

Novelty and Obviousness in Patent Law

B N Roy

*Lupin Laboratories Ltd, 31-A, 46-47A, 2nd Floor, Raj Industrial Complex, Military Lane,
Mumbai 400 059, India.*

This article deals with, statutes and practice of law in assessing novelty and obviousness/ inventive step, which are the key factors for the grant of a patent. Novelty i.e. anticipation is rather straightforward, since the prior art should not only mention this but the disclosure must be an enabling one. Obviousness is a complex issue. Various factors have to be taken into account like scope and contents of prior art, motivation in prior art, level of ordinary skill in the art, difference between prior art and claimed invention, objective evidence of non-obviousness etc. The issues involved in both product and process claims have been discussed with the help of various pronouncements of British and US law courts.

The objective of the patent law is to encourage, foster and reward innovation/ invention and to promote full and complete disclosure so that further improvements are stimulated and, enables the public to practise the invention after expiry of the patent. This results in supply of manufactured articles to the society at a more cost effective/ competitive rate e.g. price difference between a branded drug and generic drug in the western world. Moreover, patent protection gives an incentive to the inventor to invest some time at a very high rate, scarce resources for innovative research, e.g. 12-15% of sales turn-over by drugs and pharmaceutical multinationals.

To be patentable, an invention must be original not just extrapolation or interpolation of an existing art, in the sense being non-obvious i.e. has an inventive step, and not anticipated from prior art. The novelty and non-obviousness lie at the heart of the patent system and take the centre stage during examination at the Patent Office, in subsequent validity enquiry, or in infringement proceedings in a court of law.

However, the concepts involved in understanding novelty and obviousness for patent purposes are not well-appreciated specially by the majority of researchers, the originators of patents.

The Indian Patent Act, 1970 specifies an invention is patentable when it is new and useful, and sections 29 to 34 deal with various aspects of anticipation.

Section 1(1) of the British Patent Act, 1977 states that an invention to be patentable must be (a) new, (b) must have an inventive step, and (c) capable of industrial application.

Section 2 deals with novelty

"2. — (1) An invention shall be taken to be new if it does not form part of the state-of-the-art.

- (2) The state-of-the-art in the case of an invention shall be taken to comprise all matter (whether a product, a process, information about either, or anything else) which has at any time before the priority date of that invention been made available to the public (whether in the United Kingdom or elsewhere) by written or oral description, by use or in any other way.
- (3) The state-of-the-art in the case of an invention to which an application for a patent or a patent relates shall be taken also to comprise matter contained in an application for another patent which was published on or after the priority date of that invention, if the following conditions are satisfied, that is to say—
 - (a) that matter was contained in the application for that other patent both as filed and as published; and
 - (b) the priority date of that matter is earlier than that of the invention."

Section 3 sets forth the inventive step.

"3. An invention shall be taken to involve an inventive step if it is not obvious to a person skilled in the art; having regard to any matter

which forms part of the state-of-the-art by virtue only of section 2(2) above (and disregarding section 2(3) above)".

As per US law sections 101, 102, 103 provide for novelty, anticipation and obviousness.

35 U.S.C.—101 "Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title."

102 "Conditions for patentability; novelty and loss of right to patent"

A person shall be entitled to a patent unless—

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or
- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States, or
- (c) he has abandoned the invention, or
- (d) the invention was first patented or caused to be patented, or was the subject of an inventor's certificate, by the applicant or his legal representatives or assigns in a foreign country prior to the date of the application of patent in this country on an application for patent or inventor's certificate filed more than twelve months before the filing of the application in the United States, or
- (e) the invention was described in a patent granted on an application for patent by another filed in the United States be-

fore the invention thereof by the applicant by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by applicant for patent or

- (f) he did not himself invent the subject matter sought to be patented, or
- (g) before the applicant's invention thereof the invention was made in this country by another who had not abandoned, suppressed, or concealed it. In determining priority of invention there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other."

103 "Conditions for patentability; non-obvious subject matter:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the difference between the subject matter sought to be patented and the prior art are such that the subject matter 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 negated by the manner in which the invention was made."

Novelty

The patent statute provides that to be patentable, the invention must be new and this is the novelty requirement. However, a prod-

uct or process might have been new and patentable at the time of invention but may not be patentable because of events that have occurred between the intervening period i.e. time of invention and time of filing. Section 102 US Act specifically mentions conditions that would prevent from obtaining a patent. These limitations are more or less applicable universally.

