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# 14

## INTRODUCTION TO PATENTS

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### 1 INTRODUCTION

A patent is a limited monopoly that is granted in return for the disclosure of technical information. Under this Faustian pact, an applicant is required to disclose their invention so that it can be used (or worked) by a 'person skilled in the art'.<sup>1</sup> In return, the state (in the guise of the patent office) issues the applicant with a patent that gives them the exclusive right to control the way in which their patented invention is exploited for a 20-year period.

While the protection provided by a patent, which is limited to 20 years, is not as long as the protection provided by copyright law or (possibly) trade mark registration, the rights granted are more extensive. The rights granted to the patent owner cover most commercial uses of the patented invention. In addition, the rights will be infringed irrespective of whether or not the defendant copied from the patented invention. In part, the breadth of the patent monopoly is offset by the fact that patents are only granted if an applicant complies with a relatively onerous registration process. Unlike copyright, which arises automatically on creation of the work, patents are only granted after the applicant satisfies the requirements of registration. Although the granting process may not be as onerous as some would like, it does impose a number of limits and safeguards on the types of inventions that are patented, the scope of the monopoly granted, and the nature of the information that is disclosed in the patent. As such, rather than merely being seen as a prerequisite to grant, patent registration should be seen as a process in which policy goals are implemented and enforced.

Two bodies grant the patents that operate in the United Kingdom. The first and oldest granting authority is the UK Intellectual Property Office (UK IPO). (Until 2 April 2007, the IPO was known as the 'UK Patent Office'.) Patents granted by the IPO only apply in the United Kingdom. A British patent cannot be infringed, for example, in Ireland or Germany. As of 1 June 1978, it is also possible to get a patent to protect inventions in the United Kingdom by applying to the European Patent Office (EPO). It should be noted that the EPO grants a bundle of national patents—that is, rather than granting a single pan-European patent, the EPO grants a series of national patents. While there are some subtle differences, once a patent has been granted by the EPO it is treated as if it had been issued by the UK IPO. As we will see later, there are plans to introduce yet another type of patent: the so-called 'unitary European patent', which, if it enters into force, will provide a single patent that spans most, but not all, of Europe.

<sup>1</sup> This is a notional person who has the requisite skill and knowledge appropriate to the type of invention in question.

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Applications for grant of a patent can be made directly to the UK IPO or the EPO. It is also possible to apply to these offices indirectly by way of an international filing under the Patent Cooperation Treaty (PCT). The European Patent Convention (EPC) has superseded the UK IPO as a source for applications for UK patents. As a result, the question has arisen as to whether there is much to be gained from retaining a national patent office.<sup>2</sup> In line with the fact that there are two routes by which a patent for the United Kingdom can be granted, there are also two (interrelated) legal regimes that need to be taken into account. These are set out in the European Patent Convention 2000 (EPC 2000) and the Patents Act 1977 (PA 1977), which is modelled on the EPC. In addition, there are also two different sets of tribunals that adjudicate on patent disputes: the tribunals at the EPO and the traditional British judicial structure (with some amendments for specialist tribunals for patents).

## 2 HISTORY OF THE BRITISH PATENT SYSTEM TO 1977

The passage of the Patents Act 1977 marked an important change in British patent law. As well as introducing procedural and substantive changes, it also saw Britain's entry into the European Patent Convention. While there are many important differences in the post-1977 law, in the following chapters we will encounter many concepts that pre-date the 1977 Act. For example, the image of the invention as the human intervention in nature that brings about a resulting physical change, which underpins much contemporary jurisprudence, was well entrenched in British law by the mid-nineteenth century.

Insofar as patents can be seen as monopolies offered by the state as rewards, there are many historical antecedents.<sup>3</sup> A notable example is the practice that came to prominence in sixteenth- and seventeenth-century Britain, where the Crown granted privileges to subjects in return for the subject carrying out some corresponding duty. Initially, these privileges were granted in letters patent—that is, as 'an open letter' from the Crown to a subject (from which the term 'patent' is derived). Unlike the present system, there were no formal checks or balances on the privileges granted by the Crown. As such, patents were frequently granted for activities that were already being performed by individuals. A famous example is the grant of a monopoly over the selling of playing cards.<sup>4</sup> Clearly, the grant of such a monopoly would have been detrimental to anyone who was already selling playing cards. As Crown grants of patents increased over the course of the sixteenth and seventeenth centuries, so too did the criticism. Eventually, the Crown's right to grant such privileges was challenged in the courts.<sup>5</sup> It was also subject to parliamentary intervention with various trials (impeachments) of patentees before Parliament<sup>6</sup>

<sup>2</sup> See W. Kingston, 'What Role Now for European National Patent Offices?' [2003] *EIPR* 289; J. Phillips, 'Time to Close the Patent Office Doors?' [1990] *EIPR* 151.

<sup>3</sup> See M. Biagioli, 'Patent Republic: Specifying Inventions, Constructing Authors and Rights' (2006) 73 *Soc Res* 1129.

<sup>4</sup> *Darcy v. Allin* (1602) 11 *Co Rep* 84b, 74 *ER* 1131; see M. Fisher, 'The Case That Launched a Thousand Writs, or All That Is Dross? Re-conceiving Darcy v Allen: the Case of Monopolies' [2010] *IPQ* 356.

