



...ing the reign of Queen Victoria

# Mainly on patents

*The use of industrial property and its literature*

*Edited by*

F. Liebesny, B.Sc., F.I.Inf.Sc., F.I.L., A.L.A.

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## History of patent systems

*C. H. Greenstreet*

'The works of founders of states, law-givers, tyrant-destroyers and heroes cover but narrow spaces, and endure but for a little time; while the work of the inventor, though of less pomp, is felt everywhere and lasts forever.'

*Francis Bacon*

Grants to inventors of the exclusive right to use and profit from their inventions for a limited term of years have a very long history.

As a means of encouraging and rewarding ingenious and enterprising men and benefiting the State, such grants have an obvious appeal to thrifty rulers because they involve no cost to the exchequer. Nowadays they are by far the commonest of the privileges conferred by the State by means of 'letters patent' or 'open letters' (from the Latin *litterae patentes*) from which they take their name of patents or, more exactly, patents of invention.

Despite extensive research in the historical archives the origin of patents of invention remains obscure, and Gomme<sup>1</sup> in his study of the origin and growth of the patent system in Britain concluded that their introduction was clearly 'not due to the provision of any far-sighted prince or statesman or indeed to any legislative act, ordinance, or proclamation. Unheralded and unquestioned they took their place ... as part of an older and much larger system, among a host of other privileges granted in the exercise of the prerogative powers of the sovereign authority—whether the King in England or the Doge and Senate in Venice. They fitted naturally and neatly into this system, and developed slowly and almost imperceptibly to their full maturity within it. Development, however, was in quantity rather than in quality (other than that occasioned by the growing complexity of industry); radical changes have been made in the practice, but in essence a patent today is what it was four or five hundred years ago.'

For the first evidence of a monopoly for an invention we must go back to about 500 B.C., to the luxury-loving Greek colony of Sybaris. Here, according to the Greek historian Phylarchus, 'if any confectioner or cook invented any peculiar and exclusive dish, no other artist was allowed to make this for a year; but he alone who invented it was entitled to all the profit to be derived from the manufacture of it for that time, in order that others might be induced to labour at excelling in such pursuits'.

This, however, is an isolated instance, and one which hardly supports Francis Bacon's often-quoted assertion that inventors were so esteemed in ancient times that they were given divine honours. Rather, as Frumkin<sup>2</sup> points out, Archimedes was praised for not describing his practical inventions, as belonging to an 'art vile, low and mercenary', and the term 'engineer' could be used in Greece as a term of abuse. He concludes that the absence in antiquity of any patents for the useful arts may have been due to the rarity of inventions on which patents might be based; to the facts that manufactures were the province of slaves, to whom such privileges would not be granted, and that philosophers who might make such inventions were too proud or too detached to seek material profit; or even to the absence of any idea that material progress was worthy of reward. Gomme<sup>1</sup>, on the other hand, sees as a more practical explanation that although commerce and industry probably occupied as large a place in Greek and Roman life, and required as proportionately large an effort in the various City states, as they did in eighteenth-century England, 'an ever available supply of slave labour, the absence of any but the simplest machinery and of all but the slowest production methods, and the dependence of each locality on its own handicrafts, provided little occasion for the State to intervene or for the innovator to conceive the idea of a monopoly to protect him against copyists'.

Whatever the reason for their early neglect, the development of patent systems can only really be said to have begun in the fifteenth century, when rulers adopted the grant of monopoly rights as a means of encouraging the introduction of new industries in their states. It seems probable that they were at first used as an inducement to bring in known industries from abroad, and that the system was then extended to innovations and improvements which had not yet been practised anywhere. From the wording of the early grants it is often difficult to tell which was the case, but it seems clear that the earliest recorded English patent of invention was for the importation of a known process from abroad, namely the 20-year monopoly for making coloured glass granted in 1449 by Henry VI to John of Utynam, who came to England to make fine-glass windows for the chapel of Eton College and other buildings. Even though it had not been practised in England,

stained-glass manufacture was already several centuries old on the Continent.

