CHAPTER-II
ORIGIN AND GROWTH OF PATENTS

2.1. Introduction

In law, Intellectual Property is an umbrella term for various legal entitlements, which attach to certain names, written and recorded media, and inventions. The holders of these legal entitlements are generally entitled to exercise various exclusive rights in relation to the subject matter of the Intellectual Property. The term intellectual property reflects the idea that this subject matter is the product of the mind or the intellect, though the term is a matter of some controversy.\(^1\) Intellectual property laws confer a bundle of exclusive rights in relation to the particular form or manner in which ideas or information are expressed or manifested, and not in relation to the ideas or concepts themselves. The term "intellectual property" denotes the specific legal rights, which authors, inventors and other Intellectual Property holders may hold, and exercise, and not the intellectual work itself.

The basic public policy rationale for the protection of intellectual property is that IP laws facilitate and encourage the pursuit of innovation and the disclosure of knowledge into the public domain for the common good, by granting authors and inventors' exclusive rights to exploit their works and invention for a limited period. From the perspective of economics, intellectual property is a temporary monopoly on the use or exploitation of that good, supported by legal enforcement mechanisms.

Intellectual property protects applications of ideas, expressions and information that are of commercial value. Intellectual property rights are legal and institutional devices to protect créations of the mind such as inventions, works of art and literature and designs.\(^2\) The subject of intellectual property rights is growing in importance, to the advanced industrial countries in particular, as the fund of exploitable ideas becomes more sophisticated and as their hopes for a successful economic future come to depend

---

1 [www.wikipedia.com](http://www.wikipedia.com)
increasingly upon their superior corpus of new knowledge and fashionable conceits.\(^3\) In other words, IPRs are legal and institutional devices to protect creations of the mind such as inventions, works of art and literature, and designs. Prior, intellectual property includes Patents, Trademarks, Copyrights, Unfair competition etc., only. Over the years, the rather elastic intellectual property concept has been stretched to include patents, copyrights, trademarks and industrial designs, but also trade secrets, plant breeder’s rights, geographical indications and rights to layout designs of integrated circuits. Of these, patents, copyrights and trade marks are arguably the most significant in terms of their economic importance, their historical role in the industrialization of Europe and America, and their current standing as major pillars of the international law of intellectual property. Patents provide inventors with legal rights to prevent others from using, selling or importing their inventions for a fixed period, nowadays normally 20 years. Applicants for a patent must satisfy a national patent issuing authority that the invention described in the application is new, susceptible of industrial application and that its creation involved an inventive step or would be unobvious to a skilled practitioner. Patent monopolies are extremely valuable for business.

Copyrights give authors legal protection for various kinds of literary and artistic work. Copyright law protects authors by granting them exclusive rights to sell copies of their work in whatever tangible form they fix (printed publication, sound recording, film and so on) is being used to convey their creative expressions to the public. Legal protection covers the expression of the ideas contained, not the ideas themselves.\(^4\) The right lasts for a very long time indeed, usually the life of the author plus 50-70 years.

Trademarks are marketing tools used to support a company’s claim that its products or services are authentic or distinctive compared with similar products or services of competitors. They usually consist of a distinctive design, word or series of words placed on a product label. Normally, trademarks can be renewed indefinitely.

---


though in most jurisdictions this is subject to continued use. The trademark owner has the exclusive right to prevent third parties or services where doing so are likely to cause confusion. One of the main benefits of trademarks to the wider public is that they help to avoid such confusion.

Development of patent systems has a long history. They developed as a way to promote innovation, originally either by encouraging the importation of new technologies into a country or by making new inventions. Instead of keeping the invention a secret, countries learned that one effective way of getting inventors to publicly disclose their invention was to offer them limited monopoly rights in exchange for doing so. One way these patent rights were limited was in time. E.g. earlier it is 7, 14 years, after TRIPS it become minimum 20 years. After this period of time the monopoly rights were lifted and everybody could use the invention freely.

If the invention were not a success, the applicant would abandon the patent application, or stop paying the annual fees to patent office to keep the patent alive. So, in theory, the public learned quickly about a new invention when the patent application describing the invention was published, and eventually got free access to use it. In the meantime, the patent holder profited from the patent by selling the new invention at a higher price than would have been the case without a patent since the patent monopoly prevents competition. In an ideal case, both parties benefit from its patent bargain.

Adopting a patent system is supposed to encourage investment of resources in making inventions. Research and development (R&D) for new medicines, and in particular the progress in modern medicine, is often given as a good example as R&D into medicines for some diseases. Negative effect of R&D is neglected diseases such as sleeping sickness, Chagas disease or leishmaniasis, which only affects poor people, a patent holder will never be able to make a profit by charging high prices, and so little R&D is conducted on these diseases. The argument for a patent system encouraging R&D for medical needs in their countries falls far short.
Whether or not the patent system delivers the right R&D, the patent monopoly means that a higher price than necessary has to be paid for patented inventions. This is acceptable if this higher price is merely an inconvenience. However, if the patented invention is essential, then the price is more of a dilemma. To give a concrete example, the price patent holders charge for an AIDS drug cocktail remains at around US $10,000 in rich markets. But because generics companies are able to make their own version where there are no patents to prevent them, these drugs are now available to patients in some developing countries for less than US $300.

Accordingly, it is crucial that a careful decision is made to distinguish between what should be allowed to be patented and what should not. Before the WTO TRIPs Agreement was signed, states were free to determine what would or would not be patentable within the country. States didn’t make one-off, long-term decisions on patents. What they allowed to be patented varied a lot over time depending on the state of development of the country. The scope of patents has not always been expanded; in fact, states have sometimes decided to deny the patentability of inventions that were previously patented, or even abandoned their patent system altogether. The patenting of essential goods such as medicines and foods was for a long time thought to be self-evidently against the public interest. Indeed, when the Uruguay Round of WTO trade negotiations were launched in 1986, more than 50 countries were not granting patents on pharmaceuticals. However, the general trend in industrialized countries has been that the ‘boundaries of the patent system are re-drawn (almost always by widening) as industries which are used to working with patented extend their ambit of operation. In their campaigns for novel patents, they are likely to succeed except where they meet persistent and implacable opposition from some other interest group’.

In rich countries, extensive pharmaceutical patent protection and the high drug prices it entails may not produce immediate health crises since the majority of the population can pay these prices for the new inventions, either privately or through insurance schemes or other public health services – although even this model is looking increasingly stretched in Europe and the United States. In poor countries, where people
pay for drugs out of their own pockets and very seldom have health insurance, excessive prices of medicines become a question of life and death.

The pro-pharmaceutical patenting lobby argues time and time again that without patents there will be no new medicines. For example, Africa accounts for some 1% of the world's medicine market. If there were no patent protection at all in Africa, and even if big pharmaceutical companies ended up making no sales on the continent, their profits would be only negligibly impacted. Their ability to generate income to perform more R&D - and produce enormous returns for their shareholders - depends overwhelmingly on OECD markets. Patent protection in developing countries is not going to make the difference between big pharmaceutical companies developing new medicines or not. If a developing country chooses to adopt different rules for its patent system than those used, for example, in the US or Europe, it doesn't mean that system is of a lower standard or quality than the US or European systems. Just giving patent protection to whatever the US or Europe does is not by itself a sign of a quality system. The standard or quality of the system should be judged by how effectively the patent rules that each country has chosen are used to serve the public interest. For example, if a developing country like Indian patent law says that patents cannot be granted for new uses, and that a developing country patent office makes sure that it does not grant any patents for new uses, this can be considered a high quality system.

Like many other systems of economic regulation, intellectual property rights have a history going back centuries. The rationale study of law is still to a large extent the study of history. History must be a part of the study, because without it we cannot know the precise scope of rules, which it is our business to know. It is a part of the rational study, because it is the first step toward an enlightened skepticism, that is, toward a deliberate reconsideration of the worth of those rules. "When you get the dragon out of his cave on to the plain and in the daylight, you can count his teeth and claws, and see just what high strength is." But the main IP rights like patents and copyrights took their

modern form and functions in the nineteenth century at a time when Europe and America were in the midst of rapid industrialization, during this period India is under colonial rule. Over the years, states have granted IPRs for a variety of public policy purposes such as to encourage the immigration of craftsmen, to reward importers of foreign technologies, to reward inventors, to create incentives for further inventive activity, to encourage the dissemination of new knowledge, and to allow corporations to recoup their investments in R&D.

The expansion of trade competition since 1950 has brought ever-increasing advantages to those in the van of innovation. Intellectual property rights, which help to sustain the lead of those with technical know-how, with successful marketing schemes, with new fetishes for pop culture, have come to foster immense commercial returns. The increasing numbers of patents granted, trademarks registered and copyrighted fixations as publishing, record-producing, film making and broadcasting stand as some measure of this development majorly happened in industrial countries. The growth of technology and advancement of research also resulted in the enhancement of intellectual property.

The growth of international organizations, particularly within the frame of the United Nations, has provided one forum for the discussion of such claims. International Conventions such as Paris Convention for the Protection of Industrial Property 1883, Berne Convention for the Protection of Literary and Artistic Works 1886, the Patent Cooperation Treaty 1970, and Madrid Agreement on Trademark Registration, 1891 also provided scope in the international plane for the development of intellectual property to meet the demands for greater protection.

Beyond this there is a separate development, which was the landmark in the era of intellectual property rights. The General Agreement on Tariffs and Trade (GATT), in completing its Uruguay Round in April 1994, created a World Trade Organization (WTO), which, among other things, administers a high significant instrument, the Agreement on Trade-related Aspects of Intellectual Property Rights, including Trade in Counterfeit Goods (TRIPs).
The above international conventions are developed to meet the challenges posed to intellectual property both technological and scientific. Patent law prior evolved around machines and chemical processes, has had to absorb the emergence of electrical engineering, computer construction atomic energy, microbiological production techniques and now biotechnology and nano-technology. Copyright initially related to printing press now includes computer databases and digital recording etc., Today's great advances in computing, telecommunications, biotechnology and so on require very considerable investment indeed in order to be made, but are often taken over by others quickly, efficiently and cheaply. The issue in hot debate was whether existing international instruments and national legislations are capable to protect the new technologies like database compilations, multimedia works, new forms of electronic distribution and even DNA structures, genetic engineering, genomics, nanotechnology etc.,

2.2 Historical background and worldwide reasons for the Development of Patent System

A patent may be defined as a grant by the state of exclusive rights for a limited time in respect of a new and useful invention. These rights are in general limited to the territory of the state granting the patent, so that an inventor wishing protection in a number of countries must obtain separate patents in all of them. The name ‘patent’ is a contraction of ‘letters patent’ (Latin litterae patentæ, “open letters”), which means a document issued by or in the name of the sovereign, addressed to all subjects and with the Great Seal pendant at the bottom of the document so that it can be read without breaking the seal.6

The primary function of patents is to meter inventions in a relatively accurate manner. Patents have the primary function of serving as metering devices for society to measure an invention’s value, thus allowing patentees to stipulate competitive prices on

inventions and, consequently, on the products and services that embody them. Patents, therefore, are primarily neutral social mechanisms that contribute to an adequate allocation of private resources to the creation of technology.

Promotion of invention and innovation is accomplished by allowing inventors to obtain rents from the results of their activities. That can be done in two different ways. The first is requiring users of the inventions to pay for them directly. For that to happen, it is necessary to establish a legal mechanism that allows inventors to put a price on their inventions. That is precisely the role that patents and trade secrets perform. The second way of obtaining rents is to provide inventors with public funds or other privileges. In this case, governments allocate rents to inventors. Users of the inventions will still pay for them, but in an indirect manner, through taxes. For that matter, so will tax-paying non-users.

Social welfare and economic growth depend, in part on technological innovation, which not only facilitates a more efficient utilization of available scarce resources, but also provides access to new resources. It is true, that society needs that a continued flows of inventions be developed and made generally available. And it is also true that patents are necessary to induce such a flow of inventions.

The function of the patent system has thus far been explained in two different ways. The most common and accepted view is that patents are rewards granted to individuals who contribute to economic and technological progress by inventing and disclosing the inventions. This is the reward doctrine in nutshell. A second function of patents is that it operates as titles of legal scrutiny that permit the inventors to prospect the market for commercial opportunities, very much like concessions granted to gold prospectors. This is the prospect theory, proposed by Edmund Ketch.8

---

2.2.1 Awards and Wages

Government-funded initiatives are the oldest of the mechanisms for promoting invention. They can be traced back to Egypt. For example, an inscription in tomb of architect Nekhebu (twenty-sixth century BC) describes the honors that the Pharaoh conferred upon him, namely titles of nobility and high positions in the administration. Furthermore, the kind rewarded him with gold, bread and beer. In Syracuse, in 399 BC, the tyrant Dionysios the Elder gathered skilled workmen, commandeering them from the cities under his control and attracting them by high wages from Italy and Greece as well as Carthaginian territory. He divided them into groups in accordance with their skills, and appointed over them the most conspicuous citizens, offering great bounties to any who created a supply of arms.

Great inventors of ancient times were paid by means of public wages. Public wages were the tool used by the kings of Portugal to promote the technical progress in ship design and construction that buttressed the Discoveries, a state sponsored commercial and technical program that spanned over more than three centuries. In the fifteenth and sixteenth centuries, skilled designers and artisans were attracted by wages to work in the Royal Shipyards. Likewise, the first proposal for the US Patent Clause, which was authored by Madison, did not mention the grant of patents. Madison's suggestion was, "To encourage by premiums and provisions, the advance of useful knowledge and discoveries."

2.2.2 Privileges and Monopolies

Privileges constitute the second mechanism used by governments to induce the creation or the importation of technology. Their contents varied according to the place and time, but basically they consisted of permitting the inventor the right to exploit the trade in which the invention belonged. In some cases, artisans were attracted with

---

financial assistance, tax exemptions, and the permission to carry out their trade. In other cases, artisans and introducers of foreign techniques were sometimes granted a monopoly, assuring they would have no competition. In England, the king granted several monopolies for different businesses, such as making and importing playing cards or importing sweet wine. In the 1700s, Louis XV, King of France, became so worried about the technical progress of a porcelain factory in Strasbourg, which was threatening the profitable business of royal manufactory in Vincennes that, by royal decree, he ordered, “that no factory other than his own was allowed to produce multicolored porcelain.

2.2.3 Modern Individual Property Rights (Patents)

The privileges and monopolies were generally granted through letters that the kind or the lord of the land would address to the introducers of new techniques. Those letters were made public, or open, or patent, so that third parties were made aware of the right being granted. Those royal favours were, therefore, called patents. Letters patent are still used in the UK, for example to confer peerages and to appoint judges, but under the present Patent Act are no longer used to grant patents for inventions. Prior to 1878, letters patent for inventions were engrossed on parchment and bore the Great Seal in wax. Subsequently paper was used and a wafer seal of the Patent Office replaced the Great Seal, but the wording of the letters Patent document was still very impressive.

2.3 Development of Patent Law in different countries

If we look back into the history we can find incidences here and there at different periods in different parts of the world, there are incidences at Asia and Europe. In Asia if we look into our (Indian) mythology we can find replications in Ramayana, Mahabharata, etc., and later also if we observe during kingdom rule there also we can find giving awards for the persons intellectual works, like wise in Europe also we can find certain incidences way back from 700 B.C.
Europe is the first continent started developing specific legislations in protection of inventions. Even though throughout the world there are incidences in protection of intellectual developments for example in India we find incidences here and there way back from 5,000 B.C. In our mythology such as Ramayana Mahabharata etc also we can find, but these incidences stands in history as such and here we are studying the legislative developments specifically with regarding to Patents. According to the available history Europe is the first continent who developed few dare steps and it follows by USA and later it expanded to Asia.

