Chapter 4

Inventorship and Ownership under the Domestic Patent Regulatory Frameworks – India, UK, EU and USA

4.1 Historical Evolution

The concept of patent can be traced back to the Venetian Statute of 1474. The basic requirement of the statute was novelty i.e. the invention must not have been previously manufactured in the state. This novelty had to be reduced to writing and explained for the benefit of the authority granting the patent and those who would subsequently study it to augment it further. Interestingly, the statute also provided that infringing articles could be destroyed and compensation had to be paid to the holder. A major exception which also became symbolic of the English patent law subsequently was that the Sovereign could use the concerned invention without prior authorization from the inventor. The statute famously read:

"*We have among us men of great genius, apt to invent and discover ingenious devices; and in view of the grandeur and virtue of our city, more such men come to us every day from diverse parts. Now, if provision were made for the works and devices discovered by such persons, so that others who may see them could not build them and take the inventor's honour away, more men would then apply their genius, would discover, and would build devices of great utility and benefit to our commonwealth...It being forbidden to every other person in any of our territories and towns to make any further device conforming with and similar to said one, without the consent and licence of the author, for the term of ten years. And if anybody builds it in violation hereof, the aforesaid author and inventor shall be entitled to have him summoned before and magistrate the said infringer shall be constrained to pay him hundred ducats; and the device shall be destroyed at once.*"[128]

[128] Prager, *The Early Growth and Influence of Intellectual Property* (1952) 34 JPOS 106, 139

The patent system introduced in Venice became increasingly popular across the rest of Europe in the next century when the Venetian artisans began migrating to other countries like France, Germany etc. Thus, it came as little surprise when an applicant from Italy received a patent for glassware in France in 1551. Germany by that time had already granted its first patent in 1484. By the turn of sixteenth century, Holland also had a well settled patent system to spur its innovations.[129] Going back to the ancient Greek era, one can understand and ascertain at least the notion of an incentive-based system where a creator is provided incentives to reveal something novel and useful to the community as a whole. The encouragement could take the shape of a commercial incentive or exclusive entitlement in the inventor's input. One of the initial manifestations of an encouragement-based mechanism can be found in Sybaris, Italy from 720 to 510 B.C. Aristotle explained the notion of an exclusive entitlement for those persons who invented an object which can be considered ''good'' for the state. In particular, Aristotle spoke to Hippodamus of Miletus, an eminent city builder and contemporary of Pericles, who suggested that a law be passed "*to the effect that all who made discoveries advantageous to their country should receive honours*." Even though ancient Greece is famous for its well-known scientists and mathematicians and particular discoveries originated in Greece, the scientific way of thinking laid stress on knowledge instead of the applied part or use of know how. In Greece, entitlements were discussed and refuted. In the Roman emperor, monopolies were considered illegal. Emperor Zeno (c. 480 A.D.) issued a proclamation stating that:

"*No one shall exercise a monopoly over any . . . material, whether by his own authority or under that of an imperial rescript heretofore or hereafter promulgated*."

In fact, during the Roman era, leaving aside glassmaking, there was negligible scientific progress. This was partly by virtue of the lack of a public-financed, encouragement-based scheme, which may have been obtained from the anti-technological rationale passed down to the generations from Aristotle and

[129] MacLeod, *Accident or Design? George Ravenscroft's Patent and the Invention of Lead Crystal Glass* (1987) 28 Technology & Culture 776 at 780–1

Plato. Even though the traditional Greek and Roman thinking led to the creation of an immense amount of scientific information and created a rich legacy of laudable foundation and design, they failed to recognize a financial aspect in intangible products. There was no incentive-based scheme through which novel and significant inputs within the society were incentivised.[130]

The policy of the English crown in the 14th and 15th centuries revolved around attracting foreign inventors to England by rolling out incentives like tax exemption, royalties etc. The emphasis was to promote immigration of foreign talent and transfer of the knowledge to the English artisans who were lagging behind when compared to the rest of the continent. The aim in the long run was to make the English industrial system self-sufficient and sustainable. All patent holders would be granted exclusive rights regulated by the state and hence limited in nature and scope. The reign of Queen Elizabeth I marked a watershed moment in this regard and witnessed the grant of over fifty patents in the last four decades on the sixteenth century.[131] The most defining authorization of patent as legitimate monopolies came in *Darcy v. Allin, the Book of Bounty, and the Clothworkers of Ipswich*, and the observations became the bedrock on which Section 6 of the English Statute of Monopolies was drafted. Section 6 reads as follows:

"…*any declaration before mentioned shall not extend to any letters patents and grants of privilege for the term of fourteen years or under, hereafter to be made of the sole working or making of any manner of new manufactures within this realm, to the true and first inventor and inventors of such manufactures, which others at the time of making such letters patents and grants shall not use, soe as also they be not contrary to the law nor mischievous to the state, by raising prices of commodities at home, or hurt of trade, or generally inconvenient; the said fourteen years to be accomplished from the*

[130] Giles S. Rich, The "Exclusive Right" Since Aristotle, 2 (1990)
[131] Hulme, *The History of the Patent System under the Prerogative and at Common Law* (1896) 12 LQR 141, 142

date of the first letters patents or grant of such privilege hereafter to be made, but that the same shall be of such force as they should be if this Act had never been made, and of none other."[132]

Patents of innovation did not cease to lose the unwelcome label of 'monopoly', and were seen through the lens of distrust and reticence. The exploitative acts piled on, and for the first part of the new century, the Privy Council retained its power over questions of validity of the concerned patents. When eventually the release arrived, instead of improving the condition, it rendered things worse as the alteration of jurisdiction produced extra uncertainty and eliminated any certainty that would have existed. Common law continued to function without precedent and was seen as adversarial by the patent holder. Trust and faith in the system, invariably a valuable thing, had receded from view. Additionally, society was not confident of what the patent law really meant. Dissatisfaction widely prevailed. Apprehensions regarding the stability given by patent protection had transpired to yield a basic evaluation of patent conferment. Majority of the patents were seen as unsafe, costly and undesirable to the inventor. However, the attraction of few patents, especially those considered as being more stable—generally taking the shape of a conferment that had withstood the opposition in common law—provided encouragement, and became tremendously valuable.

Amongst Britain's colonies, when India became free from the British rule in 1947, India's patent system was regulated by the Patents and Designs Act, 1911, which contained sections for product as well as process patents. However, this law was more beneficial for the foreign applicants as compared to their domestic counterparts. The endeavours of scientific research and industrialization did not receive sufficient incentives under this legal framework. In 1949, a committee was formed under the chairmanship of Justice Tek Chand for conducting a comprehensive review of the effectiveness of the 1911 legislation. The Committee filed its initial report on 4th August, 1949, and the final report in 1950. The report contained a series of recommendations to prevent the misuse of patent rights. One of the key

[132] Boehm, The British Patent System: Administration 17 (1967)

observations of the Tek Chand Committee report was that the patent law must remain lenient towards food, medicine, surgical and curative devices by making them publicly available at an affordable price subject to the payment of a reasonable compensation to the patent holder. Accordingly, the 1911 Act was amended in 1950 by incorporating provisions on compulsory licensing and revocation of patents. The next amendment came in 1952, providing for compulsory license on food, medicines, pesticides, and any process related to surgical or curative devices. Considering the extensive nature of the Committee's recommendations, the government felt it was necessary to codify them through a separate bill, but the bill was not pursued proactively in the Parliament and it was allowed to lapse. In 1957, a second committee was formed under the chairmanship of Justice N. Rajagopala Ayyangar to review, revamp and recast the law of patent in a way best suited to the needs of the nation. Justice Ayyangar obtained valuable data from 1930 to 1939 and consolidated the information into a number of tables demonstrating the proportion of Indian patents in the international arena. Justice Ayyangar indicated that during 1930-37, the patents granted to Indians and foreigners was approximately in the ratio of 1:9. The ratio remained largely the same even after independence in spite of the government having invested heavily in post graduate institutions and research centres. It was imperative to consider the economic or industrial or scientific importance of the inventions for Indian patent applicants to make up the ground in relation to their foreign counterparts. Not just in terms of the number of applications filed, but the Indian patentees also trailed their foreign competitors in terms of the value of the patented inventions. Justice Ayyangar insisted that patent law must remain an instrument for managing the political economy of the nation rather than serving the individual interests of the inventor. Applying this principle to the Indian context, Justice Ayyangar observed that the Indian patent law had failed to stimulate a culture of innovation and industry for the nation as a whole. The law was unsuited to the economic conditions and the level of scientific and technological advancement. Too much focus was placed on monopolizing the interests of the patent holder rather than creating the right environment to

cater to the future needs and long-term developmental goals of the country. Justice Ayyangar recommended that the legislature should retain the patent system, but with several improvements. The major change suggested was to create a line of distinction between patentable and non-patentable inventions. Justice Ayyangar suggested that those fields of research, or industrial progress which were vital to the national health or well-being should be exempted from the application of patent law.[133]

Tracing the history of patents in the United States of America, it may be seen that there were various American colonies that conferred patents; and Colonial patent schemes, while restrained, primarily attributable to the agricultural nature of society, had a marked bearing on the eventually formulated patent system of the provinces, as well as the central patent mechanism. The effects of the American Revolution pushed back on the idea of 'inventive property' in the initial stages, but as the development gathered pace, victory was seen as a more uncertain guarantee, and the Confederation of states saw a continuation of issued patents, in particular through the 1780s.[134]