Thus a prior patent or a publication anywhere in the world would be a ground for not granting a patent on the basis of lack of novelty i.e. anticipation. Anticipation is a rejection which has to do whether or not the invention examined is new. Rejection based on 2(1) of the British Act or Sec 102 of US Act are most commonly based on a printed document generally the examiner cites. This document ostensibly discloses the essential elements of the subject matter claimed by the applicant and hence, anticipates the invention claimed by the applicant.

An invention is anticipated when a single source contains all of its essential elements. Classic test of anticipation is:

"That which will infringe, if later, will anticipate, if earlier". If an examiner cites a printed reference as anticipating a claim the printed reference must describe the invention and the description in the reference must be adequate to a person with ordinary skill in the art not only to comprehend the invention but also reproduce it. Anticipation cannot be proved by combining more than one reference to show the elements of the claimed invention. "To constitute an anticipation, all material elements recited in a claim must be found in one unit of prior art" (re Marshall 578 F2d 301, 198 U.S.P.Q 344 (CCPA, 1978).

Novelty as per Section 2(1) of British Act or Section 102 of US Act is a liberal test since it is not difficult to draft claims which avoid

earlier disclosures, products or processes. The enquiry of anticipation is similar to that of literal infringement. The classic test of anticipation — “that which infringes if later in time will anticipate if earlier” has been modified by the US Federal Circuit in *Lewmar Marine V/s Barrient Inc* (1987) to “that which would literally infringe if later in time anticipates if earlier than the date of invention”. For other countries invention should be substituted by filing.

Anticipation due to prior publication must be found in a printed publication i.e. one which could be obtained without difficulty by a person working in the specialized branch of science or engineering. The description should be sufficiently adequate which would enable one to comprehend the invention, though it need not disclose how to make the invention e.g. an application on a chemical compound might be rejected “if there is any prior disclosure of the compound, even though; no practical means for the isolation or manufacture was previously known”. The key point to note here is that isolation or method of manufacture, though not disclosed for the compound in question, is obvious to one skilled in the art in the light of the description in the cited reference.

Similar criteria for novelty is employed in the British Patent Office and courts i.e. the prior art must be an enabling disclosure, as pronounced by Lord Reid in *Van de Lely V/s Bamfords* [(1963)RPC at 71].

“There may be cases where the skilled man has to have the language of the publication translated for him or where he must get from a scientist the meaning of technical terms or ideas with which he is not so familiar, but once he has got this he must be able to make the machine from what is disclosed from prior publication”.

New and non-obvious use of a known substance, reported or used, does not avoid anticipation for the patentability of the substance.

US Supreme court in 1945 ruled

“The patentee found latest qualities in an old discovery and adapted it to useful end. But did not advance the frontiers of science in the narrow field so as to satisfy exacting standards of our patent system. Where there has been use of an article or where the method of its manufacture is known, more than a new advantage of the product must be discovered in order to claim invention”. The same has been re-stated in 1990.

“The discovery of new property or use of previously known composition, even when that property and use are unobvious from the prior art, can not import patentability to claim to the known composition.” But, patentability for new and non-obvious application only of the material would be a different matter.

Obviousness

Non-obviousness i.e. lack of obviousness is distinct from novelty in the sense that invention may be obvious even though it is not identically disclosed anywhere in the prior art. Section 103 of US Act sets forth the requirements of non-obviousness which in spirit is identical to Sec 3 of the UK Act i.e. inventive step. Maximum number of rejections take place in the patent offices due to obviousness. Hence the prospective applicants should exercise special care, more so for improvement patents.

Obviousness has to be determined at the time of invention. This is an important requirement because as what might be non-obvious at the time invention was made may be obvious at the time patent application is examined in view of developments in the art in

the intervening period i.e. scrutiny for obviousness should be made by studying the prior art available at the time of filing or when the invention is made.

Obviousness is not tested through "*obvious to try*". The standard would be whether person skilled (ordinary skill) in the art would have reasonable chance of achieving the invention in question if all the documents/ literature etc, cited by the examiner and by the applicant are given to him. The test for obviousness is "*whether the teachings of prior art taken as a whole would have made the claimed invention obvious*" or "*the prior art as a whole must suggest the desirability of making the combination*". To claim obviousness it is not important of absolute predictability of success but only of reasonable probability of success.

It would be evident that to be non-obvious there must be an additional ingredient namely inventiveness in the work which is not generally expected in the person with ordinary skill in the art, i.e. essential difference between a skilled craftsman and an inventor. In other words, the invention in question should show that it provided at least some useful addition may be minor to the stock of human knowledge, and this is the *raison de etre* for the patent system.