2.3.1. Europe - Republic of Venice

At the time when the nature of monopolies for new inventions, as distinct from existing commodities, was still being worked out in England, there was already in the Republic of Venice a decree on the protection of inventions dating from 1474, which still sounds very modern today. In the following text, the footnotes indicate the modern concepts, which we would apply to the provisions:

There are in the city, and also there come temporarily... men from different places and most clever minds, capable of devising and inventing all manner of ingenious contrivances. And should it be provided, that the works and contrivances invented by them, others having seen them could not make them and take their honour, men of such kind would exert their minds, invent an make things which would be of no small utility and benefit to our state. Therefore, each person who will make in this city any new and ingenious contrivance, not made heretofore in our dominion as soon as it is reduced to perfection, so that it can be used and exercised, shall give notice of the same... it being forbidden to any other in any territory and place of ours to make any other contrivance in the form and resemblance thereof, without the consent of the author up to ten years. And however, should anybody make it, the aforesaid author and inventor will have the liberty to cite him before any office of this city, by which office the aforesaid who shall infringe be forced to pay him the sum of one hundred ducats and the contrivance be immediately
destroyed. Our government shall be at liberty to take and use in his need any of said contrivances, provided that no other than the authors shall exercise them.

1. Rights not limited to local nationals
2. General economic benefit as consideration for the grant
3. Local novelty requirements
4. Reduction to practice required
5. Sufficiency requirements
6. Disclosure a condition of patenting
7. Infringement not limited to exact copies.
8. Fixed term of protection
9. Infringement action before administrative bodies
10. Damages for infringement
11. Delivery up and destruction of infringing goods
12. Limited government use provisions (only inventor can supply)

In 1594 Galileo was granted a Venetian patent for an irrigation machine. By this time, the length of the patent term has increased to 20 years, and it was required that the machine be actually constructed within one year, in effect replacing a requirement for actual reduction to practice before grant by compulsory working provisions. In spite of this high degree of sophistication, however, the Venetian patent system fell into disuse as the power and importance of Venice declined; whereas the English system has remained continuously in effect to the present day.

2.3.2 Germany

Historical research has shown that during the fifteenth and sixteenth centuries there was a well-established system of inventor's privileges analogous to patents granted within the German states of the Holy Roman Empire either by the Emperor or by local princes, even though no codified laws seem to have existed. There are even records of what were essentially infringement actions taken by a jeweler named Caludio Vom Creutz in Nuremberg between 1593 and 1604 under an imperial patent relating to polishing of
gemstones. In one case at least the infringer was imprisoned, had to pay costs and was banished from the city. However, the chaos caused by the Thirty years' War in the early seventeenth century destroyed this early patent system along with much else, and patent laws in various German states developed only slowly during the first part of the nineteenth century.

Prior to the unification of Germany in 1981 there were 29 different patent laws in various independent German states, and even in Prussia, the most industrially developed state, patents were extremely difficult to obtain and to enforce. The first unitary patent law was passed in 1877, largely as a result of representations made by the industrialist and inventor Siemens, and despite the lack of interest shown by Chancellor Bismarck. The chemical industry at that time campaigned successfully against patent protection for chemical substances as such, and in the new law, only processes for their production were patentable. At first, such process patents were not considered to be infringed by the sale of the product of the process, but in 1888 BASF successfully sued the Swiss firm Geigy for infringement by selling in Germany a dye produced in Switzerland by a BASF patented process, and in 1891 this form of indirect product protection was codified in the German patent law. Product protection itself did not come until 1968.

There were for over 40 years two German laws, those of the Federal Republic of Germany and the German Democratic Republic (GDR). Since 1990 only the patent law of the Federal Republic survives, but nevertheless patents granted for the GDR prior to reunification were automatically extended at that time to cover the whole territory of Germany. An important development in German patent law was the introduction of a standard system for the remuneration of employee-inventors.

2.3.3 France and the Netherlands

In pre-Revolutionary France, there were grants of monopoly privileges for economic and tax reasons, similar to those in Elizabethan England, and no true patents for new inventions. During the revolution, in 1789, all privileges and monopolies were
abolished, but a new modern patent law was enacted only two years later. In the Netherlands, on the other hand, patents were granted by the States General as well as by the individual provinces for new and useful inventions, the emphasis being more on utility than novelty. During the 200 years leading up to the Napoleonic wars, over 600 such patents were granted by the States General. In the next century, however, the Dutch were more hostile to patents.

The French patent law of 1791 established the concept of intellectual property, which belonged by the right to the inventor. However, the law granted patents without any examination of their novelty, and this remained the basis of the French patent system for many years, during which only formal examination was carried out. Since, 1969, the French Patent Office has carried out novelty searches on patent applications, and for some years it was up to the applicant to decide whether he wished to amend or withdraw his application as a result of the search. Only recently, the patent office has been given power to refuse the application if the search shows the invention is old.

In Netherlands, after the re-establishment of Dutch independence in 1815, a very inadequate patent law introduced in 1817 was repealed in 1869 and no patents were granted from then until 1912, when the patent system was reintroduced with a strict examination system, until in 1995 it switched to the opposite extreme of a system without any substantive examination at all.

2.3.4. Switzerland

Switzerland, like the Netherlands, had no patent law at all for the greater part of the nineteenth century, and was at that time a 'patent piracy' country in which the products of the German chemical industry were safely imitated. A move to introduce patents in 1882 was strongly opposed by J.Geigy-Merian, founder of Geigy AG, later incorporated into Ciba-Geigy and Novartis, who denounced patents as a 'paradise for
Until the BASF Vs. Geigy case in 1888, the products could also be imported and sold in Germany. Finally, a Swiss patent law was enacted in 1888, but only those inventions were patentable which could be demonstrated by a model, thus excluding chemical substances and processes from protection. A modern law was introduced only in 1907, and product protection for chemicals came into effect only in 1978.

2.3.6 United Kingdom:

In the reign of Queen Elizabeth I, monopolies in commodities such as salt, coal, playing cards, and many others were frequently granted by letters patent either in return for a cash payment as a means of raising revenue, or a convenient method of rewarding royal favorites at the public expense. The idea of conferring a market monopoly as an incentive to innovate has old roots. Such monopolies were a continuing cause of unrest, since not only were prices of everyday articles artificially raised, but also the patent holders were given wide powers of enforcement of their rights, including power to search premises for infringing articles and to levy fines on the spot. The popular outcry always knew how to give way gracefully when no other course was open to her, issued a proclamation revoking the majority of grants of monopoly. Perhaps more importantly, whereas previously the grant of monopolies had been a matter of royal prerogative, which could not be challenged by the subject, the proclamation of 1601 allowed matters concerning such grants to be contested in the common law courts.

The next year, Edward Darcy, who had been granted by letters patent from the hand of Elizabeth I, a monopoly in the importation, making, and selling of playing cards, attempted to enforce his right in the courts against an infringer named Allein. The court held that the monopoly was illegal and the patent was declared invalid. In the course of this case, it was clearly stated that patents for new inventions should form an exception to the general rule against monopolies. In law, a contract between two parties will normally be valid only if there is a consideration on both sides, for example in a contract

---

of sale A transfers property to B in consideration of a sum of money paid by B to A; conversely the consideration for B’s payment is the property transferred. It may be considered that a patent for an invention is in the nature of the contract between the inventor and the state in which the state ensures that the inventor will have exclusive rights for a limited time in consideration for the benefit to the state, which is expected to arise from the invention.

a. The Statute of Monopolies

In spite of the judgment in the case of Darcy’s patent, illegal monopolist continued to be granted by King James I and to curb this continuing abuse, Parliament enacted on 25\(^{th}\) may, 1624 the Statute of Monopolies, which formed the basis of the law on patents in England for over 200 years. It consisted of a general prohibition on the grant of monopolies, qualified by certain specific exceptions. Section 6 of the Statute of Monopolies, which exceptionally allowed patent monopolies for 14 years upon “any manner of new manufacture” within the realm to the “true and first inventor”, had its own character. Section 6 also expressed the desire to impose some qualification upon the system in the name of higher public interests. More generally the terms of the section make it plain that an act of economic policy was intended: the objectives were the encouragement of the industry, employment and growth, rather than justice to the “inventor” for his effort. The patentee’s “consideration” for the grant was that he would put the invention to use and the 14 year period may well represent two cycles of seven-year apprenticeships.\(^{11}\) Sec 6 exempted patents for new inventions from the general prohibition. It will be seen that Sec 6 contains exceptions to the exception, providing that patents, which raised prices, hurt trade, or were generally inconvenient could be declared invalid. We would nowadays call such provisions ‘antitrust’ or ‘abuse of monopoly’ provisions.

This piece of legislation was not innovative, but simply declarative of the common law, as it had already been established. It did not alter the fact that an inventor had no automatic right to a patent for his invention; the grant of a patent was still an act of royal prerogative which had to be sought by petition and which could be refused at will.

Where the Statute of Monopolies speaks of an inventor, the term means not only an inventor in the modern sense of the originator or creator of a new idea, but also extends to a person who brings something new into the country for the first time. Many of the early patents granted before the statute of Monopolies had been to inventors of this type; for example the first and second English patents for invention both related to glass making techniques, which were known in continental Europe, but not established in England. Here the consideration for the grant of the patent was the establishment of the new industry in England, or in modern terms, the transfer of technology to a developing country. The basic objective was to improve the balance of trade by reducing imports and encouraging new industries, which could generate exports.

The first English patent granted to an inventor in the modern sense of the word appears to have been that the Giacopo Acontio in 1565 for a new type of furnace. Early English patents for inventions contained no more description of the invention than the title, and as long as the pace of technological progress remained snail-like and the number of patents granted was small, this was no doubt sufficient. As the number of patents increased, however, and as patents began to be granted for specific improvements rather than for the setting up of whole new industries, it became common to add a short description of the invention to the letters patent. By the early eighteen the century it had become the rule that patents were granted on condition that the patentee file a detailed description of his invention within a fixed period after grant. Gradually the concept arose that the disclosure of the invention in the patent specification was the consideration for the grant, a concept that is still much in vogue.
According to this view of the patent system, an inventor has the choice of keeping his invention secret or has applying for a patent. In the first case he may succeed in keeping his invention to himself for a very long time, but if others know it, or others, invent it independently, he has no redress. In the second alternative the state guarantees him his monopoly for a limited time but afterwards anyone is free to carry out the instructions published in the specification and practice the invention, to the general benefit of the economy.

This theory presupposes that the technological development of the society in question is sufficiently advanced that there are enough people able to put the invention into effect on the basis of a written description – a condition that is by no means always met in many countries, which grant patents. Furthermore, while it can be logically advanced in respect of an invention such as a process, which can be kept secret within the walls of a factory, it is clearly not valid where the invention is a new article or a new chemical compound, which is published to the world as soon as it is sold. The question of the consideration for the grant is more complex than would appear from this simple 'disclosure theory'.

The seventeenth century provided no more than a germ of a functioning patent system. Even the patent specification, the kernel of today's practice, made its appearance only in the early eighteenth century. Then patentees started to enroll statements of their inventions with Court of Chancery. Initially this practice may have been a device to help prove against infringers what the protected invention.

It is a coincidence that the Industrial Revolution began in England, a country in which there had been for over 200 years an uninterrupted tradition of patents for new inventions. The courts were requiring the patentee to make a sufficient statement of his conception as "consideration" for the monopoly granted to him. In the pre-industrial world, the notion that patents should be used as a regular source of technical information was not an obvious one. As long as competition in international trade remained primitive, each country might hope to keep its technical advances to itself. Britain was to
be first in learning the economic rewards of exporting technology, but not before she had attempted a policy of national conservation, which accorded ill with the notion of patents as a source of technical information. But the requirement of an adequate description was often pressed, not only because patents could then teach an industry what its liveliest members were doing, but because it provided competitors with ammunition against the patent; the sufficiency of the disclosure could itself be attacked, and also the usefulness of the invention. There was a correlative shift in the conception of novelty which would justify the patent grant: the question had been whether anyone was already practicing the invention in the country; now another issue was added, did the trade already know of it through publication. These changes of emphasis coincide with the first steps towards mechanized factory production and with a decisive increase in the number of patents. Probably these concerned many more homegrown inventions than before, but the role of the patent system in this first remarkable stage of industrial development was somewhat tangential, if not as irrelevant as some economic historians have supposed. Among the famous, Boulton and Watt secured large sums from their steam-engine patents, but these can partly from a special extending Act. Ark Wright's main patent on his spinning mule threatened the whole industry but proved to be too obscurely drawn to survive the attack on its validity. Crompton had to be given a parliamentary reward of £5,000 since he had virtually no commercial return from his spinning jenny. Patents provided equally sporadic encouragement for those with less celebrated improvements.

However, by the early nineteenth century the pace of industrialization had accelerated enormously, particularly in textile manufacture and transportation, and the economic importance of patent protection was becoming clear, the British patent system had not kept pace with technical progress. By the first half of the nineteenth century, the system for granting patents in England had indeed advanced to the point where a specification describing the invention had to be filed within a certain time after grant. The actual process of getting the patent, however, was an incredible rigmarole of petty bureaucracy, which has been immortalized by Dickens in A Poor Man's Tale of Patents. The sequence involved, at one stage or another, obtaining the signatures of the Home Secretary, one of the two Law Officers, the Sovereign, and the Lord Chancellor, and the
sealing various documents with the Signet, the Privy Seal and finally the Great Seal on the letters patent document itself. All this takes time and money; approximately six weeks and £100, equivalent to approximately £3,000 today. But the patent is extended only to England and Wales and separate patents had to be obtained for Scotland and Ireland so that the total cost of UK patenting was over £300, a sum which only a wealthy man could then afford.

c. Patent prosecution

Two years after Dickens satire, a major reform of the patent system was enacted in 1852, when the Patent office was set up and empowered to grant a single patent covering the whole of the UK. For the first time, a description of the invention had to be filed on applying for a patent. This could be a complete specification, giving a full description; or a provisional specification giving merely an outline to be completed later, within a fixed period after grant. The costs of obtaining a patent were greatly reduced, but renewal fees had to be paid in order to keep the patent in force for its maximum term. An important step forward was that the patent was dated from its application date, so that a disclosure of the invention during the application procedure would no longer invalidate the patent.12

Now that specifications describing the invention were required as a part of the application procedure and not as an afterthought, more care began to be given to the drafting of the descriptions, and in particular, to pointing out what were considered the new and important parts of the invention. As number of patent applications are increasing, it became necessary to clarify what the patentee thought was the crux of his invention, for which he claimed a monopoly. This was referred particularly in the specification part, which was referred to as the claims. In those days, infringement actions were still heard before a jury, who had to decide on the basis of the specification

what the scope of the monopoly was, and the claims served only to point the jury in the right direction.