As the indigenous techniques developed and domestic markets formed, the frequency of state-granted patents slowly moved up, lead to clashes in private legal conferment amidst the provinces. A proposal was moved in September 5, 1787, during the conclusion of the 'Constitutional Convention' that the legislature shall have the power to encourage the 'Progress of Science and Useful Arts' by obtaining for specific number of times to the creators the exclusive entitlement to their concerned works. This section, eventually epitomised through Article I, Section 8, Clause 8 of the Constitution, got wholesale assent in the assembly without discussion and offers the base for American patent and copyright systems.[135]

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[133] *Novartis AG v. Union of India (UOI) and Ors*. AIR 2013 SC 1311

[134] Edward C. Walterscheid, *The Early Evolution of United States Patent Law: Antecedents (5 Part I)* 78 J. PAT. & TRAD. OFF. SOC'Y 615, 630-31 (1996)

[135] Kenneth J. Burchfield, *Revisiting the "Original" Patent Clause: Pseudohistory in Constitutional Construction* 2 HARV. J.L. & TECH. 155 (1989)

In fact, Madison, in Federalist Paper No. 43, remarked that:

"*...the utility of [Article I, Section 8, Clause 8] will scarcely be questioned. The copyright of authors has been solemnly adjudged, in Great Britain, to be a right of common law. The right to useful inventions seems with equal reason to belong to the inventors. The public good fully coincides in both cases with the claims of individuals*."[136]

Patent Act of 1790, the foremost patent law of the USA, was passed on April 10, 1790, by George Washington. This statute conferred legitimacy on the grant of patents for 'any useful art, manufacture, engine, machine, or device, or any improvement therein not before known or used'. The statute did not the establishment of a patent office, but created a 'Patent Board' that would scrutinise the concerned applications, consisting of specifications to ascertain whether 'the invention or discovery was sufficiently useful and important'' to deserve the grant of a patent.[137]

The examination mechanism in the 1790 statute turned out to be excessively taxing for the three-member patent board, and in 1793 a fresh law was introduced. Even though the 1793 statute had various basic patent law principles that still exist in the contemporary era, the law dispensed with the 'Patent Board' and the examination system and set up a registration mechanism that was clerical in its mode of operation. The absence of an examination system led to the grant of several fraudulent or repetitive patents. The 1793 statute remained in force for 43 years, but its tenure came to be associated with the sections leading to 'unrestrained and promiscuous grants of patent privileges' or, more specifically, patents granted that ''would not be capable of sustaining a just claim for the exclusive privileges acquired'. The outcome was a 19th century phenomenon of a patent proliferation, with clashing and overlapping entitlements.[138]

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[136] Craig A. Nard, The Law of Patents 15 (2008).
[137] Kenneth W. Dobyns, The Patent Office Pony—A History of the Early Patent Office 35 (1994).
[138] *Ibid*

The disadvantages of the 1793 statute yielded frequent calls for reform and, the promulgation of the 1836 statute. In the meanwhile, the patent authority had introduced changes, for instance, the patent claim, which was incorporated in the 1836 law. The 1836 statute brought into existence (and in certain instances reinstated) key characteristics to patent regulations, which involved the establishment of a Patent Office as a separate body of the Department of State, and conferred it with more duties; started the post of 'Commissioner of Patents', the serial number system, and an appeal system for patent applicants desiring to appeal a rejection in the issuance of a patent. Lastly, and most significantly, the 1836 statute brought into existence the 'claiming requirement' and re-introduced the patent examination proceeding. The 1836 law also designated the Commissioner of the freshly established Patent Office with doing a scrutiny of the novel invention.[139]

The next significant legislative act happened in 1870 with the 1870 statute being mostly a re-codification of the 1836 law. There was though one important exception - the 1870 law laid more stress on the vitality of the claim, and thus the public notification aspect of patents. However, the 1836 statute required an inventor to 'specifically point out' what such inventor considers as his invention, the 1870 statute mandated that inventors specifically indicate and separately claim their inventions.[140]

Following the 1870 statute, it would take another 82 years for a more meaningful overhaul of the American patent law. But before addressing the essential features of the 1952 statute, a brief reference must be made to the Federal Supreme Court's attitude against patents in the backdrop of the 1952 law which became one of the major driving forces behind the promulgation of the new law. Between 1890 to 1930, patents were seen positively by the judicial authorities. However, between 1930 to 1950, the judicial authorities looked at patents with a tremendous amount of apprehension, stressing on the monopolistic and socio-economic features of patents that is, the collective, to be patentable, had to be equivalent of more than the aggregation of its constituents. The 1952 statute, written mainly by Giles S.

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[139] Craig A. Nard, The Law of Patents 19 (2008).
[140] *Ibid*

Rich, P.J. Federico, Paul Rose, and Henry Ashton, was to be seen as a reaction to the Supreme Court's anti-patent inclinations. The 1952 statute accomplished a number of things –

a. Section 112 negated the impermissibility of functional claiming.
b. Sections 271(b), (c) and (d) negated the liberal construction of the misuse doctrine in relation to contributory infringement.
c. Section 103 substituted the ambiguous ''invention'' requirement with a standard of non-obviousness which was lower on subjectivity. The earlier 'flash of genius' test was discontinued.[141]

The 1952 statute did a considerable amount to fortify the patent mechanism in the United States, but apprehensions, primarily of the procedural type, continued to persist. Prior to 1982, provincial circuits adjudicated patent violation appeals in the concerned district courts, like under the present system with majority of the criminal or civil cases. However, there were discrepancies amidst the regional circuits in the scrutiny of patents subjected to appeals with some circuits looking at patents very leniently, affirming their legitimacy most of the times, while others demonstrating a clear-cut anti-patent attitude. This differential adjudication of patents was said to have contributed to forum shopping and a significantly denuded patent framework. This eventually led to the creation of the United States Court of Appeals for the Federal Circuit in 1982 with the purpose of solidifying the American patent system.[142]

4.2 Patent as a Concept and Underlying Principles

Patent is an intangible right which concerns a newly invented product or a process for making any existing product. A patent therefore is always granted to an invention of commercial utility to encourage:

i. scientific research,
ii. new technology, and

[141] See F.D Prager, *Examination of Inventions from the Middle Ages to 1836*, 46 J. PAT. OFF. SOC'Y 268, 289-91 (1964)
[142] Kenneth W. Dobyns, The Patent Office Pony—A History of the Early Patent Office 100 (1994). See also Rochelle C. Dreyfuss, *The Federal Circuit: A Case Study in Specialized Courts* 64 N.Y.U. L. REV. 1 (1989)

iii. industrial progress.

Patent vests a right in the holder to prevent third parties from manufacturing, using and/or selling protected product/process for a limited term. In exchange of this right to exclude, the inventor must disclose his knowledge to the public so that the society may exploit the invention after the expiry of the term. This act of sharing is critical to sustain research and development in the long run. The technological advancement would also contribute to the betterment of human lives. This partly explains why the Paris Convention for the Protection of Industrial Property, 1883, insisted on a patented invention being worked sufficiently for continuing to remain valid. Even the amended version of the 1911 Act provided for grant of compulsory licence to curb the monopoly of the patent holder when public interest was at stake. Though, patent embodies a private right, the benefit to the society continues to remain a vital policy consideration for the grant of a patent.[143] As summed up succinctly by the Delhi High Court in *FMC Corporation and Ors. v. Best Crop Science LLP and Ors*[144]:

"*Patent is a form of a limited monopoly is granted by the government to a private person in lieu of the invention being made public. The objective would be that the invention should pass on to the community at large as the ultimate beneficiary*."

A patent system is created under law to provide monetary reward to an inventor. As a result, the patent holder gets exclusive right to exploit the invention for a limited term and prevent unauthorized use by third parties. The holder may also obtain a fee for granting licence for authorized use or transfer it to a third party through a written assignment. The grant of a patent is strictly governed by the provisions of the statute which requires filing of an application followed by examination. Once the application satisfies the statutory requirements of patentability and successfully resists any objections which may be raised by other persons, the Controller grants the patent. The Controller may also subject such grant to any conditions as he deems fit.[145] The patent framework represents a bargain between the inventor and the society. The inventor obtains rights in the invention in exchange for disclosure allowing the society to benefit from the disclosed knowledge. This bargain stimulates innovation and advancement in science and technology. The claim restricts the monopoly while the

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[143] *Bayer Corporation v. Union of India*, AIR 2014 Bom 178

[144] CS(COMM) 69/2021, I.A. 2084/2021, I.A. 6304/2021, I.A. 6706/2021 & I.A. 6707/2021, See also *Novartis AG v. Union of India (UOI) and Ors*. AIR 2013 SC 1311

[145] *Garware Wall Ropes Ltd. v. A.I. Chopra*, 2008 (3) MhLJ 599

specification describes the invention and improvement over the existing technology or 'prior art'.[146] Failure to advance the state of the art and disclose the invention sufficiently would invalidate the monopoly.[147]

The following observation by Lord Halsbury in *Tubes, Ld. v. Perfecta Seamless Steel Tube Company, Ld.*[148] explains the nature of this 'bargain' between the inventor and the society:

". . .the State says, "*If you will tell what your invention is and if you will publish that invention in such a form and in such a way as to enable the public to get the benefit of it, you shall have a monopoly of that invention for a period of fourteen years*.""

The following remarks of the court in *John Lord Hinde v. Osborne Garrett, and Co*.[149] perfectly summarize the underlying rationale of patents:

"*The inventor says, I ask…the public, or…the Crown, to give me a monopoly for a certain number of years, and in consideration of their giving me that monopoly I will tell them in my specification the nature and manner of using the invention…the public will be the gainers because they will learn how to do this…somebody else who has not got a patent…is not permitted to do that where the monopoly has been secured to an inventor*."