## EARLY PATENTS OF INVENTION

The earliest record of a patent for a true industrial invention is to be found in Florence, where in 1421 the engineer and architect Brunelleschi was granted a three-year monopoly for a barge with hoisting gear which he invented to transport marble needed for his buildings. The similarity of the words of the grant to the principle of the monopolies to the confectioners of Sybaris is most striking:

'Because Brunelleschi did not want to give the invention to public use for fear of being robbed of the reward of his labours, the privilege is granted with the express intention not only that the invention may be made useful as well for himself as for the generality but particularly also that he himself may be urged to further exertion, and stimulated to achieve greater inventions; the Government agrees to protect the inventor against unauthorised working and to grant the author an immediate monopoly for the period stated by prohibiting the use of every form of transport ship not in use at the date of the privilege unless it be built by Brunelleschi himself or with his consent.'

Nevertheless it is not to Florence but to the rival Italian state of Venice, which was the first state in Western Europe to issue laws concerning industry, that we may trace the first patent law, enacted on 19 March 1474 by an overwhelming majority of the Senate. After reciting that:

'there are in this City and its surroundings, attracted by its excellence and greatness, many men of divers origin, having most subtle minds and apt to imagine and discover divers ingenious artifices. And if it were provided that others may not make nor take unto themselves to increase their own honour the works and artifices they may have seen so discovered by such men, such men would use their minds, and would discover and make things which would be of no little utility and advantage to our state',

the Senate went on to enact that

'whoever will make in this City any new and ingenious artifice, not made previously in our state, will be obliged to register it

at the office of our proveditors of the Commune, as soon as it will be reduced to perfection, so that it will be possible to use and apply it. It shall be forbidden to anyone else in any our land and place to make any other artifice to the image and similarity of that one without consent and licence of the author during the term of ten years.'

By 1550 over 100 Venetian patents had been granted under this law and to ensure that there was a proper consideration for the monopoly, many of them specified that the utility of the invention was to be demonstrated and that the invention was to be worked, a term of six months or a year usually being allowed for 'experientia'. One Venetian patent worthy of note is that granted in 1594 to Galileo for a device for raising water and irrigating land, by which a single horse provided power to discharge water through twenty spouts. The terms of this grant, which was for a period of twenty years, included a requirement that one of the machines was to be erected within one year. In his petition Galileo stated that he did not want his invention to become the common property of everybody and he promised to apply himself more attentively to new inventions for universal benefit. The system continued to flourish until the decline of Venetian power in the eighteenth century.

Careful studies of the detailed records of early grants in other countries strongly suggest that the idea of patent systems spread over Europe from Italy with emigrating Venetian glassworkers, who took with them their closely guarded secrets, and with the widening knowledge of Italian customs. Familiar with the Venetian law and fearful of local competition, the glassmakers asked for and received patent protection wherever they settled abroad. Thus in 1537 Bernard Swerts petitioned in Antwerp for a twenty-year privilege for crystal glass, and in 1541 the Emperor Charles V granted privileges to one Cornachini for glass. Other early patents in Antwerp were also granted to Italians. As in Venice, actual working of the invention was sometimes required.

In France, although a patent had been granted to Pierre Gestin and Robert de la Roche by the city of Amiens in 1543 for a calender for satin not requiring horses, the first patent for the whole Kingdom was one for five years to an Italian, Theses Mutio, for glass '*à la façon de Venise*'. This seems to have been a patent of importation, but in the same year the first true French patent was also granted for ten years to Abel Foullon for a surveying instrument called a holomètre. As a condition of the grant Foullon was required to submit a description of his instrument. These two patents were followed by further petitions, and the practice grew up of requiring a practical examination of the

device before the patent was granted, and also of publishing details of the inventions. It was provided in 1699 that the Royal Academy of Sciences should, if required, examine inventions which were the subject of applications for monopolies. The number of patents granted in France in this period was much less than in England, perhaps because the French kings' participation in industry made them reluctant to grant monopolies to private individuals.