The new patents system, cheap and simple in concept, was designed to attract capital for the small ventures and out-of-the-way ideas being generated on the fringes of industry, as much as its center. For reasonable fees, an applicant could in effect secure grant merely by registering his specification; and he might take advantage of the new arrangement for first filing a provisional, and then within a year, complete specification, thus gaining time to work out his ideas more fully. The amount of patenting activity at once increased markedly. Perhaps, it was invention at a relatively minor level that was particularly encouraged.

As claims grew in importance with the reorganization of the courts in 1875, the jurisdiction to deal with patent cases was transferred to Chancery Division of the High Court, and with the Patents Act of 1883, which required specifications to contain at least one claim. The modern Patent Office replaced the Commissioners of 1852 and it began to examine applications, mainly for formal defects and for sufficiency of description. Gradually, however, it became settled law that the patentee set the boundaries of the monopoly by the wording of his claim, and that 'what was not claimed was disclaimed'. Successive governments remained reluctant to create a bureaucracy that would search the prior literature and examine against the search results; and this despite the fact that the United States Patent Office had done so since 1836. It was not until 1901, when the Fry Committee demonstrated that 40 percent or more of the patents granted were for inventions already described in earlier British specifications, that the change became irresistible.

Further developments made by the Act of 1883 included the provision that a complete specification had to be filed before the patent was granted, the establishment of a Register of Patents, and the possibility for third parties to oppose the grant of a patent. At the same time, application costs were further reduced, and it became possible to file an application with a provisional specification for the sum of £ 1. This nominal application
fee amazingly enough remained unchanged until 1978. When the 1977 Act came into force an application could be filed for a fee of £5, which was still cheaper in real terms than it was in 1883. However, this had reached to £25 by 1997 and was expected to increase further. In October 1998, the fee was abolished completely and has not reappeared.

The increasing importance and complexity of drafting patent specifications and claims encouraged certain consulting engineers to specialize in this new art, and to set up in business as agents for inventors in the drafting and procuring of patents. In 1882, an Institute of Patent Agents was founded, and in 1888 a Register of Patent Agents was established by the Board of Trade under the control of the Institute, which obtained its Royal Charter in 1891.

Throughout the nineteenth century, patents were granted in the UK without anything more than a purely formal examination. Only in 1902 was a novelty examination provided for, and not until five years later could the Patent Office actually refuse an application on the ground that the invention was not new. At that time, the search was limited to British patent specifications not more than 50 years old, and only after 1932 were foreign publications considered. But the condition to consider such publications is that it should have been published within the UK.

In the 1870s Britain had come close to abandoning the patent system altogether because it was considered to be protectionist in nature and was opposed by free trade advocates, including The Economist. Having passed that crisis, the UK patent law increased gradually in strength till 1919. Up to then patents had been granted as a matter of course for new chemical substances. However, the British chemical industry felt itself technologically inferior to that of Germany, which for some years before the First World War had dominated the dyestuffs market. British industry pressed for the abolition of

---


patent protection for chemicals as such, and limitation of patent protection to that for specific processes for the preparation of chemicals so that they can easily follow the German dyestuff appearing the in the British market until they find a new and better dyestuff for themselves. This change was made in 1919, together with the further weakening of patent protection for pharmaceuticals by allowing compulsory licenses to be granted virtually on demand for patents relating to medicine. The first of these retrograde steps was abolished after the Second World War in 1949, the second only in 1977. One small positive development in 1919 was that the term of a patent was increased from 14 to 16 years.

The main changes carried out from 1800-2004, are defining the ‘novelty’, which understood in its limited modern sense – as separate from any inquiry into the obviousness of the alleged invention, which is attacked for its obviousness or lack of inventive step. Two other changes in 1883 are linked; juries were excluded from trials of patent actions in favour of a single judge; and patentees were obliged to include in their specifications at least one claim delineating the scope of their monopoly. The question whether the defendant was infringing, so often marginal in contested cases, ceased to be weighed upon a private moral balance in the jury-room and was instead subjected to that nice form of linguistic inquiry so natural to the Chancery mind. Buoyed up by a certain suspicion of monopoly grants, the judges soon insisted that claims marked out the full range of protection: alternative embodiments outside the scope of the words used in the claims were not covered, any more than were the separate parts of machines claimed as mechanical combinations. This use of claims as “fence-posts”, rather than as “guidelines”, affects a great deal else in the basic law of patents. It is a development, which has not been paralleled in the same manner in some other industrial countries.

With these developments, the essential features of the modern administrative system were settled in a way that was not to be disturbed until the events of the 1970s.

15 Nobel V. Anderson (1895) 12 R.P.C. 164, HL.
16 British United Shoe Manufacturers v. Fussell (1908) 25 R.P.C. 631 C.A
the statutory revisions of 1907, 1919, 1932 and above all 1949, put the law more in the form of a code and altered it in many details, but attempted nothing really drastic.

d. Patents Act 1949

The Patents Act of 1949 was also primarily a codification of gradual changes in the law, which had been brought about by the courts, and apart from the restoration of protection for chemical substances *per se*, contained little which was really new. For the first time all the grounds on which a patent could be declared invalid by the Patent Office by the court were set out in full, and priority dates of claims were defined. The priority date of a claim was essentially the date on which the subject matter of the claim was first disclosed to the British Patent Office or to a foreign patent office in an application from which priority was properly claimed. No publication of this subject matter could affect the validity of the claim so long as it took place later than the priority date of that claim.


The patent Act 1977 introduced major changes to British patent Law, primarily to bring the national law into harmony with the European Patent Convention. Like the EPC itself, the Patent Act 1977 came into force on 1 June 1978. Among other changes, this Act lengthened the term of patents from 16 to 20 years, adopted the simplified grounds for invalidity as set out in the EPC, defined precisely what constitutes infringement, strengthened the examination procedure of the British Patent Office by allowing examiners to raise objections of obviousness, and introduced provisions for compensation to employee inventors in some circumstances. Earlier British Patents Acts had generally codified existing common law practice and made minor changes as required, but the patents Act 1977 was enacted to recognize and implement a new European system of law for the grant of patents, which itself had been drafted *ab initio* on the civil law principle.

---

and it made far-reaching changes which destroyed or reduced the effect as precedent of a
great many decided cases in British patent law.

Part I of Patents Act 1977 set out the new domestic law. So far as this is
concerned with the making and processing of applications, it only affects applications to
the British patent Office as such. The other main provisions apply to British patents
granted by either route. These concern patentability, term, restoration and surrender,
property rights and employee's inventions; abuse of monopoly and Crown use,
infringement, revocation and associated issued; and amendment.

Part II provides the incorporative machinery for the EPC, CPC and PCT.
International applications under the PCT may evolve into applications to the British
Office under the Act by virtue of s.89. By s.77, European patents which designate the
UK fall to be treated as patents under the 1977 Act from publication of the mention of
grant in the European Patent Bulletin; and there follow a number of consequential
provisions on European applications, authentic texts, conversion into a national
application, jurisdiction over the right to apply for a European patent, professional
representation and evidence for EPO proceedings.

By contrast, if and when the CPC takes effect, Community patents will be
governed by that Convention. The main purpose of s.86 of the 1977 Act is therefore to
make the Convention itself part of UK law and to give the Secretary of State an
implement power to make regulations. It is important to note that a Community patent
will not become a patent under the 1977 Act and so will not be governed by the
provisions of Pt.1, which affect a European patent (UK). Thus infringement of a
Community Patent will be determined by the CPC's provisions, not the Act's; and the
rules on patentability will be the relevant Articles in the EPC since these are incorporated
into the CPC.

---

18Patent Act, 1977, ss.14-21; to this s.13 (3) is an exception. The provisions on secrecy (ss.22, 23) can
affect European and foreign applications generally.
Part III deals with a variety of general matters: legal proceedings, including the creation of the Patents Court within the frame of the Chancery Division, criminal offences; patent agents; administrative provisions the power to make Patent Rules a provision attempting to elucidate what is meant by the scope of a patented invention; and interpretation. Sections 127 and 128 and associated Schedules determine how far “old” patents, that is those already granted on June 1, 1978, or resulting from applications for which a complete specification had been furnished before that day are still governed by the Patents Act, 1949.

f. Later Developments

Subsequent legislation in the UK as had only minor effect. The Copyright Designs and patents Act 1988 was primarily concerned with the first two mentioned types of intellectual property. It deregulated to some extent the profession of patents agents set up the patents country court as an alternative tribunal to the Patents Court and made some relatively minor amendments to the patents Act, 1977. The Competition Act 1998 revoked sections 44 and 45 of the Patents Act, 1977. In 2004, intended to enable the UK to ratify the new version of the European Paten Convention and making some additional relatively minor changes and a statutory instrument ot allow ratification of the Patent Law Treaty. These changes, which as of writing have not yet entered into force, will be discussed in the relevant subsequent chapters.

2.3.6 USA

Patent law protects new, unobvious and useful inventions, such as machines, devices, chemical compositions and manufacturing processes. To obtain a patent grant, an inventor must file, in a timely fashion, an application with the United States Patent and Trademark Office (“PTO”). The application must include a specification describing and precisely claiming the invention. The PTO assigns each application to an examiner with technical training in the pertinent technology who conducts a search of the prior art and determines whether the applicant’s invention complies with the legal requirements of
patentability such as novelty, utility, nonobviousness, enabling disclosure and clear claiming. If the examiner reaches a favorable decision, he or she allows the claims. In due course, the PTO issues a patent. The patent is a printed publication and includes (1) the complete specification as filed by the inventor, with any amendments made during examination, and (2) a cover sheet giving data on the patent, such as the patent number, the issue date, the application filing date, the inventor, and prior art publications and patents cited during the examination. Patents are important sources of technical information.

A patent confers the right to exclude others from making, using, or selling the claimed invention in the US for a term of 17 years from the issue date. A patent owner may file a civil suit for infringement against anyone who, without authority, makes, uses or sells the patented invention. Remedies for infringement include preliminary and permanent injunctions, damage, attorney fees in exceptional cases, and prejudgment interest. Patents have the attributes of personal property and may be assigned or licensed.20

The development of patents in North America was, understandably, based largely on concepts developed in England. Although the colonies before independence lacked the sovereign power to grant letters patent, they nevertheless had legislation such as that of Massachusetts in 1641 giving exclusive rights for limited periods to persons introducing new industries to the colony. After independence, South Carolina, for example, introduced a statute (1784) dealing with inventions on the same basis as artistic copyright, and providing a 14-year term. On the other hand, Article 39 of the Maryland State Constitution of 1776 stated that ‘monopolies are odious, contrary to the spirit of free government and the principles of commerce; and ought not to be suffered’ perhaps the Elizabethan type of monopoly was what Maryland had in mind.

The Articles of confederation, which preceded the constitution, and were in any case not ratified until 1781, only delegated certain specific powers to the United States Congress, and the power to grant patents was not among them. Finally, in 1788, the constitution of the United States was ratified containing Article1 sec 8: The congress shall have power... to promote the progress of science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive rights to their respective writings and discoveries.

Congress could have chosen to promote the progress of science and useful arts for example by granting and cash awards, but these had the disadvantage that they would cost the government money, whereas the grant of exclusive right would cost nothing.

There are two points worth nothing in this brief statement. First, although it merely gave congress power to enact a patent law without seeming to place any restrictions on what form such a law might take, nevertheless the wording ‘to inventors’ is probably the reason why today the USA is the only country in which a patent must be applied for by the inventor himself ad not by an assignee such as the inventor’s employer. It is for this reason that, as we shall see, correct designation of inventor ship plays such an important role in US patenting, whereas in most other countries it has little or no effect on patent validity, although it may be important for other reasons such as compensation for employee inventors.

Furthermore, these words of the constitution appear to be the basis for the practice that whereas I most countries questions of precedence between two patent applications claiming the same invention are resolved on the simple basis that the first to file an application has priority, in the USA the patent is granted, subject to certain conditions, to the person who first made the invention. As this is by no means an easy matter to sort out, a lengthy and cumbersome procedure known, as ‘interference’ has had to be developed to resolve priority in conflicting applications.
It has been suggested that because of the wording of the Constitution, any change in the US law in these respects would require a constitutional amendment. Other authorities discount this view, pointing out that copyright in the US may be applied for by an assignee although artistic copyright is covered by the same section of the constitution as is patent protection, and that the constitution does not specify how the term ‘inventor’ is to be defined. It has been argued that the positions of the USA and the UK are not as far apart as in generally believed. In the UK, the Statute of Monopolies talked of patents being granted to the ‘trade and first’ inventor, which implies a first-to-invent system, but later cases defined the first inventor as the first to bring the invention to the public by filing a patent for it. In interference proceeding in the USA, there is a rebuttal presumption that the first applicant is the first inventor, and all that would be necessary would be to make the presumption irrebuttable. Whether this change will ever be made is an open question.

The second point of interest in the constitutional provisions on patent is the statement that the purpose of granting exclusive rights to inventors is to promote scientific and technical progress. This brings us again to the question of the consideration for the grant, which is here expressed not as the narrow exchange of protection in consideration of disclosure but rather as the board concept that a patent system encourages progress. Although the mechanism of how it is supposed to do so is not stated, the association in the USA over a long period of time of a strong patent system with an enormous degree of scientific and technological development appears to confirm the view of the framers of the constitution.

The consideration for the grant of a patent should not be regarded for individual patents in isolation. It is not the establishment of new industry, although in a few very rare cases a single invention will base an entire new industry. It is not the disclosure of the invention, since in most cases the invention will be made public if and when it is commercialized. It is not the working of the invention, since it is only commercially feasible to work ten percent or less of the inventions, which result in patents.
The consideration for the granting of patents, in general, is the benefit, which results to the state by technological progress as represented by the commercialization of inventions. The connection between the granting of patents and the commercialization of inventions is simply that the existence of patent right removes part of the risk involved in investment in a new development. Who, after all, would be willing to invest large sums of money in a new project if he knew that an imitator could copy his product as soon as it was marketed, without incurring any research costs. The justification for the patent system is that it provides an incentive for investment in new ideas, without which technological development would be much slower and more difficult.

Legislative developments during 1790-1952

The United States Constitution empowered Congress to establish a national patent system. It provides that Congress shall have the power "to promote the progress of science and useful arts, ... securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries". The clause inter-mixes copyright and patent concepts. The patent concepts are "useful arts", "inventors" and "discoveries".

The constitutional provisions on the protection of inventions first took form in the patent Act of 1790. It authorized patents for "any useful art, manufacture, engine, machine, or device, or any improvement their in not before known or used". This established a very strict examination system under which all patent applications had to be scrutinized by a committee of three cabinet ministers, consisting of the Secretary of State, the Secretary of War, and the Attorney General, at least two of whom had to be present. Incidentally, the first US patent bearing the signature of George Washington, was for a chemical invention relating to the manufacture of pearl ash (potassium carbonate).

Three years later, congress replaced the 1790 Act with 1793 Act. The 1793 Act omitted the importance determination and authorized patents for "any useful art,

---

machine, manufacture, or composition of matter, or any new and useful improvement [thereon], not known or used before the application..."

The 1790 and 1793 patent statutes, and court decisions interpreting them, introduced fundamental concepts that remain feature of United States Patent Law. Four-category approach to the definition of patentable subject matter is still in force. Another aspect of 1790 and 1793 statute authorized a patent owner to sue for infringement but allowed the accused infringer to defend by alleging and proving the patented invention lacked novelty or was insufficiently disclosed in the inventor's specification. These defenses are still important features of the United States patent system. Another one is the distinction between lack of novelty, meaning discovery by others before the inventor's invention, and loss of right, meaning public use or sale by the inventor before applying for a patent.