On 8th January, 2013, the U.S. Department of Justice, Antitrust Division and the U.S. Patent and Trademark Office observed that patents incentivize inventors to apply their knowledge, take risks, and invest in research and development. The resulting disclosure benefits the society by providing novel technologies at lower prices and better quality. In lieu of this disclosure, the patentee obtains the right to exclude third parties from practicing the patented inventions.[150]

In *Communication Components Antenna Inc. v. Mobi Antenna Technologies (Shenzhen) Co. Ltd. and Ors*.[151] the Delhi High Court observed that patents, unlike trademark and copyright, are conferred for a limited period, to balance the interest of the inventor and the public at large. After the expiry of 20 years, the benefit of the invention should be available to everyone. Therefore, Section 10(4) of the Act requires the specification to disclose the invention, operation or use, and the best method of performance known to the applicant. Grant of a

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[146] *La Renon Health Care Pvt., Ltd. v. Union of India and Ors*., (2019) 2 MLJ 718 (Madras)
[147] *Eli Lilly Canada Inc. v. Apotex Inc*., 2008 FC 142, 63
[148] (1902), 20 R.P.C 77
[149] 1884 (1) R.P.C. 221
[150] *Telefonaktiebolaget Lm Ericsson (Publ) v. Intex Technologies (India) Limited*, 2015 (62) PTC 90 (Del), See also *Raj Prakash v. Mangat Ram Choudhary and Ors*., AIR 1978 Delhi 1
[151] 2021 SCC Online Del 3948

patent should not prevent the public from inventing other products or methods by which the same result could be reached. If the patent is granted to the result, it would enable the patentee to prevent third parties from inventing other products/processes to achieve the same outcome. Applying this principle, the court concluded that the plaintiff did not describe the method of performance and the result mentioned in the claim could be achieved by other ways too. Granting the patent would vest the plaintiff with exclusivity over increase in subscriber base, regardless of the method used, thereby preventing all others from increasing the subscriber base. The words used in the description were far too vague and did not specify a particular method for increasing the subscriber base. Since, the specification did not comply with Section 10, it became a ground for revocation of the patent under Sections 64(h) and (k) of the Act.

The High Court of Karnataka in *Natural Remedies Private Limited and Ors. v. Indian Herbs Research & Supply Co. Ltd. and Ors*.[152] identified full disclosure of the invention for the public good as the rationale behind the sovereign grant of a patent. Therefore, the inventor becomes entitled to stop third parties from performing the invention except under licence. Patents therefore encourage:

i. scientific research,

ii. new technology, and

iii. industrial progress.

The inventor owns and therefore becomes empowered to use or sell the method or the product for a particular period of time. After the expiry of the term, the invention passes into the public domain.

Additionally, the court observed that a patent could only be granted for a new and useful invention rather than a mere verification of something already known. Not every improvement qualifies as an invention. For becoming patentable, the invention must be a product of some inventive faculties and should not be obvious to persons skilled in the relevant art. Though the fundamentals of deciding upon patentability remain same worldwide, the position under the TRIPS Agreement read with the Paris Convention on Protection of Industrial Property allow limited room to adjust the conditions of granting patent to each nation state. For instance, under the American Law, a patent may be granted to the

[152] O.S. NO.1 OF 2004, 9th December 2011

process, composition of matter and the product separately under Section 101 of the U.S. Code Title 35. The distinction between composition and process on the other hand is absent in the Indian Law.

Invention means finding out something which has not been found by others. The contrivance must be in use; the application of common things to an analogous use does not qualify as a proper patentable invention.[153] As observed by Lord Davey in *Rickmann v. Thierry*[154], either difficulties must be overcome or there must be some ingenuity in adjusting the old invention to a new purpose.

There must be a substantial exercise of the inventive power or inventive genius, though in certain instances, slight changes may produce significant results, and may disclose great ingenuity. Converting a detective machine into a useful and efficient one with independent thought ingenuity and skill would be considered novel.[155] The invention must be 'a new manufacture or art' and this is purely a question of fact. A patentable combination must produce a new result or help us reach the old result in a more expeditious or economical way. The mere aggregation of things pursuant to common knowledge, however, without exerting inventive factually would not be patentable.[156]

The essence of a patentable invention is best summed up in the words of the Karnataka High Court in *Natural Remedies Private Limited and Ors. v. Indian Herbs Research & Supply Co. Ltd. and Ors*[157]

"*Invention is…creation of something which did not exist before, possessing elements of novelty and utility…different from and greater than what the art might expect from skilled workers…by the exercise of independent investigation and experiment. Inventive skill has been defined as the intuitive faculty of the mind put forth in the search for new results, or new methods, creating what had not before existed or bringing to light what lay hidden from vision*."

In *Farbewerke Hoechst Aktiengesellschaft Vormals Meister Lucius and Bruning a Corporation and Ors. vs. Unichem Laboratories and Ors*.[158] the Bombay High Court observed that an invention may be split into three stages:

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[153] *Harwood v. Great Northern Ry. Co.*, 11 H.L.C. 654 and *Margan & Coov. Win Dover & Co., the C. Spring case*, 7 R.P.C. 131. See also *Blackey v. Lathem* (1889) 6 RPC 184 (CA) (per Cotton, L.J), "…*to be new in the patent sense, the novelty must show invention*."

[154] (1896) 14 RPC 105 (HL)

[155] *Canadian General Electric Co. Ltd. v. Fada Radio Ltd*. AIR 1930 PC 1 (per Maclean, J.)

[156] *Lallubhai Chakubhai Jariwala v. Chimanlal Chunilal and Co*. AIR 1936 Bombay 99

[157] O.S.NO.1 OF 2004, 9th December 2011

i. definition of the problem or the difficulty,

ii. choice of the general principle to be applied

iii. choice of the particular means to apply the principle and solve the problem.

In *Anderson's Black Rock Inc. v. Pavement Co*.[159], an American case, the patent concerned a solution for the problem of a cold joint on blacktop paving by bringing together a radiant-heat burner, a spreader and a tamper and screed, on one chassis. Though the combination of putting the burner together with the other components in one apparatus was useful, the US Supreme Court concluded it added nothing to the nature and quality of the radiant heat burner already patented. Mere commercial success did not guarantee patentability unless the work qualified as an invention. The combination of elements must 'result in an effect greater than the sum of the several effects taken separately' and create a 'synergistic result'.

A similar doctrine called the 'Law of Collocations' has been developed by the House of Lords in *Sabaf SpA v. MFI Furniture Centres*[160], where it was pointed out that two inventions do not become one invention because they are included in the same hardware.

The doctrine has also been applied by the Honourable Supreme Court in India. In *Biswanath Prasad Radhey Shyam v. Hindustan Metal Industries*[161] the apex court observed that:

"*To be patentable the improvement or the combination must produce a new result, or a new article or a better or cheaper article than before. The combination of old, known integers may be so combined that by their working inter-relation they produce a new process or improved result. Mere collection of more than one integer or things, not involving the exercise of any inventive faculty does not qualify for the grant of patent*."

Applying the principle, the court concluded that the cited prior arts by the defendants showed a similar cup shaped mask used for respiratory use. Prior arts also demonstrated folds, non-pleated body and the respiratory devices unfolded to convex with a demarcation line on dividing the mask into three sections. The plaintiff argued that the demarcation line in the prior arts existed for different reasons. However, the court dismissed this

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[158] AIR 1969 Bom 255

[159] 369 US 57 (1969), See also *Longbottom v. Shaw* (1891), 8 R.P.C. 333 (per Lord Herschell), "*If nothing be shown beyond the fact that the new arrangement results in an improvement, and that this improvement causes a demand for an apparatus made in accordance with the patent, I think it is of very little importance*."

[160] 2005 R.P.C. 10

[161] (1979) SCC 511

contention and ruled that there already existed all the integers creating the essence of the plaintiff's invention. Any person skilled in the art could have made this improvement without applying inventive faculties.

In *Asian Electronics Ltd. v. Havells India Limited*[162] the Delhi High Court traced the origin of the law of collocations doctrine in *Sabaf SpA* to the case of *British Celanese Ltd v. Courtaultds Ltd*.[163], where it was held that:

"*…a mere placing side by side of old integers so that each performs its own proper function independently of any of the others is not a patentable combination, but that where the old integers when placed together have some working interrelation producing a new or improved result then there is patentable subject matter…brought about by the collocation of the integers*."

The judge must determine the invention is one or two. Two inventions do not become one invention by becoming a part of the same hardware. For example, a car may contain several parts which are inventions, each operating independently, but all these parts are designed to contribute to aim of having a car with a certain quality or character, say, a compact size. That does not make the car an invention.

In *3M Innovative Properties Company v. Venus Safety & Health Pvt. Ltd*.[164] the Delhi High Court observed that a slight variation from a pre-existing invention would not qualify as a new invention unless such change is substantial, and the newness corresponds to that changed portion. A mental contention must be expressed accordingly.

The Honourable Supreme Court of India has given an extensive analysis of the basic requirements of a patentable invention in *Bishwanath Prasad Radhey Shyam vs. Hindustan Metal Industries*[165]. The court observed that 'novelty' and an 'inventive step' represent mixed questions of law and fact. If the manufacturing process was publicly known, used and practised in the country before or at the time of application, there shall be no novelty. Prior public knowledge could be by word of mouth or by publication. The public could not be deprived of the right to use the invention because they already possessed it.