News of the Venetian patent system may have been brought to Germany by German businessmen resident in Venice, as well as by itinerant glassmakers, and numerous patents were granted in Saxony and other German states from 1484 onwards. Besides importation privileges to glassmakers from Italy, many of the German patents relate to mining and metallurgy and were true invention patents, and in 1551 the grant of patents was referred to by one applicant as being a well-established practice. The early German patent system was, however, largely destroyed by the Thirty Years War (1618-1648).

## ENGLAND

In England the grant of monopolies by the Crown had been widely used by Edward II and Edward III as a means of promoting and regulating trade and as a source of revenue. Examples are the grant to the merchant and craft guilds of exclusive privileges to regulate trade and the restriction of the manufacture of worsted cloth to the town of Worstead in Norfolk by a patent of 1315. As a means of attracting new industries from overseas, letters of protection were also granted to groups of foreign workers. For example, German miners were given protection by Edward II in 1324. Cloth manufacture was particularly important and in 1327 Edward III prohibited the wearing of foreign cloth and proclaimed that he would grant franchises to fullers, weavers, dyers, and other cloth-workers who might desire to come to England. Letters of protection were accordingly granted in 1331 to John Kempe, a Flemish weaver of woollen cloths, with his servants and apprentices, to exercise and teach his trade in this country. These and other similar letters patent were confirmed by a statute in 1337 which offered protection to all foreign cloth-workers who settled in England. But although the letters of protection enabled the immigrant workers to practise their trade unhindered by the guilds, they did not give them any monopoly.

Henry VI's patent of 1449 to John of Utynam for stained glass remained the only example of an English grant of a monopoly for an invention until well into the next century. Then in 1537 a request for a monopoly for fifteen or twenty years in return for

trade and by manufacturers who were aggrieved when they found the development of their businesses hindered by the grant of patents to more enterprising innovators. At the end of the 1860s it even seemed possible that the cause of patent protection might be entirely lost. Nevertheless, by 1883 the opposition had subsided and the Act of that year, which largely implemented the recommendations of a Select Committee of 1872, continued the development of the system. The initial cost of patents was further reduced and scientifically trained examiners were employed to determine whether an invention was properly the subject matter of a patent, whether its nature and the way in which it was to be carried into effect were clearly described, and whether the complete specification agreed with the provisional and related to one invention only. It also became compulsory to include in the complete specification claims defining the scope of the invention. The documents were laid open to inspection before grant so that interested people could enter opposition; power to amend the specification was also given. To prevent abuse of monopoly rights, particularly those held by foreigners, the Board of Trade was given power to grant compulsory licences (if the patentee had refused to grant licences on reasonable terms) if the invention was not being worked in the United Kingdom, if the reasonable requirements of the public could not be otherwise supplied, or if some other person was being hindered in the use of another invention to the best advantage.

The work of the examiners under the 1883 Act did not include any examination of the claims for novelty; this was not introduced until 1905. Other changes followed at irregular intervals. In 1907 patents of addition were provided for, also the power to revoke a patent if the invention was carried out exclusively or mainly abroad. Further changes in the law relating to compulsory licensing to remedy abuse of monopoly rights followed in 1919. The 1919 Act also forbade the claiming of chemical substances as such, a ban which was again removed in 1949.

The last major reform took place in 1949, when a special judge of the High Court was appointed to deal with patent matters; claims were given individual priority dates, and the Patent Office was given additional powers in opposition proceedings. In particular, prior public use became a ground of opposition and the Patent Office was permitted to consider whether what was claimed was clearly obvious. For the first time, too, an inventor did not have to be a party to a patent application: his assignee could apply instead.

While the British patent system was undergoing its slow and piecemeal development, parallel changes were taking place abroad, many of them modelled on what was happening in England.

