature that may or may not in itself involve an inventive step.<sup>33</sup>

Hence, the doctrine seems to have its effect even in those cases where the alleged infringer may have added an inventive step in the patented product. Given such a probability, the doctrine not just dilutes the basic concept of infringement, rather also jettisons all economic justifications for the same<sup>34</sup> Additions and omissions may be very material in considering whether in fact the machine of the defendant is an infringement of combination which the plaintiff claims; but if the defendant really has taken the essence of the patentee's claim, the mere fact that certain parts are omitted or added would not prevent his invention from becoming an infringement.<sup>35</sup> This justification clearly applies to the cases of narrow patents, since it leaves no scope for innovation and development over the patented product. Certainly, this argument runs contradictory to the cases that apply the equivalents doctrine, thereby creating a vast jurisprudential void in the law in this regard.

In case a later invention is shown to be within the fences of an already patented product and if the alleged infringer can successfully prove that at the time of the invention of the former product, no one could comprehend the latter, then the law of infringement would seem to protect such an infringer.<sup>36</sup> This fact holds a special significance in the pharmaceutical industry. As a matter of general practice in the pharmacy sector, brand names usually enter into contracts with potential generic entrants even though the latter come into the market much later in time and with products incomprehensible by the former. Such contracts assure a huge portion of the revenues to the new entrants as well as no infringement suit, which itself would take years to get resolved. Notably, the Hatch-Waxman Act in the US seeks to address this issue.<sup>37</sup> Being labeled as anti-competitive in nature<sup>38</sup>, the law therefore comes in to prevent such inter-party contracts with a view that society at large would stand to lose in such cases.

This understanding of the legislature clearly stands contradictory to the basic rules of economics discussed in the last phase of this paper. The Coase theorem, as already mentioned comprehends such a situation and concludes by categorizing them as the best and the most feasible alternative where the law need not decide on the allocation of rights. The parties would come to the most optimal understanding amongst themselves without the need for law to have a role. This understanding of Coase, nonetheless stands deficient due to the inherent inconsistencies and impractical assumptions.<sup>39</sup> Further, if this logic were to be taken as the guiding factor for rejection of the Hatch-Waxman provisions, then such an argument would be leveled against all antitrust laws, since all of them follow the same principles. Despite this, the submission of the researcher can certainly be used to show that given the inseparable nexus between economics and the law of infringement, most laws do not adhere to the simplest of logical principles of the former subject.

### Conclusion

For a legal regime as economically and socially significant as that of patents, it is indeed a matter of immense concern that the philosophical justifications which founded it have themselves become nebulous in the light of inherent lacunas in the system. A regime that envisages balancing societal growth through a mechanism of granting exclusive rights to

the inventor of a new product has invariably become applicant-centric over the years, reasons for the same being multifarious. 'Protect in haste and invent at leisure' has become the mantra for firms seeking refuge in a system that seems to cater the least to address the inherent trade-off between the patentee and society's interests.<sup>15</sup>

It must be noted that the initial days of the patent regime saw weaker and narrower property rights being preferred as they were more socially viable than broader rights and further had the potential to converge the seemingly divergent societal and private interests.<sup>40</sup> However, with new paradigms of innovation coming to light, broader protection has become the prime objective of every patent seeker, an obvious attempt to monopolize the chain of innovations that could follow and individualize the right to invent at leisure. It is unfortunate to know that even the judiciary and legislatures seem to be oblivious of this fact, thereby adding to the exigencies of the situation. What is thus an imperative requirement is a deep dive into the jurisprudential history and economic rationales of the subject and disinter the objectives that this regime seeks to achieve.