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[162] 2010 (44) PTC 66 (Del)
[163] 1935 (52) RPC 171
[164] 215 (2014) DLT 317
[165] AIR 1982 SC 1444

Quoting from Halsbury, 3rd Edn., Vol. 29, p. 42, the court remarked:

"*Was it for practical purposes obvious to a skilled worker, in the field concerned, in the state of knowledge existing at the date of the patent to be found in the literature then available to him, that he would or should make the invention the subject of the claim concerned*?"[166]

The Supreme Court observed in *Monsanto Company v. Coramandal Indag Products (P) Ltd*.[167] relied on the following authorities to explain the nature of 'public use' –

i. *Carpenter v. Smith*[168] - Lord Abinger, C.B. observed that 'public use' means a use and exercise of the invention in public, not by the public. The knowledge should not be confined to the claimant but must spread to others.

ii. *Patterson v. Gas Light & Coke Company*[169] - Lord Blackburn noted that even if there is no actual knowledge or use, it is sufficient if the invention and the use has been described in a work and then publicly circulated.

Questions on anticipation are often raised regarding granting 'selection patents' to a particular compound where the prior art discloses a family of compounds. The general formula of the family includes the particular compound but does not explicitly describe it. The European Patent Office, for instance, has held that such a particular compound, if claimed as an invention, will be anticipated by the family. (This is the converse of the situation with Markush claims where the patent claim over a family of compounds with a general structure does away with the need for applying for each particular compound in that group separately.) However, in case of selection patent, the right will be granted

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[166] See also *Farbwrke Hoechst & B. Corporation v. Unichem Laboratories*, AIR 1969 Bom 255; *Astrazeneca AB and Ors. v. P. Kumar and Ors*. 262 (2019) DLT 118

[167] AIR 1986 SC 712, See also *Bristol-Myers Company (Johnson's) Application*, 1975 RPC 127, "*...prior use, which defeats a patent need not be habitual - one single instance is enough; nor need it be for the purposes of trade, if it is use from which the user derives a practical benefit...intention to do something is a "chameleon-like concept", which takes its colour from the nature of what it is that is to be done. Therefore, before considering the question of prior art, the Court should keep in mind that the prior use need not be habitual to defeat a patent*."

[168] (1842) 152 E R 127 (G)

[169] (1877) 3 AC 239

subject to certain conditions. In *Re I.G. Farbenindustrie A.G.*[170] the following conditions were identified:

i. substantial advantage to be secured or disadvantage to be avoided by the selected members of species patent;

ii. all the selected members must possess the substantial advantage;

iii. selection in respect of a quality or special character of the selected members;

iv. specification must disclose the substantial or unexpected advantage

The position of law in selection patents is perfectly summarized by *No. 10 Ethyl Corporation (Cook's) Patent*[171] in the following words:

"*In a 'selection' case the position is that there is a narrower later claim which falls wholly within the broader area of the disclosure of an earlier published prior document. In such case there will be anticipation unless the patentee of the later invention can show that he has selected an area from the prior broad disclosure which gives advantages beyond or different from those disclosed by the prior document*."

Applying these principles, the Delhi High Court held in *Astrazeneca AB and Ors. v. Torrent Pharmaceuticals Ltd. and Ors*.[172] that the composition of Dapagliflozin showed a substantial advantage and could not be considered as anticipated under a prior application IN 147. A phosphate salt of Sitagliptin could not be considered as disclosed in the Sitagliptin free base or the HCL salt in IN 147 with ethoxy substitution instead of a methoxy as the lower alkyl group. Likewise, in *Mariappan and Ors. v. A.R. Safiullah and Ors*.[173] the Madras High Court held that the novelty in the plaintiffs' patent law in the radicals R and R.1 and the that it was possible to have anti-diabetic properties, without producing toxic or anti-bacterial effects by modifying the structure of the sulphonylurea. This was

[170] (1930) 47 RPC 289
[171] Reports of Patent, Design and Trade Mark Cases, Volume 87, Issue 10, 17 September 1970, Pages 227–233
[172] 275 (2020) DLT 361
[173] 2008 (38) PTC 341 (Mad)

achieved through selection of proper materials with particular characteristics and making them react to obtain the product.

In *Magowan v. New York Belting and Packing Co*.[174], the US Supreme Court held that to be an inventive step, the inventor must supply what was obviously wanting and not simply show the expected skill. It must involve the creative work of inventive faculty, the facility of manipulation happening due to the habitual and intelligent practice of such faculty. In *McClain v. Ortmayer*[175], the U.S. Supreme Court had to decide on the validity of a patent claim for a pad for horse collars. The court observed that the curved hook of the defendant did not infringe the double spring mentioned in the specification and claim of the plaintiff. The following extract from the judgement provides a useful insight into the court's reasoning:

"*…the word cannot be defined in such manner as to afford any substantial aid in determining whether a particular device involves an exercise of the inventive faculty or not… certain variations in old devices do or do not involve invention, but whether the variation relied upon in a particular case is anything more than ordinary mechanical skill is a question which cannot be answered by applying the test of any general definition*."

In *Trucker v. Spalding*[176], a later patent application sought to claim the use of movable teeth in saws and saw plates. A prior patent protected cutters of identical form attachable to a circular disk, and removable in the same manner as the subsequently claimed patent. The court held that both the devices performed the identical function of sawing. The double use would be evident to the mind of an ordinarily skilful mechanic. The adaptation to the new use was not new invention because the change was not a material and non-obvious one. Hence, the later application did not succeed in claiming patent over the additional function of the movable teeth. The simple nature of a new device often leads us to think that it would have been evident to any expert, but the decisive test being that it had never

[174] 141 US 332 (1891)
[175] 141 US 419 (1891)
[176] 13 Wall. 453

occurred to any person before. In *Diamond Rubber Co. v. Consolidated Tyre Co*.[177], Justice McKenna, speaking for the United States Supreme Court held that knowledge after the invention is always easy. After the problems are solved, one may get the impression that the problems never existed. But that in itself does not negate novelty. In this case the fact that prosthesis was already known did not nullify the plaintiff's claim to novelty. As famously observed by Mr. Justice Bradley in *Loom Co. v. Higgins*[178]

"…*if a new combination an arrangement of known elements produce a new and beneficial result, never attained before, it is evidence of invention*."

In *Concrete Appliances Co. v. Gomery*[179], the United States Supreme Court had to consider whether a combination of devices to transfer wet concrete or other plastic materials from a point to several other working points during construction of a building could merit a patent. Applying the test of 'progressive adaptation' the court held that if what the plaintiff claims is merely a progressive adaptation of the existing devices, it would not amount to a new invention as the ultimate product is simply an exhibition of the expected skill.[180]

In *Pope Appliance Corporation v. Spanish River Pulp and Paper Mills Ltd*.[181], the House of Lords observed that a third person cannot complain of infringement if he kept the knowledge of the invention within himself. The objector could not argue that he would have invented the product or process, had he experimented. The real invention lies in the last element of the combination which is the one that counts. In *Cuno Engineering Corp. v. Automatic Devices Corp*.[182], the court held that a mere addition to the wireless or cordless lighter of a thermostatic control did not amount to an invention. It was simply the exercise of an ordinary skill indicated by the prior art. The new device must display the 'flash of creative genius' instead of the skill of calling.

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[177] 220 US 428 (1911)
[178] 105 U.S. 580, 591
[179] 269 US 177 (1925)
[180] See also *Hollister v. Benedict Manufacturing Co*. 113 US 59
[181] AIR 1929 PC 38
[182] 314 US 84 (1941)

Mr. Justice Bradley, in *Atlantic Works v. Brady*[183], had cautioned on the consequences of granting indiscriminate patents for effecting simple mechanical improvements. He observed that:

"*It creates a class of speculative schemers who make it their business to watch the advancing wave of improvement and gather its firm in the form of patented monopolies, which enable them to lay a heavy tax upon the industry of the country without contributing anything to the real advancement of the art*."

In 1952, the US Congress incorporated Section 103 into their Patent Act and replaced the test of 'flash of genius' with 'non-obviousness'.[184] The amendment was greatly influenced by *A. & P. Tea Co. v. Supermarket Corp*[185], where the US Supreme Court was required to decide whether the cashier's counter could enjoy a patent. The counter came with a three-sided frame which when pushed or pulled, will move groceries deposited by a customer, to the cashier and leave them over there until pushed back. The court framed the following principles:

i. The terms 'combination' and 'aggregation' are synonymous.

ii. The concept of invention is inherently elusive when applied to a combination of old elements.

iii. Mere aggregation of old parts or elements performing no new or different function is not patentable.

iv. To obtain a patent, the known elements must contribute something.

v. The patent sought must add to the sum of useful knowledge. It cannot subtract from the resources freely available to an expert by bringing together some known, old elements.

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[183] 107 US 192

[184] *Graham v. John Deere Co*. 383 US. 1 (1966)

[185] 340 US 147, See also *Great Atlantic & Pacific Tea Co. v. Super-market Equipment Corporation* (1950) 95 L Ed 162, "*A patent for a combination which only unites old elements with no change in their respective functions…obviously withdraws what already is known into the field of its monopoly and diminishes the resources available to skilful men. This patentee has added nothing to the total stock of knowledge but has merely brought together segments of prior art and claims them in congregation as a monopoly*."