## UNITED STATES OF AMERICA

The Statute of Monopolies was followed by similar legislation in the American colonies, where settlers began to petition the legislature or governor for monopoly patents similar to those they had been familiar with in England. In 1641 the General Court of Massachusetts adopted a 'Body of Liberties' prohibiting the granting of monopolies except for 'such new inventions as are profitable to the country, and that for a short time'. In the same year the first patent in the American continent was granted by the General Court to Samuel Winslow, who introduced into Massachusetts a new method of making salt. This patent, which was for ten years, was conditional on his setting up works within one year. Massachusetts went on to grant the greatest number of patents in any colony, but patents were also issued in Connecticut, where a similar law was passed in 1672, in Virginia, in South Carolina, in New York, and in Rhode Island. Many of these patents were for the introduction of new industries into the colonies.

After the American War of Independence the old concept of a patent granted as an act of grace and favour by the Crown began to be replaced in the now independent colonies by the idea that an inventor had a natural right to his property. An act of 1784 in South Carolina provided for fourteen-year monopoly rights to inventors of useful machines and most of the other new States continued and extended the colonial practice of rewarding inventors with the grant of patent rights.

When the delegates of the States met to draft the Constitution of the United States of America it was recognised that it would be more effective to replace the separate State patents by a single form of protection for the whole country, and Congress was empowered in the Constitution of 1789

'to promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.'

It was thus formally recognised that men had property rights in the products of their intellect which ought to be protected for a limited time in the interest of progress.

Inventors soon began to petition Congress for patents and the first United States Patent Act was passed in 1790 to set up a procedure for dealing with them. The Act laid down that patents could be granted for fourteen years for 'any useful art, manufacture, engine, machine or device or any improvement therein not before known or used' and provided for examination for novelty by a

board of patent examiners and the submission of written specifications with drawings and, if possible, models. The first board of examiners consisted of the Secretary of State, Thomas Jefferson; the Secretary of War, Henry Knox; and the Attorney General, Edmund Randolph. Although they succeeded in issuing fifty-five patents in the next three years, in addition to their other duties, a new Act in 1793 eliminated examination, the grant thus becoming a clerical formality.

Not surprisingly the grant of patents without examination led to complaints that many of them were worthless and void, and in 1836 a new Act restored the requirement for examination and set up a Patent Office. A system of caveats along the English lines was also introduced, giving the right to be notified of applications for patents on subjects for which an inventor was not yet ready to file his own application, but these were abolished in 1909, leaving as the only remedy for an aggrieved third-party interference proceedings to determine who had first made the invention.

From the very beginning it has been a feature of the United States system that the right to a patent belongs to the first man to conceive the invention, but it has remained as a relic of the importation system that this priority right is not extended to inventions conceived abroad. Even today, despite a proposal by the President's Commission in 1966 that the United States of America should come into line with the 'first to file' system of the rest of the world, change in this respect seems most unlikely. The United States system is also almost unique in not including any requirement for actual working of a patented invention.

The United States patent laws were consolidated in 1870, when the term of patents was increased to seventeen years from the date of grant. The history of U.S. patent law is also discussed in Chapter 4.

## FRANCE

In France the early practice of the royal grant of patents for inventions was confirmed by an edict of Louis XV in 1762 which prohibited permanent privileges, but provided for inventors' patents limited to fifteen years. With the revolution, however, the privileges of inventors were abolished with the rest in 1789; but discontent soon arose and a group of dissatisfied inventors petitioned the Constitutional Assembly, presenting arguments for a patent system along the English lines. Nevertheless, when in 1791 the Assembly passed a comprehensive patent law, the English theory of the grant as an act of grace and favour by the Crown was clearly inappropriate to the spirit of the age. Instead the inventor was declared to

have a property right in his invention as one of the fundamental rights of man. In the words of the preamble to the new French law,

'every novel idea whose realisation or development can become useful to society belongs primarily to him who conceived it, and it would be a violation of the rights of man in their very essence if an industrial invention were not regarded as the property of its creator.'