## References

- 1 Concurring opinion of Circuit Judge Mayer in the *Markman v West View Instruments* 52 F 3d 967 (United States Court of Appeals, Federal Court, 1995).
- 2 Kesan Jay P, Carrots and sticks to create a better patent system, *Berkeley Technology Law Journal*, 17(2) (2002) 763-797, [www.lclark.edu/faculty/jsmiller/objects/Bitter\\_Sweet.pdf](http://www.lclark.edu/faculty/jsmiller/objects/Bitter_Sweet.pdf) (1 August 2006).
- 3 This situation, as contemplated in Economics parlance, refers to a situation where too many individuals have privileges of use (or the right not to be excluded) in a scarce resource. This is as against the concept of the 'tragedy of anticommons' when rational individuals (acting separately) collectively waste a given resource by under utilizing it. Tragedy of anticommons, [www.en.wikipedia.org/favicon.ico](http://www.en.wikipedia.org/favicon.ico) (24 July 2006).
- 4 Lancaster Don, The case against patents, *The Blatant Opportunist*, 1990, [www.tinaja.com/glib/casagpat.pdf](http://www.tinaja.com/glib/casagpat.pdf) (24 July 2006).
- 5 The Doctrine of Equivalence could best be explained in the words of their Lordships in the Graver Tank case, 'Equivalence, in patent law, is not the prisoner of a formula and is not an absolute to be considered in a vacuum. It does not require complete identity for every purpose and in every respect.' *The Graver Tank v Linde Air Products* 339 US 605 (1950 US Supreme Court).
- 6 Being primarily a common law approach, this concept is to be adopted to approach the definition of monopoly, 'combining scrupulousness over the question of who was infringing with a view of the scope of the rights affecting acts that did not fall within the claims'. Cornish W R, *Intellectual Property*, 3rd edn (Sweet and Maxwell, London), 1996, p.207.
- 7 Steven M Shavell, Director, John M Olin Center for Law, Economics, and Business, Harvard Law School; presently, Samuel R Rosenthal Professor of Law and Economics; his works have been in the arena of law and economics with numerous papers to his credit; instances being Shavell Steven M, *Foundations of Economic Analysis of Law* (Belknap Press of Harvard University Press), 2004; Shavell Steven M, *Economic Analysis of Accident Law* (Harvard University Press, Cambridge, MA), 1987; Shavell Steven M, Strict liability versus negligence, *Journal of Legal Studies*, 9 (1) (1980)1-25. Harvard Law School, Faculty Directory, [www.law.harvard.edu/faculty/directory/facdir.php](http://www.law.harvard.edu/faculty/directory/facdir.php) (23 July 2006).
- 8 Richard A Posner, Judge, United States Seventh Circuit Court of Appeals and Senior Lecturer, University of Chicago Law School. He founded the *Journal of Legal Studies*, primarily to encourage economic analysis of law, and was a research associate of the National Bureau of Economic Research; Posner Richard A, Brief biographical sketch, [www.home.uchicago.edu/~rposner/biography](http://www.home.uchicago.edu/~rposner/biography) (23 July 2006).
- 9 David Friedman, Professor of Law, Santa Clara University, School of Law; Friedman David, [www.davidfriedman.com/Academic/Academic.html](http://www.davidfriedman.com/Academic/Academic.html) (23 July 2006).
- 10 Friedman David D, *Law's Order: What Economics has to do with Law and Why it Matters* (Princeton University Press, New Jersey), 2000, p.131.
- 11 Simplistically said, the broader the patent, the more is the probability of infringement by other innovations and inventions.
- 12 The breadth of a patent bears on the intensity of the 'induced monopoly power' (Merges and Nelson, 1990). It must be noted that, whereas the breadth of a patent defines the scope of the monopoly power, the height of the patent, in economic parlance, confers protection against improvements or applications that are easy or trivial. Langinier Corinne and Moschini GianCarlo, *The economics of patents: An overview*, Working Paper 02-WP 293, Center for Agricultural and Rural Development, Iowa State University, 2002, p. 9, [www.card.iastate.edu](http://www.card.iastate.edu) (5 July 2006).
- 13 At this juncture it may be pertinent to reiterate the necessity to discuss the concepts and dichotomy involved in the breadth of patents. The laws on infringement of patents have an inextricable nexus with the scope of protection being granted to the patentee's claims. The broader the patent granted the more is the exclusive rights of the patent holder, and lesser is the scope for others to innovate on the same. This would be vice versa in case of narrow patents.
- 14 Gilbert and Shapiro 1990, Central to this conclusion is that the flow of payoff from holding a patent has a negative impact on the social surplus, a term used in economic parlance to indicate the marginal social benefits. Thus, a minimum level of flow of payoff (breadth), with duration adjusted accordingly, would be socially optimal, as per this opinion.
- 15 Zavagnin Anna, The patent scope in the US and in the UK: *Doctrine of Equivalents* versus *Catnic/Improver Test*, *Erasmus Law and Economics Review*, 1(2)(2004) 165-205.