In *Graham v. John Deere Co*.[186] it was observed that the court should resist the temptation to the teachings of the disputed invention in the relevant prior art. The court laid down the test of 'motivation-suggesting-teaching' ("TSM Test") where the basic question would be whether a person of ordinary skill in the art with knowledge of prior art and motivated by the general problem, would have arrived at the claimed combination. The following four-factor test was framed for determining obviousness:

i. determine scope and content of prior art;

ii. ascertain the differences between the prior art and the claims in dispute;

iii. level of ordinary skill in the relevant art; and

iv. evaluate secondary considerations (e.g. commercial success, a long felt but unmet requirement for a device and the failure of others to solve the problem.)

In *Monsanto v. Merck & Co. Inc*.[187], the manufacturer of a non-steroidal anti-inflammatory drug with low gastric irritancy sued the defendant for infringement. The suit was dismissed by the court which applied the following principle laid down in *General Tire & Rubber Co. v. Firestone Tyre & Rubber Co*.[188]:

"*…for a claim to be anticipated, the prior disclosure must contain a clear description of something or clear and unambiguous directions to do or make something that would infringe the claim, if carried out after the grant of the patents…a sign post, however clear, upon the road to the patentee's invention will not suffice. The prior inventor must be clearly shown to have planted his flag at the precise destination before the patentee*."

[186] 383 US. 1 (1966)
[187] 2000 RPC 709
[188] 1972 RPC 457, See also *Biswanath Prasad Radhey Shyam v. Hindustan Metal Industries* (1979) SCC 511, "*However, an infringement claim would be in the danger of being dismissed if the description of the claim or the related directions lack clarity. It would then become difficult for the courts to determine the exact claim in the patent which has been infringed by the subsequent activity of the defendant*."

Having perused the above foreign authorities, the Madras High Court concluded in *M.C. Jayasingh v. Mishra Dhatu Nigam Limited*[189] that addition of some new components may not always produce novelty. On the contrary, even a mix of existing ingredients (though different from a mere aggregation of things) could be considered as novel in certain cases. Accordingly, a custom mega prosthesis could not be said to be a novel product. However, the plaintiff's product represented the next phase of sophistication. The rotating hinge mechanism and the thrust bearing pad, being the essential components, could be treated as unique, novel and represented an inventive step. The combination was not simple and obvious, and resulted in bio-compatibility, flexibility, and comfort. A patient's body, where the plaintiff's product was inserted, would enjoy the flexibility of an original limb.

A few more English authorities on the point of non-obviousness deserve a special mention.

In *Windsurfing International Inc. v. Tabur Marine, Great Britain Limited*[190], the plaintiffs claimed patent in a wind propelled vehicle with a spar connected through a universal joint and an attached sail. The Court of Appeals accepted the argument of the defendant that the plaintiff's claim was obvious due to a printed publication. The following key observations were made regarding non-obviousness:

"*The philosophy behind obviousness must…prevent a man from doing something which was merely an obvious extension of what he had been doing or what was known in the art before the priority date…The question of obviousness was...to be answered by…hypothesising what would have been obvious at the priority date to a person skilled in the art who had access to what was known in the art at that date....*"

The court however cautioned that this notional man skilled in the art must be sufficiently interested in the subject for an accurate determination of non-obviousness. Four steps are required:

i. identify inventive concept;

[189] O.S.A. Nos. 393 TO 396 OF 2007, dated 23rd January, 2014
[190] 1985 RPC 59

ii. imputing to a normally skilled yet unimaginative person the common general knowledge in the relevant art;

iii. identify differences between cited matter and alleged invention;

iv. decide whether those differences would have been obvious to the skilled man.

These principles have been reiterated by the Court of Appeal in *Pozzoli Spa v. Bdmo SA and Moulage Industriel De Perseigne SA*[191].

In, *Shining Industries and Ors. v. Shri Krishna Industries*[192] the Allahabad High Court had to determine the patentable character of a lock invented by one Bodhraj Anand. The court relied on *Hotchkiss v. Greenwood*[193], where it was held that unless more ingenuity and skill was required to apply the old method of fastening the shank and the knob to the clay or porcelain than what was obvious to an ordinary mechanic, the work could not be treated as an invention. Improvement is generally the work of a skilful mechanic, not the inventor. It must not naturally suggest itself to a person thinking on the subject, otherwise it would be plainly obvious to a skilled person and would not be considered as an invention.[194]

The court referred to the following passage of Corpus Juris Secundum, Vol. 29, p. 268 (Paragraph 54) to support this rationale:

"…*There must be something more than a mere carrying forward or more extended application of a known principle or an original idea of another, a better doing of that which has already been done, the attainment of a more perfect result by the same methods, or the correction of a more or less obvious defect or fault, such as might be expected of a skilled mechanic in the particular art…An improvement of old device or method is not patentable merely because it permits a product to be produced more*

[191] 2007 EWCA Civ. 558
[192] AIR 1975 All 231
[193] (1851) 13 L Ed 683 at p. 691
[194] *Rado v. John Tye & Sons Ltd*. 1967 RPC 297 at p. 305

cheaply, or because it produces something which is more merchantable, or more compact or more efficient, or more attractive in appearance."

Applying the above principles, the court concluded that mere fact that the shackle of the old lock had one groove and the shackle of the new lock had three grooves or fact that in the old lock one arm of the shackle remained fastened to the lock with a pin on opening it, while in the new lock both the arms came out, did not make a material difference between the two inventions. The system largely remained the same in Mr. Anand's lock.

A further application of the test of non-obviousness can be found in a couple of subsequent American cases. In *Alza Corporation v. Mylan Laboratories, Inc*.[195], the Court of Appeals for the Federal Circuit was asked to judge a claim by the appellant in respect of an anti-incontinence drug named oxybutynin for which the respondent had applied for a generic version. The court reasoned that obviousness could not be taken out of the picture by merely demonstrating unpredictability and reasonable chance of success.

Unpredictability and patentability are not the same thing. The following excerpt accurately summarizes the court's reasoning:

"*…to have a reasonable expectation of success, one must be motivated to do more than merely to vary all parameters or try each of numerous possible choices until one possibly arrived at a successful result where the prior art gave either no indication of which parameters were critical or no direction as to which of many possible choices is likely to be successful*."

Applying the four-factor test, the court held the claimed subject matter to be obvious to a person having ordinary skill in the art. Hence, the appellant's invention was not patentable.

[195] 464 F. 3d. 1286 (Fed. Circuit 2006)

In *K.S.R. v. Teleflex*[196], K.S.R. was granted patent for an adjustable automobile accelerator pedal system with cable-actuated throttles. Teleflex Inc. obtained exclusive licence to an adjustable accelerator pedal system with electronically actuated throttles including an electronic sensor fixed to the pivot. Teleflex filed an infringement suit against K.S.R. When the matter came before the Supreme Court, it held that to prove obviousness one had to show that 'there existed, at the time of invention a known problem, for which, there was an obvious solution'. If a patent was granted without any real innovation, it would interfere with progress and might lead to loss of value for past inventions. The TSM test could not replace a full-fledged obviousness analysis. Accordingly, Teleflex's invention was held as obvious and the infringement suit was dismissed.

Even the Indian courts have extensively applied the rule of non-obviousness to determine the validity of patents. In *3M Innovative Properties Company v. Venus Safety & Health Pvt. Ltd*.[197] the Delhi High Court noted that the matter of obviousness should be determined by looking at the 'state of the art' known by skilled and experienced persons, as well as from the documented contents in previous writings. Four steps were to be considered:

i. identify the inventive step
ii. court must step into the shoes of a normally skilled but unimaginative addressee and impute to him the common general knowledge
iii. identify differences between the known or used matter and the alleged invention.
iv. Whether those differences would have been obvious to the skilled man or whether they needed a degree of invention.

[196] 550 US 398 (2007)
[197] 215 (2014) DLT 317

In *Natural Remedies Private Limited and Ors. v. Indian Herbs Research & Supply Co. Ltd. and Ors*[198] the Karnataka High Court observed that all the four herbs used by the plaintiff in preparation of Zigbir were also found in Livoliv Classic. Therefore, selection of the herbs was neither novel nor did it represent an inventive step in the preparation or composition.

Lastly, the aspect of mosaicing of prior art has been dealt with in detail by the Delhi High Court in *Bristol-Myers Squibb Holdings Ireland Unlimited Company and Ors. v. BDR Pharmaceuticals International Pvt. Ltd. and Ors*.[199] In mosaicing, the obviousness has to be judged from the fact whether the ordinarily skilled person could be presumed to have looked at a collection of prior art documents to figure out of the inventiveness of the product or process in question.

The court relied on the Australian decision of *Les Laboratories Servier, Adir, Oril Industries Servier Canada Inc., Servier Laboratories (Australia) Pty Ltd. and Servier Laboratories Limited v. Apotex Inc & Apotex Pharmachem Inc*.[200]to hold that a mosaic of prior art may be collected to consider a claim as obvious. Uninventive skilled technicians could be presumed to read the relevant literature and apply the learnings from multiple sources. But in such a case, the party claiming obviousness must show that the prior art exists and a skilled person would have been consolidated the necessary parts from the mosaic of prior art.

Drawing upon the observations from *Nampak Cartons Ltd v. Rapid Action Packaging Ltd*[201] the court noted that to show how the inventor may have come up with an inventive concept, a significant degree of hindsight would be required in choosing the relevant disclosures from prior art documents and ignoring the irrelevant.