The similarity of this sentiment to the philosophy of the American patent law of 1790 is most remarkable.

Under the law of 1791 French patents were granted for five, ten, or fifteen years, but became null and void if not worked within two years or, surprisingly, if the patentee sought to take out a patent abroad. As an alternative to applying for a patent, an inventor could publish it or offer his invention to the Government and claim compensation—a provision remarkably similar to the present system in the U.S.S.R.

Examination of applications was still required, but in 1844 this was abolished in favour of a registration system. In the debate in the Assembly in 1843 the French regard for the right of the individual led the majority of the speakers to the view that it was an arbitrary measure to make the grant of a patent dependent on the will of the administration. It was therefore argued that the inventor should have the right, after having described his invention to the best of his ability, to have it registered irrespective of its merit. The inventor was not obliged to delimit his monopoly by claims; only the judges were felt to be competent to decide upon this and upon patentability, due regard being paid to the prior art. The 1844 law also did away with the penalties for filing abroad and with the right to compensation.

## OTHER EUROPEAN COUNTRIES

After the American and the French lead, laws formally setting up patent systems quickly followed in many other countries.

In Austria, a royal decree of 1794 had announced the establishment of a patent system and a patent law was enacted in 1810 and amended in 1820. Although these laws did not recognise that an inventor had a natural right to a patent or to property in his invention, they did provide that in the public interest the Government could grant privileges to restrict the rights of others to imitate an inventor's ideas.

Increasing pressure by industrial interests also led to the enactment of patent laws in Russia in 1812, Prussia in 1815, Belgium

and the Netherlands in 1817, Spain in 1820, Bavaria in 1825, Sardinia in 1826, the Papal States in 1833, Sweden in 1834, Württemberg in 1836, Portugal in 1837, and Saxony in 1843. Nearly everywhere it was laid down as a condition for patentability that protection should be given only for what was completely new, in contrast to the English requirement of only national novelty.

In Europe, as in England, subsequent developments in the nineteenth century were greatly influenced by competing economic interests. Enterprising industrialists who recognised the value of patents in protecting their businesses increasingly pressed for the patent system to be strengthened and expanded. In Germany, after a decision of the Customs Union in 1842 had reduced the value of patents in the individual states by permitting patented articles to be imported, a unified patent system was sought and German interests also petitioned for a patent system to be set up in Switzerland, which remained the only industrial country in Europe without such a system.

#### OPPOSITION TO PATENT LAWS

Reaction to these pressures came in the form of anti-patent movements basing their case on the principle of free trade. Abolition of the patent laws was recommended by trade associations and chambers of commerce in Germany and it was argued that patents of invention were injurious to common welfare. The adoption of a patent law by the North German Federation was opposed by Prussia, and Bismarck also opposed the principle of patent protection. In Switzerland it was also felt that patent monopolies were incompatible with democratic principles and despite industrial pressure the Swiss legislature repeatedly rejected proposals to set up a patent system. In 1863 it was even stated that 'economists of the greatest competence' had declared the principle of patent protection to be 'pernicious and indefensible'.

The opponents of patents achieved their greatest success in the Netherlands, where the patent law passed in 1817 was actually repealed in 1869.

The main argument against patents in this period was that they were an obstacle to free trade and they were attacked along with tariff protection. As early as 1790 in the debate in the United States Senate on the first U.S. patent law it had been proposed that all patentees should be compelled to license the use of their inventions for reasonable compensation. Although not adopted in the United States, this idea of compulsory licensing was put forward again in the British Parliament in 1851, in Germany in 1854, and at various conferences of British scientific organisations between

1858 and 1863. Finally, at the Patent Congress held at the Vienna Exhibition in 1873 a resolution was passed advocating the introduction of compulsory licensing. This compromise is considered by Professor Machlup<sup>3</sup> to be the key to the renewed advance of the patent systems. According to Professor Machlup, the underlying reasons for the sudden collapse of the anti-patent movement at that time were the great depression, the rise of protectionism that came with it, the rise of nationalism, and the willingness of the patent advocates to accept the compromise of compulsory licensing.