As per US Supreme Court (Graham V/s John Deree, 1966) the enquiry for obviousness should consist of:

(a) the scope and content of prior art i.e. in-depth review of the concerned science and/ or technology with all its limitations, scope, equivalents and obvious possibilities. One should exercise special care for equivalents.

(b) the difference between the prior art and the claims at issue.

The important point to note is whether indeed there is a difference irrespective of great or small, between the applicant's claim and the prior art, and if so, whether it would be obvious to one skilled in the art.

(c) the level of ordinary skill in the art, and
(d) presence of objective evidence to prove the non-obviousness of the invention.

Prior art includes all that have been described in novelty statutes i.e. prior publications, patents, prior inventions by others, public use/ sale etc.

The level of ordinary skill should take into consideration the following:

(a) educational level of the inventor(s) in the particular art generally e.g. for medicinals/ drugs, Ph.D. with few years experience in the specific area of synthesis of complex organic molecules and/ or in specialized branch of biology,

(b) type of problems encountered in the art,

(c) prior art solutions to those problems,

(d) rapidity with which the innovations are made,

(e) sophistication of the technology, and

(f) educational level of workers in the field i.e., educational level of supporting staff to the inventor.

The objective evidence that might be taken into consideration for arriving at non-obviousness or obviousness of an invention might take into account the following:

(a) long felt need for the invention i.e. how important is the invention,

(b) commercial success of the invention,

(c) initial expressions of belief/ disbelief by experts,

(d) near simultaneous invention by others,

- (e) copying by infringers,
- (f) prior failure by others, and
- (g) licenses under the patent.

However, connection between the evidence offered for non-obviousness due to any of above mentioned factors and the claimed invention has to be demonstrated unequivocally.

The modern test of obviousness of invention in chemicals has been evolved in re Papesch, in 1963. The patent application for family of compounds, 2,4,6-trialkylpyrazolo(4,3-d)-4,5,6,7-tetrahydropyrimidine-5,7-diones including 2,4,6-triethylpyrazolo(4,3-d)-4,5,6,7-tetrahydropyrimidine-5,7-dione has been rejected in the US Patent Office because mention of its lower homolog i.e. 2,4,6-trimethylpyrazolo compound in the prior art. The applicant's compounds specially the 2,4,6-triethyl compound have been found to possess unexpectedly potent anti-inflammatory activity and also diuretic properties, whereas the prior art compound i.e. 2,4,6-trimethylpyrazolo compound showed no such biological properties. However, the claims by the applicant were drafted to exclude the prior art compound i.e. 2,4,6-trimethylpyrazolo one.

The USPTO rejected the claims of the applicant because of citing one reference which a lower homologue of the claimed compounds, i.e. the rejection was on the ground of obviousness but not in novelty.

On appeal the rejection was reversed and patent granted by a landmark judgement [US Court of Customs & Patent Appeals, 1963; 137 USPQ 43]:

"From the standpoint of patent law, a compound and all of its properties are inseparable; they are one and the same thing. The graphic formulae, the chemical nomenclature,

the systems of classification and study such as the concepts of homology, isomerism, etc., are mere symbols by which compounds can be identified, classified, and compared. But a formula is not a compound and while it may serve in a claim to identify what is being patented as the metes and bounds of a deed identify a plot of land, the thing that is patented is not the formula but the compound identified by it. And the patentability of the thing does not depend on the similarity compound to the latter. There is no basis in law for ignoring any property in making such a comparison. An assumed similarity based on a comparison of formulae must give way to evidence that the assumption is erroneous".

This means that showing of unobvious or unexpected useful property/ effect/ advantage would counter the argument of obviousness due to structural similarity and this has become the guideline for acceptance or rejection of applications.

For avoidance of rejection due to obviousness, if there is a structural similarity between the claimed invention and the prior art, the applicant should show:

- (a) a different utility which is unrelated; superior utility; or utility that is not common,
- (b) surprising and unexpected results,
- (c) synergistic effect, and
- (d) desired activities but significantly lower undesirable activity e.g. lower toxicity.