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[198] O.S.NO.1 OF 2004, 9th December 2011
[199] MANU/DE/0299/2020
[200] 2008 FC 825
[201] [2010] EWHC 1458

The following passage from *Technograph Printed Circuits Limited v. Mills & Rockley (Electronics) Ltd*.[202] was found to be useful for laying down a test on mosaicing of prior art:

"*The hypothetical addressee is a skilled technician who is well acquainted with workshop technique and who has carefully read the relevant literature. He is supposed to have an unlimited capacity to assimilate the contents of, it may be, scores of specifications but to be incapable of a scintilla of invention. When dealing with obviousness, unlike novelty, it is permissible to make a 'mosaic' out of the relevant documents, but it must be a mosaic which can be put together by an unimaginative man with no inventive capacity*."

According to a survey of the above authorities, the court formulated the following principles on treatment of prior art:

i. Hindsight reconstruction by using the patent as a guide for prior art to achieve the result of the claim must be avoided. In other words, the opposer must show that the selection of a compound was based on its useful properties and not a deliberate attempt to search for structurally similar compounds.

ii. There should be no teachings of the patent in the prior art.

iii. Mere structural similarity cannot be the reason for selecting a compound in a prior art. Small changes in structures may have unpredictable pharmacological effects. Structural similarity must provide a proper justification to oppose a claim.

iv. In case of mosaicing prior art documents, the party claiming obviousness must show existence of prior art and how the person of ordinary skill in the art would have combined the relevant parts from the mosaic of prior art.

v. A significant degree of hindsight would be required in selection of relevant disclosures and disregarding the irrelevant teachings in such prior art.

[202] [1972] R.P.C. 346

The Bombay High Court has provided some useful guidance on the nature of the required industrial application for a patent application to succeed. In *Farbwrke Hoechst & B. Corporation v. Unichem Laboratories*[203]the court held that a lack of utility would mean that the invitation will not work either by not operating at all or will not do the thing promised in the specification. Practical usefulness or commercial utility or a real benefit to the public would be irrelevant. A patent would be considered invalid in terms of industrial application only if it fails to produce the results promised.

The utility of the patent must be determined by looking at the state of things at the date of the patent. If subsequent improvements have replaced the patented invention and made it less valuable. it does not invalidate the patent as long as it stayed true to its utility on the date of the grant of patent. Breakthrough inventions may not be commercially viable for immediate marketing but become important stepping stones for subsequent improvements.[204]

The basic rationale of industrial application is best summed by the House of Lords in *American Cynamid Company v. Ethicon Ltd*.[205]:

"*…almost every patented article which achieves commercial success embodies the result of improvements and research discovered since the date of publication of the complete specification of the basic patent…That commercial success is not necessary to establish patent utility, and that the improvements made subsequently are immaterial, has long been recognized*."[206]

Equipped with the above background knowledge, the following sub chapters will examine the position of law in India, USA, EU and UK in relation to inventorship and ownership through detailed references to the relevant statutes, regulations and cases.

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[203] AIR 1969 Bom 255
[204] *Edison & Swan Electric Light Co. v. Holland Lindley*, (1889) 6 RPC 243
[205] [1975] 1 All ER 504
[206] See also *Badische Anilin and Soda Fabrik v. Levinstein* (1887) 4 RPC 449 (per Lord Halsbury, L.C.), "*The element of commercial pecuniary success has, as it appears to be, no relation to the question of utility in patent law generally…*"

4.3 Position in India

4.3.1 Inventorship

Section 6 of the Patents Act, 1970, elaborates on who may submit the application for the grant of a patent. Section 6(1) states that following persons may apply:

i. True and first inventor

ii. Assignee of true and first inventor

iii. Legal representative of applicant who was eligible under Section 6 shortly before his or her death.[207]

The Act provides no guidance on ascertaining the true and first inventor. The Mysore High Court observed in *VB Mohamed Ibrahim v. Alfred Schafranek*[208] that a true inventor must have contributed some skill, ingenuity or technical knowledge towards the invention. The status of an inventor must also be judged by using an additional rider laid down in *The Permutit Co. v. Borrowman*[209]. In this case, the Privy Council observed that mere communication of an idea is not enough. It must be reduced to practice by the inventor who is making the claim through his or her application.

4.3.2 Ownership

Ownership entails the exercise of the bundle of rights provided to the inventor or subsequent holder of the patent under Section 48(1). The provision states that the patent confers an exclusive right on the holder to prevent third parties from the unauthorized acts of

i. making,

ii. using,

iii. offering for sale,

iv. selling or importing the protected product in India.

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[207] See also P. Narayanan, Patent Law 44 (2018)
208 AIR 1960 Mys 173 at 175
209 (1926) 43 RPC 356

The rights would also extend to

i. prevention of unauthorized use of a process and

ii. offering for sale, selling or importing any product obtained through such process in India.

The rights under Section 48 however does not immunize the patented invention from being challenged for revocation under Section 13(4) read with Sections 64 and 107 of the Act.[210]

In *Bajaj Auto Ltd. and Ors. v. TVS Motor Company Ltd*.[211] the Madras High Court observed that after the 2002 amendment, the patentee enjoys exclusive rights in respect of product as well as the process to prevent third parties from unauthorized use or sale. Such rights however did not exempt the patentee from the disclosure requirements under Sections 8(1)(b) and 8(2) of the Act. In the event of non-compliance, the ground for revocation under Section 64(1)(m) of the Act would be attracted. Additionally, the court ruled that the patent holder's rights would be subject to terms of the contract or tender. In the current case, the supply of drawings by the Railways to the prospective suppliers for side bearing pads according to those drawings did not amount to infringement because the patent holder had entered into the contract with the knowledge that the drawings could be put to similar uses by the Railways/Government.

The Bombay High Court has clarified in *Novartis AG and Ors. v. Mehar Pharma and Ors*.[212] that patents stand distinguished in terms of nature, scope and legal effect as compared to other forms of intellectual property. A patent is generally issued for a useful invention, which is novel and not present in the public. Once it is issued, a patent provides its holder an exclusive right to prevent others from 'making, using, offering for sale or importing' the protected product within the territory.

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[210] *Chemtura Corporation v. Union of India (UOI) and Ors*. 2009 (41) PTC 260 (Del)
[211] 2008 (36) PTC 417 (Mad)
[212] 2005 (30) PTC 160 (Bom)

In *Giridhari Balaram Radhakrishnani and Ors. v. Mahisa Electronics and Ors*.[213] the Karnataka High Court noted that Section 48 of the Act bestows on the patent holder the exclusive right to appropriate the invention to himself. He may also authorize agents, or licensees to manufacture, use, sell or distribute the invention within the country. However, the court also clarified that the grant does not automatically guarantee the validity of the patent. The validity of patent could be questioned before the High Court on the statutory grounds of revocation or in infringement proceedings.[214]

In *Merck Sharp and Dohme Corp. and Ors. v. Sanjeev Gupta and Ors*.[215] the question arose whether the 'making', 'using', 'offering for sale', and 'selling' of the patented product are individually addressed under Section 48(a) of the Act. The Delhi High Court explained that the phrase 'importing for those purposes' refers to import of the product for all the stated purposes - using, offering for sale, or selling. It was held that the enumerated activities need not necessarily happen within the territory of India to apply Section 48(a). The use of the disjunctive 'or' in the provision further reinforces the point that patents could not be restricted only to domestic manufacture and sale. The Delhi High Court further refuted the argument that the application of Section 48(a) to manufacture for exports would lend an extraterritorial flavour to the provision. As long as the manufacture happens within India, the question of extraterritorial application did not arise.

The essence of patent ownership rights under the Indian law was succinctly summarised in the following passage by the *Delhi High Court in Novartis AG v. Cipla Ltd*.[216]:

"*Patent rights are often considered as highest in the category of monopoly rights in the regime of Intellectual Property. This is due to the reason that patent right is absolute monopoly position where a patentee can prevent any person misusing the patent from manufacturing the project or arrive at the product through a process which is subject matter of patent. Thus, patentee being a right holder which*

[213] 1996(1)ArbLR342(Kar)
[214] *M/s. Bishwanath Prasad Radhey Shyam v. M/s. Hindustan Metal Industries*, MANU/SC/0255/1978
[215] 2020(81)PTC154(Del)
[216] 2015 (61) PTC 363 (Del)

is a privilege granted by a Sovereign State can enjoy this position of monopoly of manufacturing or making the process for a limited period of time to the exclusion of others."

In *Bayer Corporation and Ors. v. Union of India and Ors*.[217] the Delhi High Court noted that the exclusive rights on profiteering and earning from the patent were applicable only for the term of the patent. Also, Section 107A of the Act permits sale of the product during the term only for obtaining regulatory approvals for manufacturing and marketing the product after the term expires.

In *K. Ramu v. Adyar Ananda Bhavan and Ors*.[218] the plaintiff was awarded a patent for the process as well as the product of preparation of low glycaemic sweets containing fructose. If the fructose was used instead of sugar, it would lead to browning on account of Maillard reaction and caramelization. The plaintiff's patented process prevented the browning of sweets in spite of fructose being used. The Madras High Court observed that after having shown the validity of the patent by producing the necessary certificates, the holder had statutory right to prevent third parties from infringing the patent through unauthorized sale or use. When third parties infringe the patent, Section 108 of the Act will come into play and entitle the claimant to injunction or damages.