A clerk in the Department of State replaced the Patent Board. James Madison, Secretary of State, created a separate Patent Office within the State Department and he appointed Dr. William Thornton as its first superintendent in May 1802. On May 5, 1809 Mary Dixon Kies became the first woman to be awarded a U.S. patent. In 1810, the Patent Office moved from the Department of State to Blodgett's Hotel. In the same year, they opened the patent model storage to the general public. The Patent Office is now housed in its own building in Alexandria, Virginia.

In Pennock V. Dialogue (1829), the inventors Pennock and Sellers, devised a new method of making hose in 1811. They authorized Jenkins to make and sell 13,000 feet of hose using the method. In 1818, the inventors applied for and obtained a patent. The court affirmed a jury verdict that the patent was invalid because the invention was, in the meaning of 1793 Act, section 6, "known or used before the application". The court conceded that section 6 could not be interpreted literally; necessarily, at least the inventor would "know" of the invention before he or she could apply for a patent thereon for policy reasons, the court interpreted "known or used" as including public or commercial use by the inventor. The true meaning must be, not known or used by the public, before
the application, and thus construed, there is much reason for the limitation thus imposed by the Act... if an inventor should be permitted to hold back from the knowledge of the public the secrets of his invention; if he should for a long period of years retain the monopoly, and make, and sell his invention publicly, and thus gather the whole profits of it, relying upon his superior skill and knowledge of the structure, and then, and then only, when the danger of competition should force him to secure the exclusive right,... it would materially retard the progress of science and the useful arts, and give a premium to those who should be least prompt to communicate their discoveries”.

At that time Tomas Jefferson was Secretary of State. Himself an inventor, he initially took a keen personal interest in the examination and granting of patents, and, with the possible exception of Albert Einstein, must surely be the most distinguished patent examiner in history. It soon, however, became a burden, which he no longer relished; as he wrote to a friend:

Above all things he prays to be relieved from it, as being, of everything that was ever imposed on him, that which cuts his time up into the most useless of fragments and gives him from time to time the most poignant mortification. The subjects are such as would require a great deal of time to understand and do justice by them, and not having that time to bestow upon them, he has been oppressed beyond measure by the circumstances under which he has been obliged to give undue & uninformed opinions upon rights often valuable and always deemed so by the authors.

When only 55 patents had been granted in three years under this impractical system, the USA moved to the other extreme. The Act of 1793 allowed the grant of a patent upon request without any examination, even after the Patent Office was set up in 1802. The Patent Office was first located in four unpleasantnesses of the British troops burning Washington in 1814, the Superintendent of Patents successfully pleading with the British commander not to ‘burn what would be useful to all mankind’. However, the Patent Office burned down of its own accord in 1836, with the loss of all its records.
The confusion caused by the grant of a great many overlapping patents under the law of 1793 led to a congressional report by Senator Ruggles on the basis of which a systematic examination system was introduced in 1836 under the direction of a commissioner of Patents. This system, set up at a time when the Dickinson ritual described earlier was the only way of getting a patent in England, is still the basis of US patent law today.

The 1836 Act created a Patent Office and a system of examination of patent applications for compliance with the requirement of novelty over the prior art. It introduced a statutory requirement of clear claiming. It codified the Pennock doctrine by providing that an inventor’s discovery is “not, at the time of his application for a patent, in public use or on sale, with his consent or allowance. In 1839, Congress amended the public use and on sale provision to add a two-year grace period; henceforth, public use or on sale activity was fatal only if it dated more than two years before the inventor applied for a patent. The grace period remains a feature of United States patent law, though Congress shortened the period to one year in 1939. In the mid-19th century, the Supreme Court, in reviewing patent infringement judgments, established fundamental patent law concepts. *Hotchkiss v. Green Wood* (1850)\(^{22}\) established the obviousness standard of patentability; a literally new device was not patentable if it would have been obvious to a person of ordinary skill in the art. *Gayler v. Wilder* (1850)\(^{23}\) interpreted the “known or used” novelty standard as requiring knowledge or use accessible to the public. *Winans v. Denmead* (1853)\(^{24}\) established the doctrine of equivalents; a device that did not respond literally to the language of the patent claim would nevertheless infringe if it obtained the same result in the same way as the patented invention.

‘*O’ Reilly v. Morse* (1854)\(^{25}\) established the principle of undue patent claim breadth; an inventor of one means of achieving a useful result can claim only that means.

---

\(^{22}\) 52 U.S. (11 How.) 248 (1850).
\(^{23}\) 51 U.S. (10 How.) 477 (1850).
\(^{24}\) 56 U.S. (15 How.) 330 (1853).
not all possible means of achieving the result. *Godfrey V. Eames* (1864)\(^{26}\) established the concept of a continuing application; a second patent application could obtain the benefit of the filing date of a prior application disclosing the same invention. *Seymour V. Osborne* (1870)\(^{27}\) established the enablement standard for prior art publications; a publication would anticipate a later patent claim only if it provided sufficient information to enable one skilled in the art to make and use the invention. *City of Elizabeth V. American Nicholson Pavement Co.* (1877)\(^{28}\) established the experimental use doctrine; use otherwise public was excused if it was for experimentation, to "bring the invention to perfection", rather than for profit.

In 1870, Congress replaces the 1836 Act with a new codification. For the most part, the 1870 Act retained the 1836 Act's provisions and requirements. In 1897, Congress made two changes in the statutory bar provision, adding patenting and description in a printed publication to the-public use and on sale bars as loss of right events, and specifying that public use or on sale activity must be "in this country" to be a bar.

The 1836 Act retained the original patent term of 14 years, but enabled extensions of seven years to be obtained. A register of patents was established, and an appeals procedure was set up. The applicant was required to supply a model of his device, and these models were on display at the patent office. This general requirement to supply models was not abolished until 1880, and although many thousands of models were destroyed by fire or otherwise lost, many are now in museums or private collections, and give a fascinating insight into patenting activities in the mid-nineteenth century. Various amending Acts were passed in the years after 1836, which were consolidated in the Act of 1870. Among these was the extension of the patent term to 17 years (1861) By the Act of 1870; the commissioner was given power to issue regulations for the administration of the patent law.

\(^{26}\) 68 U.S. (1 How.) 317 (1864).
\(^{27}\) 78 U.S. (11 How.) 516 (1870).
\(^{28}\) 97 U.S. (7 How.) 126 (1877).
The United States patent system stands alone in the world in determining priority among competing inventors by reference to who was the “first to invent”. The 1790 and 1793 statutes did not explicitly establish a first-to-invent priority rule but require a patentee to be “the first and true inventor”. The 1836 Act established a procedure for resolving “the question of priority of right of invention”. Section 15 of this Act introduced the diligence concept by providing that an inventor’s patent was invalid if it was for an invention “invented or discovered by another, who was using reasonable diligence in adapting and perfecting the same”. The courts read Section 15 to mean that one who was the first to reduce an invention to practice would lose priority to another who was the first to “invent” in the sense of conceiving the invention, provided that the later exercised diligence in the reduction to practice. The 1870 Act created within the Patent Office the position of “examiner in charge of interference,” beginning a tradition of separating priority determinations from patentability determinations that continued until a 1984 Statute merged the “Board of Appeals” and the “Board of Patent Interferences”.

For about 1890 to 1910, lower court decisions established the basic rules on priority of invention, including definitions of the key concepts: conception, reduction to practice, and diligence. Landmarks included Mergenthaler V. Scudder (1897),29 defining conception; Mason V. Hepburn (1898),30 holding that a first inventor loses priority by abandoning, suppressing or concealing the invention after reduction to practice; Automatic Weighting Machine V. Pneumatic Scale Corp. (1909),31 holding that the filing of a patent specification adequately disclosing the invention is constructive reduction to practice; and Sydeman V. Thomas (1909),32 summarizing a long series of decisions on what constitutes an actual reduction to practice. The rules thus established have enjoyed remarkable longevity. In 1952, Congress codified them in section 102 (g). The only significant new priority rule of invention priority since 1910 is that recognized in Paulik

30 13 App. D.C. 86 (1898).
31 166 F. 288 (1st Cir. 1909).
V. Rizkalla (1986), one losing the benefit of an actual reduction to practice by abandonment, suppression or concealment may establish priority by reference to resumption of activity on the invention.

2.3.6.1 Judicial Activism

The developments of US patent law has been strongly influenced by decisions of the courts particularly have the US Supreme Court. In the late 19th century, the volume of patent cases reaching the Supreme Court increased markedly. The court’s decisions began to decry abuses of the patent system. In Atlantic Works V. Brandy (1883), Justice Bradley complained that “it was never the object of the patent laws to grant a monopoly for every trifling device, every shadow of a shade of an idea, which would naturally and spontaneously occur to any skilled mechanic or operator in the ordinary progress of manufacturers.” The Court held many patents invalid for “want of invention”, a phrase that came to encapsulate the Hotchkiss obviousness concept. In 1892, the tide turned from hostility to receptiveness. The turn was attributable in part to improved economic conditions and in part to the enactment of the Evarts Act, which created regional courts of appeals and relieved the Supreme Court of the burden of reviewing appeals in all patent infringement suits. Until about 1930, the Supreme Court upheld the validity of many patents, emphasizing the importance of inference evidence, such as the commercial success of the invention after its introduction into the marketplace, and warning against the use of “hindsight” in determining obviousness.

The court continued to develop doctrinal refinements. In Mast, Faos &Co. V. Stover Manufacturing Co. (1900), it confirmed that the Hotchkiss mechanic or ordinary skill in the art should be conclusively presumed to have knowledge of all of the prior art, such as patents and publications, even prior art that was obscure or not known to actual

33 796 F.2d 456, 230 USPQ 434 (Fed. Cir. 1986).
36 177 U.S. 485 (1900).
ordinary workmen. In *Alexander Milburn V. Davis-Bournonville Co.* (1926), the court held that the full text of patent specifications was prior art as of their Patent Office filing date, rather than their issue date, even though patent application disclosures become publicly available only upon issue and printing. The theory was the patent Office's delay in examining and issuing a patent on a senior-field application should not affect the patentability of an invention in a junior field application.

Because of the patent laws were revised several times from 1790 to 1836, 1836 Act gave some better signals such as the examination of patent applications was re-instituted, etc., the number of patents granted per year had grown to about 700. The first 10,000 patents issued by the USPTO from July 1790 to July 1836 were destroyed in a fire in December 1836. About 2800 of them were later recovered, but the majority of them are still missing. The recovered patents are now called X-Patents because their patent numbers end with an "X."

People started practicing anti-patenting attitudes; the court expanded the patent misuse doctrine, which rendered a patent unenforceable if the patent owner extended the scope of the patent through tying agreements and other improper practices. The misuse line culminated in *Mercoid Corp V. Mid-Continent Inv. Co.* (1944), which severely curtailed remedies against contributory patent infringement by sale of specially adapted components. Secondly the court enforced stringent requirements as to patent claim clarity and breadth. *Halliburton Oil Well Cementing Co. V. Walker* (1946) invalidated the common practice of defining invention elements in terms of "means" for performing a specified "function".

The most important aspect raised by the court is "invention" patentability standard. In *Cuno Engineering Corp. V. Automatic Devices Corp.* (1941) Justice Douglas started, somewhat hyperbolically, that a new device, to be patentable, "must

---

37 270 U.S. 390 (1926).
38 www.wikipedia.com
39 320 U.S. 661, 60 USPQ 21 (1944).
40 329 U.S. 1, 71 USPQ 1 (1946).
41 314 U.S. 84, 51 USPQ 272 (1941).
reveal the flash of creative genius.” In *Great Atlantic & Pacific Tea Co. v. Supermarket Equipment Co.* (1950)\(^{42}\) the court decreed that a combination of old mechanical elements was patentable only if it showed “unusual or surprising consequences” and cautioned that courts should “scrutinize combination patent claims with a care proportioned to the difficulty and improbability of finding invention in an assembly of old elements.” The court’s anti-patent bias was so pronounced that Justice Jackson would complain, in dissent that the only valid patents were the court had not been able to get its hands on.\(^{43}\) In *Graver Tank & Mfg. Co. v. Linde Air Products* (1950), the court confirmed the continuing vitality of the doctrine of equivalents.

As an example of these we may consider the difficult question of how much invention is needed to support a patent. It is clearly wrong that patents should be granted for improvements so minor that any competent mechanic or chemist could make them as a matter of course, for this would restrict all the normal day-today work of the workshop or laboratory. On the other hand, it is also wrong that patents should be granted only for outstanding inventions, which revolutionize society. Many inventions are ingenious and at last potentially useful without being world-shattering, and one great merit of the patent system are that the value of the patent grant left to be determined by market forces. It is not as if the state, in granting a patent, guarantees to the patentee that he will profit by it, by and large a patent for a poor invention will not be very valuable.

The extreme position that only outstanding inventions should be patentable was nevertheless adopted by the Supreme court in 1941, when Justice Douglas condemned the grant of patents for ‘gadgets’ as being contrary to the constitutional requirement that the grant of patents should ‘promote science’ and thus ‘push back the frontiers of knowledge’, clearly forgetting that the constitution also spoke of promoting ‘the useful arts’. After this and similar cases, a very high standard of inventiveness was set by the

\(^{42}\) 340 U.S. 147, 87 USPQ 303 (1950).

\(^{43}\) Jungersen v. Ostby & Barton Co., 335 U.S. 568 80 USPQ 32 (1949)
courts for US patents. A patent could not be granted unless there was 'invention' and there was no invention if there was not a 'flash of genius'.

2.3.6.2 Patent Laws after 1952

In 1952, Congress passed a new patent act United States Code Title 35, which is still in effect. To a large extent rearranged existing statutory provisions and started in statutory forms matters previously recognized only in court decisions and Patent Office practice but did make several specific changes and additions. Some provisions were in response to the Supreme Court decisions:

- a paragraph in section 112 overturned Halliburton and confirmed use of "means-plus-function" claim limitations;
- a sentence in section 103 disapproved of Cuno Engineering's "flash of creative genius" test by providing that "Patentability shall not be negated by the manner in which the invention was made"; and
- a section defining infringement, inducement of infringement, and contributory infringement, section 271, part (d) of which overturned Mercoid.

Perhaps most significantly, congress for the first time included a statutory provision on non-obviousness, section 103. Under the new law, an invention not only must be new but also must not be obvious over the 'prior art' (a term used for all earlier publications or knowledge which can be cited against a later patent application). To some judges the concept of an obvious invention appeared to be a contradiction in terms, but the change in the law did eventually lead to the replacement of a purely subjective criterion of invention by a more objective and less stringent criterion.

The Supreme Court did not reach the issue of the proper interpretation of section 103 until 1966, when the court granted certiorari in three patent cases. In Graham V.