- 16 Zavagnin Anna, The patent scope in the US and in the UK: *Doctrine of Equivalents versus Catnic/Improver Test*, *Erasmus Law and Economics Review*, 1(2) (2004) 165-205. Logically speaking, a broad patent would provide incentives to other inventors to invent products that would be eligible for as broad a patent as the former, thereby promoting fast and 'duplicative' research. It is submitted that most of the economic analysis are empirically proven and hence could be justified in their own ways.
- 17 Gould John P Jr, Lazear Edward P, in *Microeconomic Theory*, by Irwin Richard D, 6<sup>th</sup> edn, New Delhi, 2001, pp 551-552.
- 18 In a Coasian world with no or negligible transaction costs, parties will bargain to achieve a Pareto – superior solution and the initial entitlements will be irrelevant.
- 19 Encaoua David, Guellec Dominique, Martinez Catalina, *The economics of patents: From natural rights to policy instruments*, 2<sup>nd</sup> version, August 2003, [www.innotec.bwl.uni-muenchen.de/equip/Abstract\\_Encaoua\\_Guellec\\_Martinez.pdf](http://www.innotec.bwl.uni-muenchen.de/equip/Abstract_Encaoua_Guellec_Martinez.pdf) (20 July 2006).
- 20 'A negotiation or a bargain between a technological pioneer (in our case, the inventor) and the innovators is extremely improbable since it involves the agreement on the values of both the pioneer invention and its enhancement, coupled with an appropriate division of the exploitation rights', Gould John P Jr, Lazear Edward P, in *Microeconomic Theory*, by Irwin Richard D, 6<sup>th</sup> edn, New Delhi, 2001, p. 551-552. The Commentator also refers to certain correction and remedies to the Coase theorem that could remove the deficiencies in it. Encaoua David, Guellec Dominique, Martinez Catalina, *The economics of patents: From natural rights to policy instruments*, 2<sup>nd</sup> version, August 2003, [www.innotec.bwl.uni-muenchen.de/equip/Abstract\\_Encaoua\\_Guellec\\_Martinez.pdf](http://www.innotec.bwl.uni-muenchen.de/equip/Abstract_Encaoua_Guellec_Martinez.pdf) (20 July 2006).
- 21 John Stuart Mill's endeavor to enunciate the Utilitarian Theory was an effort to mitigate the deficiencies in the other jurisprudential theories like those of natural rights, positivism and such other philosophies. It is this concept of Utilitarianism that is often called on to address the jurisprudential questions in the patent regime. John Stuart Mill, 'Utilitarianism', [www.utilitarianism.com/mill.htm](http://www.utilitarianism.com/mill.htm) (23 July 2006).
- 22 For instance, the 'incentive – to invent' theory insists on the need of granting patent protection for inventions characterized by high costs in R & D and it approves of a wide scope, as judged necessary for recovering initial investments. Likewise, both the disclosure requirement and the 'incentive – to – innovate' theory prefer a broad scope since it can facilitate the process of divulgation and acceleration of innovation; the unique exception is represented by the case of biotechnological innovations. Meurer Michael J, Invention, refinement and patent claim scope: A new perspective on the Doctrine of Equivalent', *Law and Economics Working Paper Series*, Working Paper No 04-03, Boston University School of Law, April 2004, [www.ssrn.com/abstract=533083](http://www.ssrn.com/abstract=533083) (23 July 2006).
- 23 Ottoz Elisabetta and Cugno Franco, The independent invention defense in a Cournot Duopoly model, *Economics Bulletin*, Department of Economics, 12(5) (20 June 2004), [www.economicsbulletin.com/2004/volume2/EB-04L10005A.pdf](http://www.economicsbulletin.com/2004/volume2/EB-04L10005A.pdf) (20 July 2006).
- 24 *Tweeddale v Ashworth* (1890) 7 RPC 426, 431, Narayanan P, *Patent Law*, 3rd edn (Eastern Law House, New Delhi), 1998, p.405.
- 25 That being the price of imitation, producing or innovating the patented product.
- 26 This assumption particularly holds good for the pharmaceutical firms; keeping this consideration in view the Drug Price Competition and Patent Term Restoration Act of 1984 (21 USC Sections 310-397) (2001) [Also called the Hatch-Waxman Act] has made certain provisions in the US Patent Regime. Bulow Jeremy, *Gaming the pharmaceutical patents*, Stanford Business School, [www.faculty-gsb.stanford.edu/bulow/articles/6.27.1036%20Pharmaceutica1.pdf](http://www.faculty-gsb.stanford.edu/bulow/articles/6.27.1036%20Pharmaceutica1.pdf) (20 July 2006).
- 27 The important fact that traverses on the same track as this statement is that some pioneer or enormously significant invention may not have an immediate commercial value but a high potential of developing in many applications and improvements. If considered the situation as contemplated in the submission, such an invention should be granted a broader patent thereby facilitating further fundamental research. The Doctrine of Equivalence would step in here to vigil over the breadth of the patent and prevent others from transgressing the fence.
- 28 That being the price of imitation, producing or innovating the patented product. Hence for the purposes of the forthcoming discussions, this would be considered as the guiding hypothesis, despite the possible inherent flaws in it.
- 29 The concept of 'pith and marrow', generally speaking is confined to unessential differences though the distinction between that which is essential and that which is unessential may be difficult to draw. Narayanan P, *Patent Law*, 3rd edn, (Eastern Law House, New Delhi), 1998, p.425.
- 30 The concept of 'All Elements' rule was well explained in *Warner-Jekkinson Co v Hilton Davis Chemical Co* [520 US 17 (United States Supreme Court, 1997)] where the US Supreme Court had confirmed the principle that each element contained in a patent claim is substantial in defining the scope of the patented invention.
- 31 *Proctor v Bennis* (1887) 4 RPC 333, Meurer Michael J, Invention, refinement and patent claim scope: A new perspective on the Doctrine of Equivalents, *Law and Economics Working Paper Series*, Working Paper No 04-03, Boston University School of Law, April 2004, [www.ssrn.com/abstract=533083](http://www.ssrn.com/abstract=533083) (23 July 2006).
- 32 In this context, it may be stated that one of the most important non-statutory mechanism available to the patent owner is the concept of joint tort-feasance. This provides that even if a party does not fall within the scope of Section 60 of the UK Patents Act, 1977, if it can be shown that they have acted in a 'common design' with a party who is liable of a statutory tort of infringement under Section 60, the patentee can enjoin the third party as a joint tortfeasor. Bently Lionel, Sherman Brad, *Intellectual Property Law*, (Oxford University Press, New York) 2001, p. 498.
- 33 Bently Lionel, Sherman Brad, *Intellectual Property Law* (Oxford University Press, New York), 2001, p. 498.
- 34 The nature of the doctrine would suggest that the social cost in innovating and developing the patented article exceeds that of fundamental research and that the application of this doctrine is limited to such type of cases only. Given this