The principle to be followed for deciding obviousness due to structural similarity has been enunciated by US Federal Circuit Court of Appeals (en banc) in re Dillion II case:

"This court, in reconsidering this case in band, reaffirms that structural similarity between claimed and prior art subject mat-

ter, proved by combining references or otherwise, where the prior art gives reason or motivation to make the claimed compositions, creates a prima facie case of obviousness, and that the burden (and opportunity) then falls on an applicant to rebut that prima facie case. Such rebuttal or argument can consist of a comparison of test data showing that the claimed composition possesses unexpectedly superior properties or properties that the prior art does not have.... it is not necessary in order to establish a prima facie case of obviousness that both a structural similarity between a claimed and prior art compound (or a key component of a composition) be shown and that there be a suggestion in or expectation from the prior art that the claimed compound or composition will have the same or a similar utility as one newly discovered by applicant.... In particular, the statement that a prima facie obviousness rejection is not supported if no reference shows or suggests the newly discovered properties and results of a claimed structure is not the law."

Process claims

If a process/ method is novel and non-obvious, the application would sail through even if the starting material and end result of the process are not novel. But, what will happen when the claimed process is obvious but the starting material and the product of the process are novel and non-obvious?

Two different sets of ruling by the courts are cited below:

The issue involved *re Durden* [(US Court of Appeals Fed. Circuit, 1985)] was:

whether a chemical process, known and obvious as per Sec 103 is patentable because either or both; the specific starting material and the resulting product obtained are novel and unobvious.

Please note, product patents for both the starting and finished products were allowed, since these were novel and non-obvious. The court denied the process claim.

However, *In re Brouwer* [137 UPSQ 2d 1663 (1995)] and *re Ochiai* [37 USPQ 2d 1127(1995)] the court addressed the same issue whether a known process could be patented if it were employed only for synthesis of a new and non-obvious product.

In *Brouwer* the applicant claimed a process for synthesis of sulfoalkylated resin. Both the starting material and the final product were novel and non-obvious. The court noted that none of references cited by the examiner contained any suggestion or motivation either to use a resin substituted methyl functional group or to obtain the product made by the claimed process. Hence, the rejection was reversed and the patent was granted.

In *Ochiai* USPTO rejected the application for acylating by conventional and reported methods, the 7-amino position of 7- amino-cephalosporanic acid with a novel and non obvious acid viz. 2-aminothiazolyl-methoxy-imino acetic acid to give a new and non-obvious product, cefotaxime, cephalosporin antibiotic. Such acylation was achieved through acid chloride or through mixed anhydride routes, routinely practised organic chemistry and nothing inventive about it.

The court noted that since both the product and the starting acid are novel and non-obvious the process becomes patentable, since it would not have been obvious to select the particular acid as an acylating agent because the acid was unknown.

The court ruled:

Language in a process claim which recited making or using a non-obvious product must be treated as a material limitation

and a motivation to make or use the non-obvious product must be present in prior art for obviousness rejection to be sustained."

Such type of process claims would give the patentee an additional and powerful weapon to prevent importation of products specially to the USA made by the patented process.

A new clause 103(b) has been incorporated in US law in 1995 to cover biotechnological processes:

"(1) Notwithstanding subsection (a), and upon timely election by the applicant for patent to proceed under this subsection, a biotechnological process using or resulting in a composition of matter that is novel under Section 102 and nonobvious under subsection (a) of this section shall be considered nonobvious if:

- (a) claims to the process and the composition of matter are contained in either the same application for patent or in separate applications having the same effective filing date; and
 - (b) the composition of matter, and the process at the time it was invented, were owned by the same person or subject to an obligation of assignment to the same person.
- (2) a patent issued on a process under paragraph (1)—
- (a) shall also contain the claims to the composition of matter used in or made by that process, or
 - (b) shall, if such composition of matter is claimed in another patent, be set to expire on the same date as such other patent, notwithstanding Section 154."

Conclusion

Patents are granted for inventions. Novelty and non-obviousness (inventive step) are

the attributes of an invention i.e. the product/ process/ device must not only be new but also innovative thereby adding new knowledge to the stock of human knowledge in the specialized branch of science and technology.

Inventions may be classified as pioneering or improvement, which is generally achieved through "working around" a pioneering one. The pioneering applications being significantly original do not encounter too many hurdles in the Patent Office or in validity challenges. But applications for improvements both for products as well as process are scrutinized very closely with respect to novelty and obviousness/ inventive step. Here, the prospective applicant must exercise special care and carry out a diligent search of the prior art. Each document of prior art must be dissected to "elements" that make up the invention and compared objectively with that of the claimed invention. This would enable him/ her to make an assessment of:

- (i) the difference from the prior art, and
- (ii) whether there is any inventiveness in his/ her work or a mere extension albeit novel has been made.

Such a mind-set and discipline would usher in a culture of innovation which would enable us to be competitive in the international scenario.

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