---

John Deere Co. (1966), the court pointedly confirmed that section 103 codified the judicially developed non-obviousness requirement. Congress did focus inquiry on objective obviousness and, in effect, directed abandonment of "invention", which the courts had previously used to encapsulate the obviousness standard. "Invention" had led to conceptual confusion. But according the court, section 103 did not, and constitutionally could not, "lower" or fundamentally alter the patentability standard. On the merits, the court held two patents invalid; it held a third patent valid, emphasizing that the invention, a battery that provided strong current with the addition of a water electrolyte, was met with initial skepticism by experts but later was used extensively by the United States government. In two decisions dealing with "combination" patents, Supreme Court held patents invalid; using language suggesting continued vitality of special "invention" tests. Neither decision had significant impact on subsequent lower court decisions. Graham remains the commonly cited Supreme Court decision on the non-obviousness patentability requirement. In 1960's and 1970's Supreme Court decisions introduced doctrinal refinements. In Brenner v. Manson (1966), the court interpreted the utility patentability condition as requiring an inventor to discover a substantial minimal utility for an invention, including new chemical compounds. In Gottschalk v. Benson (1972), the court decreed that mathematical algorithms were unpatentable, launching nearly two decades of confusion on what types of computation inventions were proper subjects for patents.

The 1980's saw a upward surge in the role and importance of the patent system. In Dimond v. Chakrabarty (1980), the Supreme Court held that genetically altered living microorganisms are patentable subject matter. The Chakrabarty decision spurred new interest in patents, particularly in the nascent biotechnology industry. In Dawson Chem. Co. v. Rohm & Haas Co. (1980), the court applied section 271(d) to hold that the owner of a patent claiming a process of using a certain chemical compound was not

47 409 U.S. 63, 175 USPQ 673 (1972).
49 448 U.S. 176, 206 USPQ 385 (1980).
guilty of patent misuse by selling the compound and refusing to issue licenses to competing manufacturers of the compound because the compound was a "non-staple", that is, was not suited for commercial use other than in the patented process.

At the end of 1980, an Act was passed which for the first time introduced renewal fees as a condition for the maintenance in force of US patents. It also made it possible for the patentee or another party to request re-examination of a granted US patent on the basis of prior art, which had not been considered during prosecution. Other provisions dealt with the ownership of rights in inventions made with the help of US Patent Office changed its name to the USPTO.

In 1982, the US federal court system was modified by the creation of a new Court of Appeal for the Federal Circuit (CAFC) which took over the functions of the Court of Customs and Patent Appeals and some of the functions of the Court of Claims and, more importantly, assumed the jurisdiction previously held by the twelve regional courts of appeal to her appeals on patent matters from the Federal District courts50.

In October 1984, a number of changes were made including a relaxation of the strict rules on joint inventor-ship, the formation of a new Board of Appeals and Interferences, and provision for 'Statutory Invention Registrations', a type of defensive patent which would constitute prior art against later patent applications, but given no monopoly rights. These have not proved popular, and very few have actually been issued, but the provision51 remains in effect.

More important than any of these was the Drug Price Competition and Patent Restoration Act of 1984, commonly known as the Hatch-Wax man Act, which provided for extensions of patent term for human drugs, food additives, and medical devices whose commercialization had been delays by regulatory procedures and at the same time made

50 Federal Courts Improvement Act of 1982, P.L. 97-164, 96 Stat. 25 (April 2, 1982). The Act merged two existing courts, the court of Customs and patent Appeals, which had five judges, and the Court of Claims, which had seven judges. The Federal Circuit came into existence on October 1, 1982.

51 35 USC 157
registration easier for competitors when patent protection expired and provided that testing for regulatory approval involving a patented drug did not amount to patent infringement. In 1988, it enacted the Patent Misuse Reform Act, restricting application of the misuse doctrine to certain patent licensing and sales practices. The same year, it enacted the Process patent Amendments Act, extending to process patent owners the right to exclude unauthorized importation of un-patented products made abroad by use of the patented process.

There have been a number of legislative changes to the US patent law since then, most of them fairly minor, but the most important was certainly the Uruguay Round Amendments Act (URAA) of 1995, which made changes necessary in order to bring US law into line with the TRIPs Agreement. Since then there was the American Inventors Protection Act of 1999 (AIPA), which introduced the possibility of extension of patent term to compensate for prosecution delays in the USPTO, publication of pending applications at 18 months from filing, inter partes re-examination, and certain changes to the law on novelty. Some further amendments to the AIPA were made in November 2002, relating to re-examination and the prior-art effect of PCT filings.

2.3.7 India

According to history, for long period India experienced the colonial rule. Since 1100 A.D India is under colonial rule till 1947, even than we can find some developments during the colonial period. But the substantial developments were taken later to independence.

Unlike Great Britain, where the concept of a patent originated from the exercise of the royal prerogative to grant monopolies, in India a patent for invention has always been the sole creation of statutes of Indian Legislature. The first Act relating to patent rights was passed in 1856 (Act VI of 1856), which granted certain exclusive privileges to...
inventors of new manufacture for a period of 14 years. This Act was found defective and was therefore re-enacted with modifications under Act No XV of 1859. The provisions of this Act were founded on the English Patent Act of 1852. Under the Act of 1859, patent monopolies were called "exclusive privileges". An inventor of a new manufacture, could, under the provisions of the Act, by filing a specification of his invention obtain the "exclusive privileges" of making, selling and using the invention in India and authorizing others to do so for the term of 14 years from the time of filing such specification. In 1872, the Patterns & Designs Protection Act was passed, followed by the Protection of Inventions Act of 1883. These Acts were consolidated by the Inventions and Designs Act, 1888. Subsequently the Indian Patents & Designs Act, 1911 (Act II of 1911) was passed replacing all the previous Acts. This Act established for the first time in India a system of patent administration under the management of the Controller of Patents. During the period from 1911 to 1970, various amendments to this Act were made from time to time.

2.3.7.1 Dr.Bakshi Tek Chand Committee

After independence a Committee headed by Dr. Bakshi Tek Chand, a retired Judge of the High Court of Lahore, was appointed by the Government of India in 1948 to review the Patent Law in India with a view to ensure that the patent system was more conducive to national interest. Basing on the interim report submitted by this Committee, certain amendments were made to the Act of 1911 (amended sections 22, 23 and 23A to 23G), by Act 32 of 1950. The Committee submitted its final report in April 1950. A bill generally based on the U.K Patents Act, 1949, but deleting the provisions relating to opposition proceedings was introduced in 1953 (Bill No. 59 of 1953), which was not, however, proceeded with and therefore lapsed. Then the parliament appointed another committee headed by Justice Rajagopal Ayyangar.

2.3.7.2 Justice Rajagopal Ayyangar’s committee report

Subsequently in 1957, the Government of India requested Sri Justice N.Rajagopala Ayyangar assisted by Dr.S.Venkateswaran to advise the Government on
the question of revision of the Patent Law. Sri Ayyangar submitted his report in 1959 with various recommendations for effecting radical changes in the law. On the basis of this report a Patent Bill was introduced in the Lok Sabha in 1965, which, however, lapsed. An amended bill was introduced in 1967, which culminated in the Patents Act, 1970 embodying the present law of patents in India. The Draft Patent Rules was published in November 1971. The Act and the final rules (with the exception of a few provisions) came into force on 20th April 1972. The excepted provisions came into force on 1st April 1978. The Indian Patents Act of 1970 follows the U.K. Patents Act, 1949 in many respects, but also differs from it in some important respects, particularly in respect of the term of patents relating to drugs and medicines, product patents, and licensing of patents.

2.3.7.3 Basic Principles underlying the Indian Patent Act, 1970

Till 1970 India experienced patent legislations in accordance with UK legislations and because of colonial rule it happened and after independence parliament appointed committees and basing on the reports of these committees and other exercises, enacted Indian patent Act, 1970 in this Act several major changes were brought in and these aspects gave strength to the development of technology and industry.

a. Invention must be new and useful

It is a fundamental principle of Patent Law that a patent monopoly is granted only for inventions which are new and useful, and which have industrial application. This is embodied in the definition of "invention". The question whether a particular invention is new and useful is often extremely difficult to decide as it depends upon the state of the prior art in the particular field which includes prior publication on the subject and prior user. No amount of search in the records of the Patent Office can be said to final on the point. The validity of a patent is not therefore guaranteed by the Act. Various checks have been provided to prevent an invalid patent being granted. Thus the Patent Office

54 Section 2 (1)(j) of Indian Patent Act, 1970.
examines an application for the patentability of the invention and makes elaborate search among its records for novelty. The Controller of Patents has vast powers to refuse a patent on various grounds. When an application passes this test, it is advertised and provision is made for any person interested to oppose the grant on a number of grounds. If the application passes through this hurdle also, a patent will be granted, but its validity can be challenged before the High Court on various grounds in revocation or infringement proceedings.

b. Invention not patentable

It is not considered in the public interest to grant patent monopolies in respect of the discovery of a scientific principle, or an invention injurious to public health, a method of agriculture or horticulture, or a process for the treatment of human beings, animals or plants. Such inventions are not patentable under the Indian Patent Act, 1970.

c. Consideration for grant

The consideration for granting a patent is the disclosure of the invention in the specification which is open to public inspection, so that an expiry of the term of the monopoly any member of the public can use the invention. The specification should therefore contain a full and sufficient description of the invention and the method by which it can be performed to enable a person skilled in the art to work the invention.

d. Free use of patented inventions for certain purposes:

Patent monopoly being purely a creation the statute, the State can impose any conditions for its grant. The Act contains provision permitting the Central Government to use a patented invention in specified circumstances without payment of royalty. It is also permissible to use a patent for experiment or research or for imparting instructions to pupils.
e. Commercial working of inventions

Patent systems are not created in the interest of the inventor but in the interests of the national economy. "Patent monopolies for inventions, from earliest times, have been concerned much more with encouraging manufacture within the country than with encouraging the creation of the invention itself".55 The object of a patent grant is not only to encourage inventions, but also to see that the inventions are worked in India on a commercial scale. Patents are not granted merely to enable patentees to enjoy a monopoly for the importation of the patented article. These principles have received statutory recognition in the Indian Patent Act, 1970.

f. Abuse of patent monopoly:

Every monopoly is liable to be abused and patent monopoly is no exception. To prevent the abuse of monopoly rights created by the patent grant the Act provides for compulsory licensing of the patented invention on certain grounds. In the case of certain categories of patents, for example, drugs and medicines and substances used as food, essential to the life and health of the community, there is provision for endorsing them with the words "licenses of rights" to enable any interested person to obtain a license automatically as of right. In spite of the grant of compulsory licenses, if the patent is not worked in India, it can be revoked for non-working.

g. Avoidance of restrictive conditions

A patentee may devise various methods for extending the scope of the monopoly right conferred by the grant by imposing restrictive conditions on the purchaser or lessee of the patented article or the licensee of the patent. This is generally done by contracts tying up the sale of a non-patented article to a patented product. Such conditions are declared void by the Act. Besides, a patentee may also try to enjoy the monopoly even after the patent has ceased to be in force by imposing special conditions in the contract

for sale or lease of the patented article or license to manufacture. Such contracts may now be determined under the Act by the aggrieved party on the patent ceasing to be in force.

2.3.7.4 TRIPs & India:

Trade Related Aspects of Intellectual Property Rights (TRIPs) were brought in with the prospects purpose of universalizing the standards of Intellectual Property Rights and frame the rules of the game for all the member countries (least developed and developing countries on par with the developed countries with certain benefits to them). Several factors like the continuous advancement in science, new breakthroughs in biotechnology, the growing participation of the private sector in the cost intensive research and development in the knowledge based pharmaceutical sector and the relative strength demonstrated by the developing nations in adapting the results of the scientific innovations to the local environment have prompted the industrialized nations to seek stronger protection for their in all the countries.

India became a party to the TRIPs Agreement in April 1994. The intellectual property in India is important at all levels of statutory, administrative and judiciary. The agreement lays down the minimum standards of protection and the enforcement of the intellectual property rights in the member countries with a view to reduce the distortions and impediments in the international trade. TRIPs provided for the norms and the regulation in respect following areas of the intellectual property copyrights and the related rights, trademarks, geographical indications, industrial designs, layout designs, of the integrated circuits, protection of the undisclosed information (trade secrets), patents and plant varieties. India had a transition period of ten years (with effect from 1st January 1995) ends by 31st December 2004.56

India had to provide a means by which patent applications could be filed during the transitional period. The “mailbox provision” allowed applicants to file for patents.

56 Article 65 of TRIPs, 2005.
thereby establishing filing dates, while at the same time permitting member countries to defer granting product patents. In addition India also has to provide "Exclusive Marketing Rights" (EMRs) in exchange for permission to delay the granting of product patents until January 1, 2005. India made a three-stage frame of transition by three amendments to The Patent Act, 1970 by which the TRIPs requirement was complied in full.

The TRIPs Agreement required member countries to make patents available for any inventions, whether products or processes, in all fields of technology without discrimination, subject to the normal tests of novelty, inventiveness and industrial applicability. (Article 27.1) there are three permissible exceptions to the basic rule on patentability.

For inventions contrary to order-public or morality; this explicitly includes inventions dangerous to human, animal or plant life or health or seriously prejudicial to the environment. The use of this exception is subject to the condition that the commercial exploitation of the invention must also be prevented and this prevention must be necessary for the protection of order public or morality (Article 27.2). Members may exclude from patentability diagnostic, therapeutic and surgical methods for the treatment of humans or animals (Article 27.3(a)). Members may exclude plants and animals other than microorganisms ad essentially biological processes for the production of plants or animals other than non-biological and microbiological processes moreover; the whole provision is subject to review four years after entry into force of the Agreement (Article 27.3(b)).

Members may provide limited exceptions to the exclusive rights conferred by a patent provided that such exceptions do not unreasonably prejudice the legitimate interests of the patent owner, taking account of the legitimate interests of third parties (Article 30)
The term of protection available should not end before the expiration of a period of 20 years counted from the filing date (Article 33)

Members shall require that an applicant for a patent shall disclose the invention in a manner sufficiently clear and complete for the invention to be carried out by a person skilled in the art and may require the applicant to indicate the best mode for carrying out the invention known to the inventor at the filing date or, where priority is claimed, at the priority date of the application (Article 29.1)

If the subject matter of a patent is a process for obtaining a product, the judicial authorities shall have the authority to order the defendant to prove that the process to obtain an identical product is different from the patented process, where certain conditions indicating a likelihood that the protected process was under are met (Article 34)


The following Act of Parliament received the assent of the President on the 26th March, 1999. This was the first step of Indian government towards the compliance with TRIPs. Main amendments in the field of pharmaceutical and agricultural chemical sector of this act are as follows-

1. A new chapter IV-A is added after the chapter IV of the principal Act. This new chapter is named as EXCLUSIVE MARKETING RIGHTS.
   24 (A): Controller shall grant the exclusive marketing rights to the applicant to sell and distribute the article or substance if the invention doesn't comes under the provisions of section 3, 4 and 5. 24(B) (2): If the article or substance covered under section 5 (2) have been recorded in the document or has been tried or used or sold, before a claim for a patent of that invention is made in India or in a convention country, then the sale or distribution of that article shall not deemed to be an infringement of exclusive marketing rights to sell or distribute. 24 (C) : The provisions relating to compulsory licensing in chapter XVI shall be modified in
relation to exclusive rights to sell or distribute under section 24 (B). Changes are as follows

(a) Throughout Chapter XVI,

(i) working of the invention shall be deemed to be selling or distributing of the article or substance;

(ii) references to "patents" shall be deemed to be references to "right to sell or distribute",

(iii) references to "patented article" shall be deemed to be references to "an article for which exclusive right to sell or distribute has been granted"

(b) three years from the date of sealing of a patent in section 84 shall be deemed to be two years from the date of approval by the Controller for exclusive right to sell or distribute under section 24B;

(c) the time which has elapsed since the sealing of a patent under section 85 shall be deemed to be the time which has elapsed since the approval by the Controller for exclusive right to sell or distribute under section 24B;

24 (D) (2) : The Central Government may by notification in the Official Gazette and at any time after an exclusive right to sell or distribute an article or a substance has been granted, direct, in the public interest and for reasons to be stated, that the said article or substance shall be sold at a price determined by an authority specified by it in this behalf.