In *Telemecanique & Controls (I) Limited v. Schneider Electric Industries SA*[219], the Division Bench of Delhi High Court observed that the statutory monopoly resulting from a patent protects the patentee against any unlicensed user. Once violation is proved, patentee may sue for injunction. In *Natural Remedies Private Limited and Ors. v. Indian Herbs Research and Supply Co. Ltd. and Ors*.[220] the Karnataka High Court had concluded that chemical analysis of Livoliv-250 and Zigbir demonstrated that the composition of the two products were almost identical. Zigbir was manufactured by making use of only 4 herbs known for their prophylactic curative characteristics. These herbs were synergistically blended in proper percentages. Both the product and process were patentable by virtue

[217] 2017(70)PTC7(Del)
[218] 2007 (34) PTC 689 (Mad)
[219] 2002(24) PTC 632
[220] MANU/KA/2739/2011

of their novelty, non-obviousness and industrial use. Once the patentability was established, the plaintiff had exclusive right to exploit and market its product without any infringement by the defendants. The defendants had clearly infringed the patent as the plaintiff had not given any permission for use of the manufacturing process as stipulated under the Act.

A very interesting incident of ownership can be derived from the judgement of the Court of Appeals, Munich, where the court issued an anti-anti-suit injunction against M/s. Continental AG which had applied for an anti-suit injunction against Nokia, in the California District Court. This was in retaliation to the proceedings initiated by Nokia against Continental before the Munich Regional Courts. Continental had insisted that the proceedings could not be continued before the Munich courts till the Californian court had determined the royalty calculated under a Fair, Reasonable and Non-Discriminatory ("FRAND") rate. Nokia responded by filing an application, before the Munich District Court, for a restraint against Continental from proceeding with the anti-suit injunction application, filed by it before the California District Court. On July 11, 2019, the Munich District Court directed Continental to withdraw the anti-suit injunction before the California District Court. This order was further upheld by the Munich Court of Appeals which observed that if the anti-suit injunction was allowed to sustain, it would prevent the patent holder from exercising his right to sue for infringement. The patent law would become redundant if the owner was denied the right to enforce his exclusive monopoly granted by the State through court proceedings. Access to justice would also be jeopardised in the process.[221]

[221] See discussion in *Interdigital Technology Corporation and Ors. v. Xiaomi Corporation and Ors*. 2020 (84) PTC 225 (Del)

4.4 Position in the UK and EU

4.4.1 Inventorship

4.4.1.1 Inventorship in the UK

Section 7(3) of Patents Act, 1977 (hereinafter "Act"), in the UK defines 'inventor' as the actual devisor of the invention. Grubb and Thomsen offer some interesting insight on this matter. They have observed that the inventor must first and foremost conceive the inventive idea in his or her mind in a certain form in which the idea is capable of being executed or operated. The inventor may reduce such invention to practice on his own or may entrust some routine execution steps to another person who performs such steps as a part of his or her job description. The sole determining factor here is whether the claimant has contributed to the invention of the work.[222] To quote Lord Hoffman in *Yeda v. Rhone-Poulenc Rorer*[223]

"*The inventor is defined in section 7(3) as "the actual deviser of the invention". The word "actual" denotes a contrast with a deemed or pretended deviser of the invention; it means, as Laddie J said in University of Southampton's Applications [2005] RPC 220, 234, the natural person who came up with the inventive concept....*"[224]

Section 13(1) of the Act requires the inventor to be named in the application where the applicant is a third person. Before publication of application, the Patent Office notifies all inventors by sending copies of the Form 7/77 filed by the applicant.

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222 Phillip W. Grubb & Peter R. Thomsen, Patents for Chemicals, Pharmaceuticals, and Biotechnology – Fundamentals of Global Law, Practice and Strategy 382, 404 (2010)

223 [2007] UKHL 43

224 See also *Cinpres Gas Injection Limited v. Melea Limited*, [2008] EWCA Civ 9

4.4.1.2 Inventorship in the EU

Article 62 read with Article 81 of the European Patent Convention, 1973, (hereinafter "Convention") require the applicant to identify the true inventor in a European patent application unless such inventor waives this right under Rule 18(1). In case, there is an incorrect mention of the inventor, it may be rectified under Rule 19. The Convention however, under Article 74 of the Convention, directs disputes regarding inventorship to national courts.[225]

4.4.2 Ownership

4.4.2.1 Ownership in the UK

As explained by Bentley and Sherman, owner of a patent means the person with proprietorship over such patent who can 'exploit and control' its use. An owner decides on how a patent should be assigned, licensed or mortgaged. Lastly, it is also the owner's call whether a suit could be filed against an infringing party before a competent court. Since patent is purely statutory, the grant of patent under the statute always occurs in favour of the applicant. This rebuttable presumption has been stated in Section 7(4) of the Act. The grounds of rebuttal have been mentioned in Section 7(2) of the Act. This applicant is either the inventor or another person deriving the right from the inventor through succession or contract. If the applicant is not the inventor, say an employer with employee being the actual inventor, the applicant must identify the inventor in the application. The applicant must also demonstrate how it derived the right to apply for the patent from the actual inventor.[226]

While the English law offers extensive guidance on dealing with the employer-employee conflict with respect to inventions developed by the employee in the course of employment, there is some ambiguity surrounding the manner in which Section 7(2)(b) of Act, was drafted. A logical interpretation of this provision would lead us to conclude that the employer can under no circumstances be granted a patent for the employee's invention accomplished during his or her course of employment. This is because this

[225] Phillip W. Grubb & Peter R. Thomsen, Patents for Chemicals, Pharmaceuticals, and Biotechnology – Fundamentals of Global Law, Practice and Strategy 384 (2010)

[226] Lionel Bentley & Brad Sherman, Intellectual Property Law 523 (2009)

provision demands that **at the time of the invention** the employer must have been entitled to the patent. It is only **after** the product or process is invented by the employee, we can make a determination in favour of the employer due to the existence of Section 39 of the Act, a special provision. The employer per se has no right in the invention when it is being created. However, the employer can claim the patent to the employee's invention if it is created in the course of employment or where the invention is an expected result of performance of assigned duties.[227] The employer may also claim the patent where the employee has been specifically 'hired to invent' that is the position/designation he enjoys carries a special obligation that he must further the interests of the employer during the performance of his duties.[228] This is though subject to the requirement under Section 42 of the Act which states that assignment of patent to the employer should not diminish the employee's rights.[229]

The anomaly with respect to Section 7(2)(b) of the Act has been best addressed in the case of *Goddin v. Rennie's Application*[230]. The court noted that Section 7(2)(b) of the Act, if literally applied, should not cover situations where the employer had no right to be granted the patent at the time when it was conceived as a juristic person is disqualified from being the true and first inventor. A literal application of the rule would also mean that an agreement between the employer and employee cannot authorize automatic assignment of the patent on invention because the provision does not cover transfer of legal or equitable interests. Realizing the limitations of this pedantic line of thinking, the court adopted a more purposive approach in interpreting Section 7(2)(b) recognizing that the policy of law, as also reflected in Section 39, is to encourage collaborative arrangements between employers and employees. The employer herein brings its funding and infrastructure to the table and the employee his or her ingenuity or expertise.

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[227] *Harris' Patents*, [1985] RPC 19, *Staeng's Patent* [1996] RPC 183
[228] *Patchett v. Sterling*, [1955] RPC 50, *British Syphon v. Homeword* [1956] RPC 330
229 Lionel Bentley & Brad Sherman, Intellectual Property Law 533, 534 (2009)
230 [1996] RPC 141

4.4.2.2 Ownership in the EU

Article 60(1) of the European Patent Convention, 1973, recognizes the inventor or his successor in title as the first legitimate owner of a patent that is granted by the European Patent Office. As opposed to the system in the US, it is the person who files first, rather than the one who invents first, who earns the right to own the patent. Thus, under Article 54(3) of the Convention, if the true inventor files the application subsequently, the earlier published application, unless withdrawn, will negatively affect novelty for the subsequent application. Where the applicant is not the sole inventor, Article 81 of the Convention requires such person to indicate the origin of his right to apply – for example, a contract which authorizes the applicant to file.[231]

The Convention defers matters of ownership to the national courts. The Office has very limited procedural powers to decide on the question of entitlement of a patent. The Office will only entertain entitlement matters upon due reference by national courts or tribunals. It cannot, for instance, take up the issue of patent ownership in opposition proceedings.[232] The Convention has therefore been supplemented by the Protocol on Jurisdiction and Recognition in Respect of the Right to a Grant of a European Patent which lays down the rules to determine jurisdiction where the dispute concerns entitlement of patents registered in the European Patent Office. The Protocol states that for disputes between the claimant and the applicant, the national law of the applicant will apply, where both reside within EU. If the applicant resides outside EU, the national law of the claimant will apply. The issue at hand will be decided by a national 'court' which according to Article 1(2) of the Protocol could also include other authorities having the power to decide such issue, for instance, the Comptroller in the United Kingdom.[233]

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[231] Phillip W. Grubb & Peter R. Thomsen, Patents for Chemicals, Pharmaceuticals, and Biotechnology – Fundamentals of Global Law, Practice and Strategy 397 (2010)

[232] *Norris' Patent* [1988] RPC 159, *Canning's US Application* [1992] RPC 459, *Kirin-Amgen/Erythropoietin*, T412/93 [1995] EPOR 629

[233] G. Le Tallac, *The Protocol on Jurisdiction and the Recognition of Decisions in Respect of the Right to the Grant of a European Patent (Protocol and Recognition)* (1985) 16 IIC 318, 356. See also Lionel Bentley & Brad Sherman,

4.5 Position in USA

4.5.1 Inventorship

The provisions under Titles 37 and 35 of the Code of Federal Regulations and United States Code do not shed any light on the definition or meaning of the term 'inventor'. The Court of Appeals for the Federal Circuit has explained in *Sewall v. Walters*[234] that two conditions need to be satisfied for a person to be considered an inventor for the purpose of a patent:

1. Conception of the invention in the mind by forming a definite and permanent idea of the operative part including every feature of the subject matter sought to be patented
2. Implementation of the idea by reducing it to practice

These requirements will apply unless the invention was abandoned, concealed or suppressed by the first inventor per 35 U.S.C.A. § 102 (g). There may be two kinds of suppression and concealment

a. deliberate;
b. inferred based on lengthy delay in filing of application.