assumption, the earlier statement that the doctrine of 'colourable imitation' was in essence similar to that of the doctrine of equivalents stands contradicted. The reason being that Equivalence by its nature and scope would apply to broader patents as against narrow patents, which becomes the domain of 'colourable imitation'.

35 *Consolidated Car Heating v Came* (1903) RPC 99 at 128.

36 In *Unwin v Health* 5HL Cas 505 at 522, 25, p. 429 there was ample evidence that to melt together oxide of manganese and carbonaceous matter with steel and iron would serve as an equivalent for the melting together of carburet of manganese with steel or iron in producing the desired result. However the fact that there was no evidence that at the time of the patent and specification persons of ordinary skills in Chemistry knew this was considered a good defense for the defendant.

37 Paragraph IV of the Act provides a mechanism for the litigation of pharmaceutical patent infringement disputes.

38 That is, falling within the Anti-trust regime in the US, governed by the Sherman Antitrust Act, 1890.

39 Such as the absence of any transaction costs, and perfect knowledge of the market among the parties.

40 Given the primitive objective of patent laws, initial inventors were always aware that by 'giving away secrets', cumulative and multiple innovations would be a natural fall out, thereby ensuring the profitability of follow-on R&D investments, and the viability of a continuous chain of technological improvements. Bar-Gill Oren, Parchomovsky Gideon, *The value of giving away secrets*, Paper 27, University of Pennsylvania Law School, 2003, [www.lsr.nellco.org/cgi/view\\_content.cgi?article=1030&context=upenn/wps](http://www.lsr.nellco.org/cgi/view_content.cgi?article=1030&context=upenn/wps) (3 August 2006).