24F. The examination and investigations required under this Chapter shall not be deemed in any way to warrant the validity of any grant of exclusive right to sell or distribute, and no liability shall be incurred by the Central Government or any officer thereof by reason of, or in connection with, any such examination or investigation or any report or other proceedings consequent thereon'.

2. Section 39 of the principal Act shall be omitted.

3. In section 40 of the principal Act, the words and figures "or makes or causes to be made an application for the grant of a patent outside India in contravention of section 39" shall be omitted.
4. In section 64 of the principal Act, in sub-section (1), in clause (n), the words and figures "or made or caused to be made an application for the grant of a patent outside India in contravention of section 39" shall be omitted.

5. In section 118 of the principal Act, the words and figures "or makes or causes to be made an application for the grant of a patent in contravention of section 39" shall be omitted.

6. After section 157 of the principal Act, the following section shall be inserted, namely:

157A. Notwithstanding anything contained in this Act, the Central Government shall:
(a) Not disclose any information relating to any patentable invention or any application relating to the grant of a patent under this Act, which it considers prejudicial to the interest of security of India;
(b) Take action including the revocation of any patent which it considers necessary in the interest of security of India:
(i) Relates to fissionable materials or the materials from which they are derived; or
(ii) Relates to the traffic in arms, ammunition and implements of war and to such traffic in other goods and materials as is carried on directly or indirectly or the purpose of supplying a military establishment; or
(iii) Is taken in time of war or other emergency in matter of international relations'.

b. Patent Amendment Act of 2002:

The Patents (Amendment) Act, 2002 was passed by Parliament in May, 2002 and notified in June 2003. The Act has been made effective from May 2003 and has brought about lot of changes. In 2002 amendment act there was no major change regarding to the pharmaceutical or agricultural chemical products.
The salient features of the Patents (Amendment) Act 2002 relevant for are as follows:

1. Modification of term invention: The Sec. 2 (1)(j) of Patent (Amendment) Act 2002, defines the term “invention” as "a new product or process involving an inventive step and capable of industrial application" Where "Inventive step" means a feature that makes the invention not obvious to person skilled in the art.

2. Examination of application (Sec. 11(b)): India has opted for a deferred examination system. This means the Controller will not initiate examination of the application. Examination of an application will now be taken up only upon request by applicant or in the Form 19 with fees of Rs.1000 for individual applicant or Rs. 3000 for legal entity other than an individual within 48 months from the filing date of the application, at the appropriate office of the Patent office (Rule 24).

3. Term of Patent (Sec.53): The term of patent has been enlarged to twenty years for existing patents and patents granted on pending applications. This term is calculated from the date of filing of the application.

4. Burden of proof (Sec. 104 A): The burden of proof in a proceeding for process patent infringement has been reversed and imposed on Defendant.

5. Prohibition to apply abroad (Sec. 39): No person shall file an application or patent for an invention without applying in India or without the written permission of the Central Govt. If the applicant is not interested to secure a patent in India or the invention is not patentable according to the Indian law, he has to mandatorily file an application for the said invention and has to wait for the expiry of six weeks after filing the application and then only file the corresponding application abroad for the same invention.

6. Date of Patent (Sec. 45): The date of every patent will be the date of filing the application for patent. According to The Patent Act 1970, the date of patent was the date of filing of complete specification. The date of patent is very important to determine the term of parent.
7. Unity of Invention (Sec. 10(5)): The concept of 'unity of invention' has been broadened to include a group of inventions linked so as to form a single inventive concept. The claims in a specification should relate to a single invention or a group of invention linked so as to form a single inventive concept. Now, by this amendment it may be possible to claim more than one process in a single application if these processes fall under one group and are closely linked.

8. Declaration of inventor-ship (Rule 13 (6)): The declaration of inventor-ship on Form 5 should be filed along with the complete specification. An extension of one month beyond this period can be secured by filing a request on Form 4 with the fees Rs. 250/- pm if the applicant is an individual or Rs. 1000/- pm if the applicant is a legal entity.

9. Abstract (Rule 13 (a) to (d)): While filing the application accompanied with a complete specification, an abstract of the invention maximum 150 words have to be filed.

10. Application (Rule 20 (1)): An application for patent corresponding to International application (PCT application) has to be filed on Form 1 A.

c. Patent Amendment Act of 2005:

Indian Parliament has passed the Patents (Amendment) Act 2005 that would replace the Patents (Amendment) Ordinance 2004 earlier issued by Government of India in December 2004. The Patents (Amendment) Act 2005 introduces product patent regime for food, chemicals and pharmaceuticals. India was required to introduce product patent protection in pharmaceutical and agricultural chemical products sectors from 1.1.2005 in accordance with the obligation under the TRIPS Agreement of the WTO. To fulfill this requirement, Government of India had issued an Ordinance in 2004. The Ordinance was to be approved by the Parliament. The few important amendments of this 2005 Act, is

1. Emphasis on indigenous manufacturers: indigenous manufacturers are allowed to manufacture patented products even after a patent is granted, in respect of mailbox applications, on payment of a reasonable royalty to the patent holder, if they had been producing and marketing the concerned product since prior to
1/1/2005. This provides a level playing field for domestic players who have already made substantial investments and have been manufacturing the products for which applications for patents have been received in the mailbox. This provision ensures the smooth transition from pre patent to post patent era.

2. Both pre-grant and post-grant opposition avenues: the system provides for both pre-grant and post-grant opposition avenues, and reduces the timeframe for grant of patents in a cost-effective manner, while taking care of public interest. In fact, pre-grant opposition to patents has been strengthened and all the 11 grounds for pre-grant opposition to patents have been specifically listed in the Act, in the same way as before the ordinance, 2004. Grounds of opposition U/S 25 as well as revocation U/S 64 have been enlarged by adding two grounds.

3. Prevent “ever greening” of patents: in order to prevent “ever greening” of patents for pharmaceutical substances, provisions listing out exceptions to patentability (or what cannot be patented) have been suitably amended so as to remove all ambiguity as to the scope of patentability. This is very important in India context, as it is very rich in traditional knowledge and heritage. The clear-cut instructions regarding what cannot be patented would help public at large in a long run. The healing techniques of well established in ethnic system of medicines such as Ayurveda, siddha and Unani system and formulations there in could not be patented.

4. Conditions for obtaining compulsory License: conditions for obtaining compulsory license have been clarified in order to facilitate export of patented pharmaceutical products by Indian companies to countries that do not have adequate production capacities such as least developed countries. The compulsory licensing is an instrument that the TRIPs allows by which governments can allow domestic manufacturers to manufacture patented products within 3 years of their introduction. The provision of this would be an opportunity for indigenous manufacturers to export the medicines to third world countries, which cannot manufacture their own drugs. There are many countries in Africa, Asia and South America, which are in need of cheap drugs due to poor economic development in this area. It will be a boon for basic and formulation
manufacturers as the market to this segment will definitely promotes opportunities. India being rich in cost effective and intellectually competitive manpower and other resources would definitely emerge as world leader as far as export of drug is concerned.

5. Reasonable period for negotiations between the patent holder and companies seeking compulsory license: Reasonable period for negotiations between the patent holder and companies seeking compulsory license has been filed at six months. This provision of the Act would ensure positive dialogues and negations to happen between indigenous manufacturers to arrive at deals leading to win situations. in due course of time a better understanding of the situations and conditions in the needy poor nations would resolve the conflicts as the patent holders would also appreciate the efforts of the indigenous manufacturers efforts to sell drugs at a cheaper price. The patent holder will not be interested to sell the drugs to the poor nations as he would find practically obstacles and considerations are not cost effective for him.

6. Exemption of research and development from the ambit of patents: Exemption of research and development from the ambit of patents, including experimental and educational purposes. The basic research and education are the pillars of applied research. The education and research methodologies are the tolls for developing science and technology. Barring this area grooms the patent; government wants to ensure availability of trained manpower for sustained growth.

7. Product patent: product patent has been included in all fields of the technology (that is drugs, food and chemicals).

8. Appellate Board: Appellate boards jurisdiction has been enhanced and it now includes the jurisdiction to revoke patents also.

2.4 Efforts to make a uniform level of international standard of protection

The US first extended patent protection to foreigners in 1800. Under the French patent law of 1791 as revised in 1844, the printing of a patent in the US or another

country automatically destroyed novelty in France. So by seeking patent protection in one country, an inventor jeopardized his chances for gaining protection in other countries, such as France, upon publication of the first filing. European states other than Germany established patent laws in the middle years of the nineteenth century as a lure to attract foreign technologies: Spain 1826, Portugal, 1837, Austria 1852, Belgium, 1854 and Italy 1859. Switzerland never had a patent law in 1817, but abolished it in 1869. Sweden’s law of 1859 was limited to nationals. The 1854 Belgian patent act is still in force. Historical events in the 1870s impelled the industrializing nations of Europe and the US towards harmonization of patent laws.58

The earliest efforts to move beyond purely national protection of intellectual property involved bilateral agreements between two countries. In response to some of the deficiencies of bilateral agreements, the late nineteenth century saw the development of multilateral agreements. These multilateral intellectual property treaties established unions of member countries that reached agreement on a number of common principles. They did not supplant national legislation; rather, they imposed upon member countries certain obligations as to how they will treat each other’s products.59 The two most important of these treaties were originally negotiated in the late nineteenth century. They are Berne Convention for the Protection of Literary and Artistic Works and the Paris Convention for the Protection of Industrial Property. Paris Convention covers various industrial properties such as patents, trademarks, unfair competition, industrial designs and indication of source and appellation of origin. Berne Convention particularly deals with copyrights and related rights.

2.4.1 The Paris Convention

Eleven countries signed the International Convention for the Protection of Industrial Property in Paris in 1883, originally. The UK acceded in 1884. The

Convention is now adhered to by the majority of the countries of the world, which have any form of patent protection and since the Convention also deals with trademarks and designs, even by some countries, which have no patents. The basis of the Paris Convention is one of reciprocal rights, so that an applicant or patentee from one Convention country shall have the same rights in a second Convention country as a national of that second country has.

The most important practical result of the Convention is the possibility of claiming Convention priority for applications made outside one's home country. The system is such that if an application for a patent is properly made in one Convention country, corresponding applications may be filed in another Convention countries within one year from the first filing date, and if certain conditions are met, these later applications will be entitled to the priority date of the first application. This means that they will be treated as if they were filed on the same day as the first application, so that a publication of the invention after the first filing date but before the filing date of the later application will not invalidate the later filing.

For example, suppose that XYZ Ltd., files a patent application for a new product A in the UK on 1 June, 2004. At any time before 1 June, 2005 it may file corresponding applications in France, Germany, Japan, USA, and as many other Convention countries as it chooses, claiming priority from the British application. If another company publishes in the meantime description of product A this publication will not affect the validity of its patent rights. On the other hand, if before 1 June 2005 XYZ Ltd., decides that it has no real interest in countries. If it were not for the Convention, a decision whether or not to file in, i.e., in ten countries would have to be taken at the time of first filing, and a great deal of money and effort would be wasted on protecting inventions which within a few months turned out to be un-patentable or commercially uninteresting. The 12-month term for Convention priority must, however, be rigidly

---

60 Art. 4 of Paris Convention, 1883.
kept. If the period is exceeded even by one day, priority will be lost and any intervening publication of the invention will invalidate the foreign application.

The later application need not be an exact equivalent of the original (priority) application; thus our XYZ Ltd could expand the scope of its foreign applications to cover the related product B, but as a general rule claims to B would not be entitled to the priority date of the British application which disclosed only A. It is noteworthy that both the British and US patent systems have for some time allowed a form of 'internal priority' by which a later patent application could take the date of an earlier application in the same country. In the UK under the old patent law, filing an application with a provisional specification, followed by a complete specification up to 12 months later, extensible to 15 months on paying an extra fee, did this. Claims 'fairly based' on the provisional specification were entitled to its filing date; new matter took the date of filing the complete specification. A similar system still applies under the 1977 Act, although there are no two separate applications instead of a single application with two specifications, and no extension of the 12-month period is possible.

In the USA, a 'continuation-in-part' (CIP) application may be filed containing the same description as an earlier application, together with new matter. A 'CIP' may be filed at any time before the earlier application is granted, but there are complex rules, which could lead to claims based on the new matter being invalid if filing has been left too late. When the USA recently adapted its patent term in view of the TRIPS agreement, a new system of provisional applications was introduced.

All of these systems allow improvements to be incorporated in a patent application within a certain time, and are much to be preferred to a system in which one is held to the original form of one's first filing. In countries where there is no such internal priority, a resident applicant may end up with worse protection in his home country than in all others, in which the Paris Convention has allowed him the opportunity to enlarge upon his original disclosure. Switzerland was in this situation until the Swiss
patent law was changed in 1996, and for this reason some Swiss companies made their first filings in Germany or the UK instead of in Switzerland.

In the late twentieth century, different types of multilateral instruments governing intellectual property began to emerge. They were the outgrowth of a recognition that intellectual property had become important not only in itself but as a major component of global commerce. As a result, countries negotiating agreements on general commercial issues, such as trade and investment, began to incorporate provisions dealing with intellectual property. Some of these agreements are open to any country to join; others are regional agreements concluded among closed groups of countries with geographical ties. Similarly, when the European Union (EU) was created in order to achieve a common market, intellectual property laws were identified as a potential barrier to trade.62

2.4.2 The European Patent Convention

In 1963, a number of European countries signed the Strasbourg Convention, which recommended certain common standards for novelty, inventiveness, and the type of invention, which may be patented. This later formed the basis for the European Patent Convention (EPC) of 1973, which has led to the establishment of the European Patent Organization, consisting of the European Patent Office (EPO), which grants European Patents, and the Administrative Council, which supervises the EPO.63 The Administrative Council is made up of representatives of all contracting states, and these are usually the heads of the national patent offices. The EPO must be the only commercial organization in the world, which is run by a committee of its competitors.

The European Patent Convention was originally negotiated by 19 countries, not all of which ratified the Convention initially, and one of which (Norway) still has not done so. It started with only seven contracting states but as of 2000 had been adhered to

---

63 Art. 4 of European Patent Convention.
by all the countries of the EU together with Turkey, Cyprus, Monaco, Switzerland and Liechtenstein, 20 states in all. All states, which subsequently become members of the EU, are expected to join the EPC, if they have not already done so, and the majority of the countries seeking to become EU members had already joined the EPC by early 2004. As well as Cyprus, which joined in 1998, we now have Bulgaria, Czech Republic, Estonia, Slovenia and Slovakia (2002); Hungary and Romania (2003); and Poland (March, 2004). Further likely accessions are Latvia, Lithuania, Malta, and possibly Iceland, which would give a total of 32 Member States. Furthermore, European patents may be extended to certain states, which are not Members of the EPC. For some years, these were Albania, Latvia, Lithuania, Macedonia, Romania and Slovenia, but by the end of 2004 only Albania and Macedonia are likely to remain as extension states, while Croatia became an extension state as of April 2004.