Intentional suppression requires proof that the inventor intentionally prolonged the tenure of secrecy with specific intent.[235] Knowledge of the competitor's entry could be relevant in deciding abandonment, concealment or suppression along with sudden 'spurring into activity' or conduct of a corporate body exercising control over its employee applicant.[236] Suppression or concealment, as opposed to abandonment, will not nullify his right to a patent. Suppression or concealment adversely affects only the right to rely on previous actual reduction to practice, but not prior conception.[237]

The effect of suppression or concealment is succinctly explained by Mills, Reiley, Highley and

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Intellectual Property Law 526 (2009); Phillip W. Grubb & Peter R. Thomsen, Patents for Chemicals, Pharmaceuticals, and Biotechnology – Fundamentals of Global Law, Practice and Strategy 399 (2010)

234 21 F. 3d 411, 415 (Fed. Cir. 1994)

[235] *Peeler v. Miller*, 535 F.2d 647, 653–54, 190 U.S.P.Q. (BNA) 117, 122 (C.C.P.A. 1976).

[236] *Adler and Apostolina v. Hair*, 188 U.S.P.Q. (BNA) 186, 188, 1975 WL 20838 (Pat. & Trademark Office Bd. App. 1975).

[237] *Brokaw v. Vogel*, 57 C.C.P.A. 1296, 429 F.2d 476, 480, 166 U.S.P.Q. (BNA) 428, 431 (1970); *Connin v. Andrews Et Al.*, 223 U.S.P.Q. (BNA) 243, 249, 1984 WL 63564 (Pat. & Trademark Office Bd. App. 1984).

Rosenberg in the following passage:

"*Even though an inventor has suppressed or concealed his invention, he will be entitled to a patent where his filing date is earlier than his rival's date of actual reduction to practice. Suppression or concealment, not amounting to abandonment, does not destroy one's right to a patent. It merely prevents the party from establishing priority over a subsequent inventor based upon an earlier actual reduction to practice*."[238]

The other exception under 35 U.S.C.A. § 102 (g) is that the first person to conceive did not implement the invention but some other person diligently reduced this invention to practice. Here, the person to conceive must demonstrate continued diligence towards reduction to practice to claim priority over the other person. Reasonable diligence may be proved through positive acts toward reduction to practice and accordingly corroborated. Mere assertion of diligence will not work. The inventor must specify what acts occurred on specific dates.[239]

The Court of Appeals for the Federal Circuit in *Burroughs Welcome Co. v. Barr Labs Inc.*[240] observed that a person, to be properly named as an inventor in the patent application, must have contributed to its conception. The same policy is also reflected in the drafting of 37 CFR 1.45(c) which states that for a person to be shown as a joint inventor in a patent application, he or she must have contributed to at least one claim contained in the application. As a corollary, 37 CFR 1.48(a) requires rectification of the application which does not show actual inventors. The applicant must readily make the correction upon discovery of the error.[241]

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[238] John Gladstone Mills et al., Patent Law Fundamentals, 5 Pat. L. Fundamentals § 16:6 (2d ed.)

[239] *Kendall v. Searles*, 36 C.C.P.A. 1045, 173 F.2d 986, 992–93, 81 U.S.P.Q. (BNA) 363, 369 (1949); *Hamlin and George v. Dunleavy*, 221 U.S.P.Q. (BNA) 1006, 1012, 1983 WL 51850 (Pat. & Trademark Office Bd. App. 1983); *Kalnoki-Kis v. Land*, 214 U.S.P.Q. (BNA) 636, 1982 WL 50423 (Pat. & Trademark Office Bd. App. 1982); *Rexroth v. Gunther*, 205 U.S.P.Q. (BNA) 666, 673, 1979 WL 24924 (Pat. & Trademark Office Bd. App. 1979); *Justus v. Brackmann and Di Ianni*, 195 U.S.P.Q. (BNA) 327, 330, 1976 WL 20948 (Pat. & Trademark Office Bd. App. 1976).

240 40 F. 3d 1223, 1227-1228 (Fed. Cir. 1994)

241 See also Michael A. Epstein, Epstein on Intellectual Property 5-29 (2006)

The nature of inventive contribution for making a person eligible to apply for a patent can be understood through a couple of interesting cases. In *Moore v. Regents of University of California*[242] a patient claimed himself to be a co-inventor where a patented cell line had been developed from some cells extracted from his spleen. However, the Supreme Court of California rejected his claim stating that the patented cell line was not his property as the creation of the cell line could not be attributed to the inventive nature of the efforts of the patient. In *Regents of University of California v. Symbiotics Corp*.[243] the owner of cats noticed some symptoms in his pet cats, noted them down in a report and submitted all of them to a doctor along with the report. The doctor tested the cats in his laboratories and discovered a virus similar to the HIV virus, he received a couple of patents in this regard. The owner claimed himself to be a co-inventor. Again, the suit was dismissed by the District Court stating that the owner had not reduced the invention to practice through a successful experiment. Hence, he could not claim a share in the patent. 37 CFR 1.45(a) states that only natural persons can qualify as an inventor for the purpose of the patent application.[244] Conception and reduction to practice could happen together where the invention is so unpredictable that the inventor is unsure whether the product or process will work until it is implemented in real time.[245]

4.5.2 Ownership

Ownership requires an exercise of proprietary interest in the patent which may be done either by the inventor or its assignee. As aptly observed by the Court of Appeals for the Federal Circuit:

"*Ownership, however, is a question of who owns legal title to the subject matter claimed in a patent, patents having the attributes of personal property…who ultimately possesses ownership rights in that subject matter has no bearing whatsoever on the question of who actually invented that subject*

242 499 US 936 (1991)

243 849 F. Supp. 740 (SDC 1994), See also Nuno Pires de Carvalho, The TRIPS Regime of Antitrust and Undisclosed Information, Kluwer Law International (2008)

244 Janice M. Mueller, Patent Law 179 (2009)

245 *D'Silva v. Drabek*, 214 U.S.P.Q. (BNA) 556, 562, 1981 WL 46261 (Pat. & Trademark Office Bd. App. 1981)

matter."[246]

Where the patent owner is not the inventor, the right is derived by such person by a contractual assignment. A great example of such a scenario is where the employer becomes entitled to patents on inventions developed by its employee. The rights are typically transferred to the employer through a pre invention assignment contract by the employee at the time of joining service.

The US federal patent regulations remain silent on the allocation of rights when an employee invents a product or process while being in the course of employment. Going by the general principle contained in 37 CFR 1.41 r/w 37 CFR 1.45 it would appear that the employee should automatically become entitled to apply for the patent. However, the practice developed through several case laws indicates that such an entitlement can only happen in the absence of a written agreement. The general practice is for the employer to make the employee sign pre-invention assignment agreements at the time of joining which gives the employer complete rights of exploitation over any invention that he or she develops during the course of employment. The pre-invention assignment agreement would cover any application which the employee may make during the employment or after he or she leaves such employment. For instance, in *Picture Patents, LLC v. Aeropostale, Inc.*[247] IBM executed an assignment agreement with one of its employees Michelle Baker, the relevant clause reading "*I hereby assign to IBM my entire right, title, and interest in any idea, invention, design…or other work of authorship*". The clause applied to any work she created in the course of her employment that related to the actual or anticipated business of IBM. Before joining IBM, Baker had conceived of an improved computer and then further tweaked the system during work hours using IBM's resources. After Baker quit IBM, she filed for three patents for the inventions. The District Court however strictly enforced the assignment clause and held that IBM owned the inventions sought to be patented by Baker. California, Delaware, Illinois, Kansas, Minnesota, North Carolina, Utah and Washington have enacted laws to codify

[246] *Sewall v. Walters*, 21 F.3d 411, 417, 30 U.S.P.Q.2d (BNA) 1356, 1360 (Fed. Cir. 1994); *Beech Aircraft Corp. v. EDO Corp*., 990 F.2d 1237, 1248, 26 U.S.P.Q.2d (BNA) 1572, 1582, 25 Fed. R. Serv. 3d 1249 (Fed. Cir. 1993).

247 788 F. Supp. 2d 127 (S.D.N.Y. 2011)

protections for inventor employees where they have not used the employer's resources or the invention does not relate to the employee's work/employer's current or anticipated business. The second requirement is a direct manifestation of the 'hired to invent' doctrine enunciated by the Supreme Court. The Court held in *United States v. Dubilier Condenser Corp.*[248], and *Standard Parts Co. v. Peck*[249], that an employer may claim ownership over an employee's inventive work where the employer 'specifically hires or directs the employee to exercise inventive faculties'. It shall be the duty of the court to ascertain whether the parties entered an implied contract to assign patent rights. The laws in California, Illinois, Kansas, Minnesota, and Washington additionally mandate that employers should notify their employees of the restrictions placed by law on pre-invention assignments by employers.[250]

248 289 U.S. 178, 187 (1933)
249 264 U.S. 52, 59–60 (1924)
250 Rich Stim, Employer Ownership of Patents and Trade Secrets, http://www.intellectualpropertylawfirms.com/resources/intellectual-property/patents/employee-patent-policy.htm