A uniform patent law for the whole of Germany was adopted in 1877 with strict examination for novelty and level of invention. Japan, which had enacted its first patent law in 1872 only to abolish it again in 1873, adopted another in 1885. In Switzerland a referendum in 1882 still rejected patent legislation, but after another referendum in 1887 a patent law was at last passed. By 1910 even the Netherlands was convinced that on balance a patent system was advantageous and a new law came into effect there in 1912.

#### U.S.S.R.

In Russia—as in the United States and France—the development of the patent system was fundamentally affected by the revolution. An Imperial law of 1896 had established a system similar to that of Germany. The first Soviet patent law of 1919 provided that any useful invention could be declared public property by a decree of the Supreme Economic Council. Under the New Economic Policy (1921) there was a temporary return to something like the pre-Revolutionary scheme, but in 1931 this was brought to an end and a totally different approach was adopted which has become the model for the Communist treatment of inventions. Under this system the vast majority of inventors obtain certificates of authorship which vest the rights in the invention in the Government in return for compensation depending on the importance of the invention and the use to which it is put. For its part the Government has a duty to exploit the invention. Although ordinary patents are also available the rights of a patentee to exploit his invention are severely limited by Soviet restrictions on private industry and trade and in practice they are taken out only by foreigners.

#### INTERNATIONAL DEVELOPMENTS

The whole evolution of patent systems described so far took place on a purely national scale and before 1883 a manufacturer who

but not printed versions. These photocopies are of course only available from the patent offices in the countries concerned.

Other countries are rather tardy in providing printed copies of their patent specifications; Belgium and Italy are certainly bad offenders in this respect and delays of several years are fairly common. Even their patent journals and other official publications in the field of industrial property appear many months after their scheduled dates of publication. The appearance of indexes to such publications is also not very punctual in many countries and as the cost of compiling such useful aids to searching is continually increasing some patent offices have decided to curtail or even discontinue such publications, thereby making it even more difficult to conduct searches among foreign patents. Indeed, the official means for carrying out such searches, at least outside those countries, are so rare that it is frequently quicker to use one's own information files or to ask one's patent agent to enlist the help of his associate in the country concerned.

Although there are many organisations which are only too ready to offer their services in the field of patent searching, it must be stressed that the standard of the search reports is rarely high enough. Many of such organisations use the facilities available at the Dutch Patent Office at The Hague, but it seems that the searchers they employ are not too familiar with the classification system in use.

## 4

## The United States patent system

*Anthony William Deller*

### INTRODUCTION

The fundamental concept of the American patent system was provided by the English Statute of Monopolies, enacted in 1623 to prevent the abuse in granting monopolies by the Crown (page 7). As the common law had prohibited monopolies from time immemorial, this statute was declaratory in nature. Coke in his 'Institutes' defined a common law monopoly as 'an institution for the sole buying, selling, making, working or using anything whereby any persons are sought to be restrained of any freedom or liberty that they had before in their lawful trade'. A similar definition was given by Blackstone in his 'Commentaries' as: '... a license or privilege allowed by the king, for the sole buying and selling, making, working and using of anything whatsoever; whereby *the subject in general is restrained from that liberty of manufacturing or trading which he had before*'. Fortunately, a proviso was included in the Statute of Monopolies which made an exception of inventions.

In view of the experience in England under the Statute of Monopolies and in the Colonies under the various colonial laws, it is understandable that the Founding Fathers of the United States were anxious to incorporate a provision in the American Constitution which would provide for the granting of patents for inventions to inventors. The Constitutional Provision for patents is found in section 8 of Article I. It states that: '*The Congress shall have power ... To promote the progress of ... useful arts, by securing for limited times to ... inventors the exclusive right to their ... discoveries.*'

While the foregoing provision involves a broad grant of power to Congress, it nevertheless contains specific limitations. In the

first place it is limited to 'discoveries'. In the second place it is limited to discoveries which will 'promote the progress of useful arts'. In the third place it is limited to discoveries which have been made by 'inventors'. In the fourth place it is limited to the 'exclusive right' to the discoveries made by inventors. And in the fifth place there is a further limitation of securing to inventors the exclusive right to their inventions for 'limited times'.