The EPC set up a new and self-contained system of law providing for the grant of patents in any or all of the contracting states by means of a single patent application examined by the European Patent Office in Munich. European patent is not a single unitary patent but is more like a bundle of national patents in each of the countries, which the patentee has chosen. As these national patents are subject to the national laws as regards validity and infringement, it is obviously desirable for the contracting states of the EPC to make their national patent laws conform to a common standard.

By the time the EPO opened its doors to applications on 1 June, 1978, most of the contracting states had already changed their laws to the extent necessary to provide standard grounds for invalidity (according to the Strasbourg Convention as adopted by the EPC), a 20-year patent term from filing and product per se protection for all chemical substances, including pharmaceuticals. In the UK, the Patents Act, 1977, did this.

The EPC was extensively amended by a diplomatic conference in November 2000. The new version transfers many procedural matters, including most time limits, from the Convention itself to the Implementing Regulations, thus allowing them to be changed in future by a simple decision of the Administrative Council, rather than by a
new Diplomatic Conference. It will become easier to restore the situation if a time limit is missed, and there will be a new centralized procedure allowing the patentee to request revocation or limitation of the patent at any time during the life of the patent.

2.4.3 Regional Patents

Efforts to provide a single unitary patent for the entire EU covering all member states just as a US patent covers all the 50 states of the Union began even before the EPC came into force. The Community Patent Convention (CPC) was signed in 1975, but was never ratified by a sufficient number of states to allow it to come into force. One major problem with the CPC was the requirement to provide a translation of the full text into an official language of each member state, which meant that the CP would have been as expensive as a normal European patent covering all EU states.

The project languished for a long time, various proposals of the EC failing to obtain the necessary consensus among Member States. Some political leaders had constitutional objections to the idea that a document such as a patent could have a legal effect in their country without being translated into the local language; others seemed to think that cultural identity or national pride were important issues. In March 2003, the Council unanimously agreed upon a Common Political Approach for the CP. Subsequently a number of drafts for a Regulation agreed upon some time in 2004. The current draft provides that at some yet to define time, after the grant of a CP by the European Patent Office, the patentee must file a translation of the claims only into an official language of each member state, except for states, which have renounced their right to receive such translations. Litigation, including both infringement and validity issues, will be heard at first instance by a special Community Patent Court attached to the European Court of First Instance in Luxembourg, with appeals to the CFI. Till Community Patent Court is set up, national courts will have jurisdiction.
An important development in international patenting is the PCT, which entered into force in January 1978 and as of 1 June 2004, had been ratified by 123 countries including all EPC states, USA, Japan, China and Russia. The PCT, like the Paris Convention, is administered by the WIPO, a United Nations organization with its headquarters in Geneva. Though it is not a supranational patent office, patent applications can be filed there. The tasks of searching and examination are delegated to other offices, and WIPO does not grant a 'world patent', but at most provides non-binding opinions on patentability. The main aim of PCT is to simplify the process of filing patent applications simultaneously in a number of countries. As per old procedure, it requires a completely separate application in each country, which has to be translated into the local language before filing, or at best shortly afterwards. Under the PCT, a single international application may be filed in one of the official receiving offices, or at WIPO itself, and potentially gives rights for all PCT contracting states. An initial International Phase in which a search and possibly also a preliminary examination is carried out is followed after 18 months by a national phase in which selected national or regional patent offices conclude the examination process and grant (or refuse) the patent. The international application may claim priority from an earlier national, regional, or PCT application is filed with in the normal 12-month period of the Paris Convention.

During the international phase the application is passed to an international Searching Authority (ISA), which carries out a search for relevant prior art, and the application is published, together with the searching report, 18 months after the priority date. This corresponds to the original PCT chapter I procedure, and nothing further need be done during the International Phase. The applicant will also receive an international Preliminary Report on patentability (IPRP) based on the search report, but if he wishes to have an opportunity to contest this, he must file a chapter II Demand and pay an additional fee. The final IPRP is then produced by an International Preliminary Examination Authority (IPEA), which may or may not be identical with the ISA.
In order to enter the National Phase, a copy of the application together with the IPRP is sent to the chosen national or regional patent offices together with any required translation. This must normally be done within 30 months from the priority date, although some offices, including India, EPO etc, allow entry up to 31 months from priority.

From the point of view of the applicant the chief advantage of the PCT is that the major expense of national fees and translation is postponed for 18 months from the international filing date, after the search report and IPRP have been received, and after the applicant has had more time to think about the commercial value of the invention. At this point he may abandon the application altogether, or file in a more limited list of countries than originally planned, and no large amount of money will have been wasted. This is particularly advantageous when filing in a large list of countries is being considered. Although the PCT procedure is somewhat more expensive than the national filing route, for many applicants the extra cost is more than covered by the savings incurred when a case is dropped before entering the national phase.

The PCT procedure is also useful when a decision to file in foreign countries cannot be taken until a short time before the end of the priority year, so that there would be insufficient time under the normal procedure to prepare the necessary translations. Until recently its formalities were complex and inflexible, and it could not be used for filing in all countries of interest to most applicants, but now procedural matters have been greatly simplified, it is no longer necessary to designate specific countries on filing, and with 121 contracting states, very few countries of commercial interest are not included.

The annual number of PCT filings has risen exponentially from 2,625 in 1978, the first full year of its existence, to 7,592 in 1986, 54,422 in 1997 and no less than 1,10,114 in 2003, 36 percent of which originated in the USA, 15 percent in Japan, 13 percent in Germany and 6 percent in the UK. Applications in English predominate (65%) followed by german (14%), Japanese (1%) and French (4%).
During the 1970s, there was a general weakening of patent protection in developing countries, particularly in the pharmaceutical field, for which protection was totally or effectively abolished in a number of countries. A classical example of this is the Patent Act, 1970. This law reduced the patent term generally from 16 to 14 years, and provided for government use without compensation, and even government expropriation of patents. Furthermore all patents for chemical inventions were automatically endorsed 'Licenses of Right' three years after grant. Patents granted for processes for the manufacture of any food or medicine had a maximum term of only five years from grant, and the royalty payable on a License of Right granted on such a patent was limited to 4 per cent of the bulk sales price of the product. For this class of inventions not only was the patent life reduced to a point at which the patent would normally have expired well before the product came on the market, but if there was any patent term left, a competitor would operate under the patent on payment of a nominal royalty.

India accordingly had the worst patent law in the world, with the possible exception of the Dominican Republic, where not only are patents ineffective against importation, they are actually invalidated if the patentee imports the patented products.

Erosion of patent rights was also very marked in Latin America, i.e., in Brazil, where patent term was reduced and all patent protection for pharmaceutical invention was abolished. Argentina, where court decisions rather than a change in the law was responsible; Mexico, where the law of 1976 allowed only weak certificates of invention to be granted for pharmaceuticals; and the Andean Pact countries, for which Decision 85 of the Cartagena Agreement proposed a model patent law for the Andean Pact countries which prohibited pharmaceutical patent protection.

Proposals were also made to amend the Paris Convention in ways, which would abandon the principle of equal treatment on which the whole convention was based and replace this with the principles of a bias in favour of developing countries. The Paris Convention had not, of course, remained unchanged. It had already been revised several
times, most recently at London (1934), Lisbon (1958), and Stockholm (1967). One of the features of the Stockholm revision was a provision enabling inventor’s certificates to base a claim to priority for a patent application in other countries. Inventor’s certificates were a form of intellectual property granted in the USSR and some Eastern European countries, which gave certain privileges to the inventor but which could not be used to give any market exclusivity.

One of the revisions proposed in the 1970s was to grant equal status to inventor’s certificates and to patents. This proposal might sound innocuous, but was far from being so. It would mean that a country could in effect abolish patents and grant only certificates giving no actual property right, while its nationals would still have the right to obtain patents under the Convention in other countries. Another obnoxious proposal was to permit the grant of exclusive compulsory licenses, which would have been equivalent to expropriation of patent rights. The industrialized countries found themselves having to fight a rearguard action to prevent such extreme proposals being adopted.

Another major concern in 1970s for the development of harmonization of patent law in all countries domestic legislation is technology transfer. Because of economic relationship between the industrialized countries and the developing countries for the Third World, technology transfer became inevitable. The flow of technology from developed countries to developing countries, which is otherwise also a long-term interest of the industrially developed countries themselves, because the higher per capita income of the developing countries needs expansion of their international trade. The main problem is technology is the property of industrialized companies, either in the form of patents or know-how, existing within the framework of the free market economy, and such companies will normally transfer technology only in the context of a license agreement, for which enforceable patents form a good legal basis.

In the 1970s, a parallel development to the weakening of patent protection in developing countries was the imposition of severe limitations on the freedom of contracting parties to reach a mutually acceptable license agreement, either by national
laws such as that of Brazil in 1975, or by international agreements through United Nations’ Organizations such as the UN Conference on Trade and Development (UNCTAD). This body tried to establish a Code of Conduct for the Transfer of Technology (TOT-Code), which would have the aim of preventing abuse of monopoly by licensors and generally shifting the balance of rights and obligations in favour of the developing countries. Similarly, the UN Industrial Development Organization (UNIDO) proposed a set of draft guidelines for pharmaceutical licensing agreements, starting from the premise that patents in the pharmaceutical field were objectionable in themselves, and continuing with proposed terms totally remote from reality.

The fallacy in this approach is immediately apparent; any one can write a contract which is grossly biased in favour of one of the parties, but it is not so easy to find another party willing to sign it. The result was simply that companies refused to enter into any agreements containing such terms, and technology transfer was effectively halted.

2.4.5 Other Regional Patent Organizations

The European Patent Organization is not the only, nor even the first, organization set up to grant patents covering more than one country. The first the African Intellectual Property organization, known by its French acronym OAPI, set up by the Libreville Agreement of 1962 as modified by the Bangui Agreement (1977). This grants a single regional patent covering 14 former French colonies in West and Central Africa. The English-speaking counterpart to this is the African Regional Industrial Property Organization (ARIPO), also covering 14 states, and dating from 1976. In both cases, the economic levels of the member countries are such that there is little interest in obtaining patents through these regional offices, although this may change for ARIPO if South Africa should eventually become a member.

A more recent creation is the Eurasian Patent Convention, by which a single application filed is Moscow can give protection for the Russian Federation and for eight of the former Soviet republics. Its appeal remains limited because a number of the more
economically important of these states, such as Georgia, Ukraine, and an Uzbekistan remains outside the Convention.

The tide turned in the 1980s when the Western industrialized countries, led by the USA and encouraged by the pharmaceutical industry, finally took firm action to defend their own interests and refused to give way to the unreasonable demands presented by the developing countries. TOT died an unlamented death, and the proposals to destroy the reciprocity, which is the basis of the Paris Convention, also failed. The US government decided to switch its attention from UN agencies and concentrate on trade issues, first by threatening to remove from preferred status within the US Generalized System of Preferences countries, which refused to give adequate protection for inventions. The resulting bilateral negotiations were able to obtain stronger protection in countries such as South Korea and Taiwan. Mexico improved its patent law as part of the negotiations leading up to the North American Free Trade Agreement (NAFTA), and finally, the Uruguay Round of the GATT negotiations incorporated the TRIPs Agreement, which entered into force in 1995.

2.4.6 TRIPs regime

The general Agreement for Tariffs and Trade (GATT) was set up in 1948 to deal with multilateral trade issues. The latest round of GATT negotiations, the Uruguay Round, was finally concluded in April 1994, and led to the establishment of the World Trade Organization (WTO) which became operation on 1 January, 1995. The agreement on Trade Related Aspects of Intellectual Property Rights (somewhat inaccurately rendered by the acronym TRIPs) was adopted as an integral part of the final ACT of the Uruguay Round, so that all countries, which become members of WTO, must accept the provisions of TRIPs as part of the deal. The TRIPs agreement covers a whole range of intellectual property issues including patents, trademarks, geographical indications, industrial designs, integrated circuits, copyright and trade secret protection, as well as general provisions about basic principles enforcement, and dispute resolution.
Article 1-8 of TRIPs includes the basic principles of National Treatment and Most-Favored Nation (MFN) treatment. That is, each member must give to the nationals of other members treatment no less favorable than that given to its own nationals, and must give to the nationals of all members the same privileges as are given to the nationals of any member. Thus, subject to certain exemptions, bilateral IP agreements between members that restrict the benefits of the agreement to the two parties should no longer be permitted. These Articles are of particular importance because their implementation, unlike other provisions of TRIPs, could not be delayed beyond 1 January 1996 by any member country, whatever its state of development.

2.4.6.1 Provisions Relating Specifically to Patents

Articles 27-34 of TRIPs require WTO member states to introduce strong patent protection, the most important elements of which are:

- Patents to be available under essentially the same criteria of patentability as in the EPC for all fields of technology, including product patents for Pharmaceuticals (Article 27)
- Patent rights to be without discrimination as to whether product are locally made or imported (Art 27)
- Provisions defining what constitutes infringement: this includes importation of a patented product (Art 28.1(a)) and using, selling or importing the direct product of a patented process (Art 28.1(b)).
- Compulsory license to be allowed only under strict conditions (Art 31)
- There must be an opportunity for judicial review of any decision to revoke a patent (Art 32)
- Patent term to be at least 20 years from filing date (Art 33). According to the transitional provisions (Art 70.2) this should also apply to patents, which are already granted.
- Reversal of onus of proof for process patents (Art 34)
2.4.6.2 Provisions on Enforcement of IP Rights

The whole of Part III of the TRIPs agreement (Article 41-61) is devoted to the enforcement of IP rights. Members are obliged to provide enforcement procedures, which are effective, fair, and equitable, and not unnecessarily costly. There must be due process including the right to legal representation, the right to comment on all evidence on which the decision is based, and the right to judicial review of administrative decisions.

In IP cases, judicial authorities must have the power to order the production of evidence; and to give orders for injunctions, costs and damages, and destruction or confiscation of infringing goods. Judges must be able to make orders for preliminary or interlocutory injunctions, in appropriate cases without the defendant being notified. Members must adopt procedures to enable customs authorities, upon request, to prevent the importation of counterfeit trademark or pirated copyright goods. Criminal penalties must be provided for willful trademark counterfeiting or copyright piracy on a commercial scale; criminal penalties for other types of IP infringement are optional.

Thus, according to TRIPs, practically all countries of the world are obliged to have patent systems in which compounds, including pharmaceuticals, can be patented per se for a term of at least 20 years, with no local working requirements and no routine granting of compulsory licenses; with importation of a product and sale of the product of a process being clearly defined as infringement; and with clear standards for the enforcement of patent rights. When the WTO came into existence on 1 January 1995, it was probably true to say that not a single member country had a patent law, which was completely in accordance with TRIPs. For example many countries, other developing and industrialized had patent terms, which were, or at least could be, less than the 20 years from filing mandated by TRIPs. In the case of some countries such as India, Argentina, Brazil, and Turkey, patent protection for pharmaceuticals was totally or effectively lacking, and major revisions were needed. However, even industrialized countries such as the USA, EU countries, and Japan has laws which did not conform to
TRIPS in more suitable ways such as the conditions for compulsory licensing. All of these laws had to be changed, but not necessarily right way.