Pursuant to the power granted to it under the Constitutional Provision, Congress enacted patent statutes from time to time. The First Patent Act was approved by George Washington, as President, on 10 April 1790.

The 1790 Patent Act provided that any person who had invented or discovered 'any useful art, manufacture, engine, machine, or any improvement not before known or used' may obtain the grant of a patent upon due proceedings had. It is interesting to note that the language used in the 1790 Patent Act regarding the patentee's rights was similar to that used in the English Statute of Monopolies, to wit: *the sole and exclusive right*.

Subsequently, Patent Statutes were enacted and became law on 4 July 1836. As a result, all prior statutes were repealed and the examination system was reintroduced. Basically, the 1836 Patent Act founded the modern American patent system. The subject matter capable of being patented was generally the same as specified in the Patent Act of 1793.

From time to time, various amendments were made to the patent statutes. In 1842, legislation was enacted providing for the patenting of new and original designs. In 1874, the Revised Statutes were enacted and replaced all prior patent statutes. Generally speaking, they were in effect until recently, except in special instances where they were amended, modified, or revised. Thus, for instance, in 1930 a new class of subject matter was added, to wit: certain new and distinct variety of plants.

On 1 January 1953 the Patent Act 1952 became effective. This Act, which is now the present controlling law, was intended to be primarily a codification of the prior statutory law and decisional law.

The American courts have stressed that *a patent is a creature of statute*. Because of the creation of patent rights by statutory provisions, it is important to examine them critically. Since the 1952 Patent Act is supposed to be essentially a codification of prior law, it is also well to keep in mind that a study of the prior statutes and decisions may likewise be necessary and helpful.

## SUBJECTS OF PATENTS

Since a patent is a creature of statute, it is essential to examine the statute for which a patent may be granted. As a court said in a famous patent case: 'At common law an inventor had no exclusive right to his invention. That exclusive right is the creature of the statute, and to that we must look if the right claimed in a given case is within its terms.'

Section 101 of the present patent Act states that: 'Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.' In further explanation of the terms used, section 100 covers definitions and states that: 'When used in this title unless the context otherwise indicates—(a) The term "invention" means invention or discovery. (b) The term "process" means process, art or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material. (c) The terms "United States" and "this country" mean the United States of America, its territories and possessions. (d) The word "patentee" includes not only the patentee to whom the patent was issued but also the successors in title to the patentee.' In section 161, provision is made for plant patents. This section states that: 'Whoever invents or discovers and asexually reproduces any distinct and new variety of plant, including cultivated sports, mutants, hybrids, and newly found seedlings, other than a tuber propagated plant or a plant found in an uncultivated state, may obtain a patent therefor, subject to the conditions and requirements of this title. The provisions of this title relating to patents for inventions shall apply to patents for plants, except as otherwise provided.' In a similar manner, ornamental designs are embraced in section 171, which states that: 'Whoever invents any new, original and ornamental design for an article of manufacture may obtain a patent therefor, subject to the conditions and requirements of this title. The provisions of this title relating to patents for inventions shall apply to patents for designs, except as otherwise provided.' In other words, the Patent Act provides for the granting of patents to inventors on the following subjects or classes of inventions:

1. machines,
2. compositions of matter,
3. processes, methods, or arts,
4. articles of manufacture,
5. ornamental designs,
6. plants of certain types, and
7. improvements of the foregoing.

## UNPATENTABLE DISCOVERIES

The Patent Office and the courts have definitely held certain discoveries to be unpatentable which involve nothing more than:

1. an abstract principle or idea,
2. a system of doing business,
3. a bare scientific theory,
4. a function of machine,
5. a law of nature,
6. a product of nature, or
7. an aggregation.