2.4.6.3 Deadlines for implementation

No country was required to change its laws to make them conform to TRIPS until one year after the establishment of the WTO, i.e., until 1 January 1996, but two major classes of countries are allowed to postpone the changes for longer periods. According to the transitional arrangements, developing countries, and those countries in transition from a centrally planned to a free market economy and which are facing special problems in the preparation and implementation of IP laws, could delay implementation of TRIPs for a further period of four years i.e. to 1 January 2000.

Countries in the first category, but not the second, which as of 1 January 2000 still did not provide product protection for certain areas of technology could delay the introduction of product protection in these areas for another five years, i.e. to 1 January 2005. And finally least – developed countries which are members of WTO were entitled to delay implementation of all TRIPs provisions other than Article 3, 4 and 5 until 1 January 2006 and even this has now been extended to 2016.

2.4.6.4 TRIPS Implementation – Changes to Patent Laws

A very positive feature of the Uruguay round of GATT is that for the first time there is a dispute procedure which can lead to economic sanctions against the Member which is in violation of the GATT Agreement. Previously, the dispute procedure was not binding, and an adverse finding could safely be ignored. The same general dispute procedure applies to TRIPs.

If a Member has a complaint, it must first consult with the other Member, and if this is unsuccessful, it may request a panel to be set up. The Disputes Settlement Body (DSB) will then set up a panel, which will make a report within six months. Appeals lie
to an Appellate Body, the appeal being limited to issues of law. Once the panel report or the Appellate Body report is adopted by the DSB, the party concerned must notify its intentions with respect to implementation of the recommendations. If the recommendations are not implemented within a reasonable time, the DSB may grant authorization to the other party to suspend concessions or other GATT obligations to the Member, which is in breach, and in extreme cases this may include the imposition of punitive import tariffs on products from the country found to be in breach.

TRIPs do not, however, give directly enforceable rights to natural or legal persons. Thus if a company or an individual is aggrieved because of non-observance of the TRIPs agreement in another country, the only remedy available is to ask one’s own government to take up the matter. If the matter is considered important enough, the dispute resolution provisions of TRIPs can then be used. Within the EU, the Commission itself can take action, and this may initiate a party making a formal complaint under the provisions of the Trade Barrier Regulation.

The adjustment of patent term to meet the TRIPs provisions was a relatively easy step to take, and the majority of WTO Member States had already made this change within the first two years, including Argentina, Brazil, Indonesia, and the Philippines. However, not all of the countries, which extended their patent term, made the extension applicable to existing patents, as is required by TRIPs.\textsuperscript{64} Among those countries, which did not extend the term of existing patents, are Malaysia, Brazil, Pakistan, and Argentina, although it is now possible to request an extension of old patents in Argentina on an individual basis. Even where the term extension is made to apply to existing patents expired which should have been extended. There is no obligation under TRIPs to restore dead patents to life,\textsuperscript{65} and indeed to do so would be unfair to the general public.

\textsuperscript{64} Art.70.2 of TRIPs Agreement
\textsuperscript{65} Art.70.3 of TRIPs Agreement
An important concept of the transitional provisions of TRIPs, relating to protection of existing subject matter, is the so-called ‘black box’ filings.\textsuperscript{66} Where a member does not make available, as of the date of entry into force of the agreement establishing the WTO, patent protection for pharmaceutical and agricultural chemical products, that members shall provides as from that date as a member by which applications of such inventions can be filed.

It shall apply to these applications, as of the date of application of this agreement the criteria for patentability set out in TRIPs as if these criteria were being applied on the date of filing in that country.

It shall then provide patent protection as from grant for the remainder of the patent term, if the invention is patentable by TRIPs criteria. Furthermore, a product for which a ‘black box’ filing has been made must be given exclusive marketing rights for five years from market approval in the country in question, or until a product patent is granted or rejected, whichever is shorter, provided that for that product, in another member country, (a) a patent application has been filed subsequent to 1 January 1995, (b) a patent has been granted and (c) marketing approval has been obtained.\textsuperscript{67} These provisions are complex, and have been differently interpreted in different countries.

The complicated ‘black box’ provisions give rise to two important rights even at a time when a country has not yet implemented product protection for pharmaceuticals. The first is that the applications can be filed which may eventually give rise to product protection; the second is that they should allow the applicant to obtain temporary exclusivity by way of Exclusive Marketing Rights (EMR’s). Both of these have proved difficult in practice.

All the WTO members had to provide for such filings as on 1 January 1995. Such applications for pharmaceuticals were not to be examined until the country in question

\textsuperscript{66} Art.70.8 of TRIPs Agreement
\textsuperscript{67} Art.70.9 of TRIPs Agreement
had changed its law to be in conformity with the TRIPs provisions on patentability of pharmaceutical products. This is after all why such applications have been nick named ‘mail box’ filings. Some countries failed to introduce the possibility of mail box applications until well after the deadline, while other allowed applications to be filed but did not give them special status.

EMR was generally expected to mean that if a black box filing had been made and the other conditions met, the exclusivity of the patent holder would be guaranteed by the refusal of the regulatory authorities to grant further marketing approvals to generic companies. In most countries this was never put to the test, because the period during which black box applications could be filed was usually not more than two or three years, and within this short time it was hardly likely that a product could progress from patent filing to marketing approval. In India, the TRIPs provisions were interpreted differently, and EMR is seen as a special kind of intellectual property right that must be applied for at the Patent Office and enforced in the courts. Furthermore, the long delay in implementing product protection in India, together with the importance of its generic industry, has meant that the problem is a practical one.

2.4.7 Status in Individual Countries

India is a country in which there is a serious political conflict between those politicians and companies who wish to open up the Indian economy to the outside world and see membership of WTO as an important part of this goal; and those elements which with considerable popular support, wish to retain the old protectionism and delay any changes to the patent law. Accordingly, India ratified GATT on 31 December 1994 by governmental decree, without seeking the approval of the Indian Parliament, and at the same time amended the patent law by a Patent Amendment Ordinance so as to allow black box filings.

The ordinance was later allowed to lapse, and the bill which was to replace it failed to get parliamentary approval, with the result that although black box filings were
still accepted, that were no longer officially recognized, and their legal status was unclear. Dispute proceedings under GATT were called for by the USA, alleging that India was in breach of its obligations under TRIPs by not officially providing for black box fillings. The dispute panel and the appeals body both held against India, but the USA agreed to give India until April 1999 to implement measure which should have been in place in January 1995.

The gradual implementation of TRIPs in India has been proceeding by piecemeal amendment of the Patents Act 1970, rather than by writing a new law, and the result is rather like a car built by adding BMA parts to a Ford Model T chassis. The Patent (Amendment) Act 1999 finally provided for black box applications and for EMR, but made no other changes. After three years of intensive debate, the Patent (second Amendment) Act 2002 implemented a number of TRIPs obligations, including a 20-year patent term, although the result was still not in conformity with TRIPs in a number respects. In particular, whereas it would have been easy for the Act to provide that product protection for Pharmaceuticals would come into effect on 1 January 2005, this was not been, and a third amendment Bill will be required. A draft of such a bill was published in December 2003. it made the necessary provision for product protection and introduced certain other changes such as early publication of pending applications an post-grant rather than pre-grant opposition, but did not change the provisions on compulsory licensing, which are contrary to the TRIPs agreement in a number respects.

As of the end of 2003, the Indian Patent Office had granted only three EMRs. Two were granted to Indian companies, one for an agricultural pesticide, and one for a pharmaceutical product, the other was granted to the Swiss Company Novartis for the anti-cancer drug Glivec. It remains to be seen whether such EMRs can be effectively enforced in India.

Pakistan also until 1998 refused to allow black box filings because no implementing legislation had been passed. Dispute proceedings were threatened by the USA, and were resolved when Pakistan passed an implementing bill. Not only did this
retroactively validate black box filings made since 1 January 1995, it permitted filing up to 4 February 1998 of new black box applications corresponding to filings made in other WTO countries between 1 January 1995 and 4 February 1998, the Pakistan filing being entitled to the same date as the original application in the other country. Product protection will be available for pharmaceuticals from 1 January 2005, and in the meantime it seems that EMR may be enforced through the regulatory authority, upon request.

Turkey accepted filings for pharmaceutical compounds, but although the law had not yet been amended, the applications were not put into a black box, but were subjected to the same exorbitantly expensive search as applications in other fields of technology. However, this had at least the positive effect that a change of law would not result in a large backlog of unexamined applications. Initially, Turkey proposed to postpone the grant of even process patents for pharmaceuticals for five years and of product patents for ten years, but the discussion was pre-empted by the somewhat unexpected accession of Turkey to the EPC in 2000.

Brazil represents a success story in the TRIPS saga. Black box filings were accepted from the outset without difficulty, and a new patent law, giving product protection for pharmaceuticals, entered into force on 15 May 1997. Since then, examination of the black box filings has proceeded under the new law. This law in full conformity with TRIPS except in that, it still contained local working requirements. Indeed, in two respects it went beyond what was mandated by TRIPS in that it provided for pipeline protection and also made it possible to prevent parallel imports.

In Argentina, the executive branch of the government appeared to be generally sympathetic to improving patent protection, but the legislature was heavily influenced by the lobbying of the local 'pharmaceutical industry', a small group of companies owned by wealthy individuals who make their money simply by selling generic drugs or copies of patented drugs which are imported from other countries such as India. There is
essentially no local manufacturing capability, and such companies add very little value within the country.

The result was that after an endless succession of new laws, presidential vetoes, Decrees, 'corrective bills', etc., a new law was enacted and came into force in January 1997. Not only did this law postpone introduction of product protection 1 January 2001, but also it was contrary to TRIPS in a number of other respects. Black box filings could be made, but there was no provision for marketing exclusivity, which is particularly important in a situation where there would be a long delay before implementation of product protection.

Middle Eastern and North African countries, i.e., Egypt, Jordan, Tunisia and Algeria have generally had weak patent laws, but in June 2002, Egypt enacted a patent law providing a 20 year term and product protection from 2005 and at the same time joined the PCT. Until very recently Saudi Arabia had a patent system in which patents granted in other countries could be registered, and Iran still has such a system, but there is little experience of how such registration patents may be enforced. The minor problem in that system is that the date on which annual renewal fees fall due in Saudi Arabia is calculated by the lunar calendar, with which Western computerized reminder systems find it difficult to cope. It is of interest that the concept of intellectual property is not regarded as being in any way in conflict with Islamic law, although such commercial operations as lending money for interest may be so.

2.4.8 Grant and Enforcement of Patents

It is of little use to have a strong patent law on paper unless patent applications are actually processed to grant and the resulting patents can be enforced. Many developing countries have recently improved their patent laws, mainly as a result of TRIPS, and these laws often require substantive examination of the novelty and inventive step of patent applications. This puts these countries in a difficult position, because of their improved laws their patent offices receive many more applications than before, but they lack the
necessary technical staff and infrastructure to examine the applications in the way that the laws seem to require. The problem should not be underestimated; to be able to carry out a proper substantive examination in all technical fields a patent office must have a large technically qualified staff and enormous resources of scientific and patent literature, access to electronic data bases, etc.

With the help of organization such as the EPO and WIPO, patent offices in developing countries are being helped to deal with the flood of new applications, wherever possible by means which will avoid the need to carry out independent technical examination and will grant patents based on the allowance of corresponding patents in one of the major patent offices, or, where the country in question has acceded to the Patent Co-operation Treaty, on the basis of the PCT International Preliminary Report on Patentability. Effective enforcement requires that there be competent courts with judges who understand patent law; perhaps even more necessary is a legal environment in which patent infringement is seen as something to be seriously discouraged with heavy financial penalties, not as a local growth industry whose activities should be ignored or even encouraged.

In Mexico, though there is excellent patent law, until recently, no patents were being granted because no implementing regulations were in existence. Now the patents are granted, but the enforcement of such patents against local imitators has proved extremely difficult. In the pharmaceutical field, enforcement should be made much easier by a Decree of June 2003 according to which an applicant for marketing approval for a patented drug must show that he is the patentee or has a license.

In China though there is perfect and adequate patent law, due to the lack of tradition of resolution of disputes by litigation, it has become a serious problem to solve the patent disputes. Although patent cases may be referred to the People’s Court, the majority seems to be dealt with by an administrative procedure before the Administrative Authority for Patent Affairs. In the past, the infringing company often turned out to be
owned by the local administrative authority or another state body, which made it unlikely that effective action to stop infringement would be taken.

2.4.9 Compulsory licensing

a. General

TRIPS provides that any such licenses must be: Considered on their individual merits; Granted only if a license on normal terms has been requested and refused; Of limited scope and duration; Non-assignable other than with the business; Primarily for domestic supply rather than for export; Capable of being terminated if circumstances change; Subject to adequate remuneration; and Subject to judicial review.

Compulsory licenses to enable working of a dependent patent may be granted only if the invention claimed in the later dependent patent involves an important technical advance of considerable economic significance, and the compulsory license, if granted, shall be non-assignable except with assignment of the dependent patent. When reviewed by the European Commission in late 1995, the laws of no single EU member state complied fully with all of these provisions, so it is hardly surprising that the laws of developing countries were often less than perfect in this respect. TRIPS clearly mention that discriminatory compulsory licensing of pharmaceutical patents must be stopped. It is also a concern that certain of the TRIPS provisions relating to compulsory licenses are not applicable to compulsory licenses granted to remedy anti-competitive practices.

b. Compulsory Licenses for Export

The entry into force of the TRIPS agreement in 1995 came at a time when the extent of the AIDS epidemic in Africa was becoming clear. Patented anti-retroviral drugs were being used in the US and Europe to control the progression of the disease, but these drugs were very expensive and unaffordable for the vast majority of patients in developing countries. The perception arose, fostered by NGOs such as Medicines sans Frontieres (MSF) and Oxfam, that patents were the reason why these drugs were not being made available to AIDS sufferers at an affordable price.
2.4.10 International organizations efforts

This chapter has set out international developments in patent law, as they have occurred, with out going into the question of how these changes came about. It is of course clear that such developments, which have generally acted to strengthen patent protection, did not just happen of their own accord, and that political, diplomatic, and industry lobbying activities have played a larger role than any objective analysis of the economic and social benefits of the patent system. In particular, industry's 'forum switching' from WIPO and UNCTAD to GATT resulted in the success of the TRIPs agreement. At the same time, however, it brought patent matters to the attention of a much wider circle of interested parties, including many non-Governmental organizations, who were opposed to a strong patent system for a variety of reasons. The result has been a vocal backlash against TRIPs and against patents in general, which is now increasingly being accepted as the new reality by the public and politicians alike.

2.4.11 Patent Law Treaty (PLT)

This treaty, concluded in June 2000, harmonizes the formal requirements for patent filing in the contracting states. It simplifies, for example, the requirements for obtaining a filing date, and allows the specification to be filed in any language, with translation provided later if necessary. It makes it easier for the applicant to restore his rights if certain time limits are missed, and should generally reduce costs and increase legal certainty. Although the Treaty has been signed by 43 states, the necessary ten ratifications, which would enable it to enter into force, have not been obtained as of the end of 2003.

2.4.12 Substantive Patent Law Treaty

In contrast to the agreement reached on formal matters in the PLT, little progress has been made in negotiations on harmonization of substantive patent law. The main stumbling block is the reluctance of the USA to give up its unique first to invent system.