Since patents are grants authorised by statute, it is important to understand that only those classes of inventions which are specified by the patent statutes can be given patent protection. The general thought that every new idea or principle in and by itself is patentable is erroneous. An abstract principle or idea does not fall within any of the classes of inventions enumerated in the patent statutes and consequently cannot form the basis of a patent grant. Morse, for example, when he discovered the electric telegraph system, attempted to obtain a claim upon the principle of utilising electricity for the transmission of signals via an electric wire. The Supreme Court, however, pointed out that an abstract principle or a law of nature could not be made the subject of a patent. The means, however, for carrying the idea or principle into practice may receive patent protection and Morse obtained claims in his patent for these means.

The question as to whether a patent could be obtained on the discovery of a so-called law of nature arose in the *Morton Ether* case. Morton discovered that the inhalation of ether produced insensitivity to pain. When the Morton patent came into court for adjudication, it was held that the discovery did not constitute a patentable invention because it did not come within the purview of the inventions enumerated in the patent statutes. In this case, the Court said: 'In its naked, ordinary sense, a discovery is not patentable. A discovery of a new principle, force or law operating, or which can be made to operate, on matter will not entitle the discoverer to a patent. . . . The effect discovered was produced by old agents, acting by old means on old subjects. The effect alone was new. . . . This mere discovery, however novel and important, is not patentable. A discovery may be brilliant and useful and not patentable. No matter through what long, solitary vigils or by what importunate efforts the secret may have been wrung from the bosom of Nature, or to what useful purpose it may be applied, something more is necessary.'

Similar thoughts were expressed in *Katz v. Horni Signal Mfg. Corp.* (145 F2d 261, 63 USPQ 190), where the Court declared that epoch-making 'discoveries' or 'mere scientific laws', without more, cannot be patented. Thus, the great scientific 'discoveries' of Newton or Faraday could not have been rewarded with a patent grant.

As enunciated in connection with the *Morse Telegraph* case, an inventor cannot patent an abstract principle or law of nature or characteristic or quality of matter. Thus, in the *Lead Pipe* case, the patentee was not allowed to claim the principle or quality in lead which permits it to bond together upon the application of heat and pressure. In this case, the patentee was entitled only to claims directed to his process of making lead pipe. Then again in the *Cameron Septic Tank* case, it was held that the patentee could not claim a force of nature in and by itself, but could claim a process in which a force of nature is used under specially defined conditions and for certain practical purposes. The process involved the operations of subjecting sewage to the action of anaerobic bacteria, while excluding air and light; mixing until the entire mass is liquefied; and then subjecting the thus liquefied mass to the action of air and light.

There is a distinction between invention and discovery which must not be lost sight of in dealing with process patents. Of course, a discovery, to be patentable, must have the attributes of invention, but the mental process is somewhat different in one who invents a machine and one who discovers a process. The basic truth upon which rests a process may come to the discoverer suddenly and unexpectedly. The inventor may not understand the law upon which the process operates and may be unable to explain the cause of certain phenomena; nevertheless, if he is the first to give to the world a meritorious process, he is entitled to patent protection. The patent law abounds in instances in which the patents have been upheld where the inventor stumbled upon the discovery in total oblivion of the reason why effect followed cause.

The law has been well crystallised that inventions which are based upon abstract ideas or principles, scientific theories, laws of nature, or the like are not patentable. When a discovery of one of the foregoing types has been made, the discoverer must evolve physical means or a process for carrying the discovery into actual practice in order to obtain valid patent protection.

The court explained in the *Morton Ether* case that it is only where the explorer has gone beyond the mere domain of discovery and has laid hold of the new principle, force, or law, and then connected it with some particular medium or mechanical contrivance by which, or through which, it acts on the material world, that he can secure the exclusive control of it under the patent laws.