<sup>5</sup> *Darcy v. Allin* (1602) 11 *Co Rep* 84b, 77 *ER* 1131, 1260; *The Clothworkers of Ipswich Case* (1614) *Godb R* 252, 78 *ER* 14.

<sup>6</sup> See E. R. Foster, 'The Procedure of the House of Commons against Patents and Monopolies, 1621–1624', in W. Appleton Aiken and B. Duke Henning (eds), *Conflict in Stuart England: Essays in Honour of Wallace Notestein* (1960); C. Tite, *Impeachment and Parliamentary Judicature in Early Stuart England* (1974); P. Johnson, *Privatised Law Reform: A History of Patent Law through Private Legislation, 1620–1907* (2017), ch. 3.

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and then the passage of the 1623 Statute of Monopolies,<sup>7</sup> which imposed a general prohibition on the grant of patents by the Crown. While the Statute of Monopolies imposed a general prohibition on the grant of monopolies, an exception was made in section 6 where the grant related to 'a manner of new manufacture'. As well as limiting the circumstances in which a patent could be granted, the Statute also limited the duration of the patents for new manufacture to a period of 14 years: the period corresponding to two terms of apprenticeship. While it was not commonplace, some patents went further and included an 'apprenticeship clause' requiring the patentee to teach the new 'art' to two sets of apprentices.<sup>8</sup>

While patents have existed in one form or another for many centuries, the patent system that exists today is largely a creation of the nineteenth century. Indeed, many aspects of the registration process, as well as many of the legal concepts at which we look in subsequent chapters, crystallized over this period.<sup>9</sup> One of the most important changes that took place over the course of the nineteenth century was that patents changed from being primarily a creature of Crown prerogative to become a creature of bureaucracy. Although some of the trappings of the patent system's early connection with the Crown remained, patents are better seen as the product of an administrative process than as a form of Crown prerogative. The shift from Crown to administration was reinforced with the passage of the Patents Act 1977, which saw the United Kingdom enter the EPC and a patent become a purely statutory creature (and no longer an exercise of the prerogative). Another important, yet often overlooked, change that took place in the nineteenth century was the crystallization of patent law. Indeed, it was only after the publication of the first textbooks on patent law and the first series of judicial decisions to consider the validity and infringement of patents that a distinct and relatively coherent body of law came into existence.

Another important event that took place over the nineteenth century was that the emerging patent system was subject to a considerable amount of vocal and highly critical public scrutiny.<sup>10</sup> This scrutiny led not only to calls for the reform of patent law, but also, in some cases, to calls for the abolition of the whole patent system itself. Critics of the patent system said that it was unnecessarily complicated, technical, and obscure (as well as overly expensive). They also said that while applicants were able to benefit from the protection provided by the patent monopoly, the corresponding public interest in the disclosure of technical information was not being met.<sup>11</sup> In part, this was because in many cases, the information disclosed in the patent was of limited practical value. Given the lack of control exercised over the nature and content of the information disclosed in the patent, key aspects of inventions were often not disclosed. As a result, third parties were often not able to work or practise the invention from the information that

<sup>7</sup> The short title is the *Statute of Monopolies* but many commentators attribute a year to it. This varies between 1623 and 1624 due to dating conventions changing in the eighteenth century (or other mistakes), but if it carried a date it would be 1623: see P. Johnson, *Privatised Law Reform: A History of Patent Law through Private Legislation, 1620-1907* (2017), 31.

<sup>8</sup> See D. S. Davies, 'The Early History of the Patent Specification' (1934) 50 *LQR* 86, 104; P. Johnson, *Privatised Law Reform: A History of Patent Law through Private Legislation, 1620-1907* (2017), 104-6.

<sup>9</sup> See Sherman and Bently, 95-110.

<sup>10</sup> The patent controversy was also important insofar as it led to public discussions about the goals and functions of patent law (and intellectual property law more generally). See F. Machlup and E. Penrose, 'The Patent Controversy' (1950) 10 *J Ec Hist* 1; M. Coulter, *Property in Ideas: The Patent Question in Mid-Victorian Britain* (1991).

<sup>11</sup> Intriguingly, in an earlier period it looked possible that Parliament would be more likely to restrict disclosure of inventions than improve it: P. Johnson, *Privatised Law Reform: A History of Patent Law through Private Legislation, 1620-1907* (2017), 113-18.

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was disclosed in the patent. Even where the information disclosed in the patent was potentially valuable, it was often very difficult for third parties to locate the relevant information. This was attributed to a range of factors, from the fact that the titles of many patents did not match the subject matter of the invention, to the fact that patent specifications were often not filed in a consistent or logical fashion. The criticisms of the patent system were also motivated by ideological concerns that focused on the monopolistic nature of the patents. Motivated by political economists who championed laissez-faire ideas that the government should interfere in the operation of the market only where it was absolutely necessary, patent monopolies were presented as unjustifiable inhibitions on the market that inhibited free trade. (This is in contrast with critics of the Crown grant of patents in the seventeenth century when monopolies were seen to be undesirable because of their association with the Stuart attempts to govern without Parliament.)

The criticisms made of the patent system had a long-standing impact on its shape and direction. Importantly, the shift away from patents being seen as a form of Crown prerogative opened the system up to the possibility of reform. Many of the objections to the existing patent laws were rectified in the Patents Designs and Trade Marks Act 1883 and by changes to Patent Office rules and guidelines. In turn, many of the criticisms made of the registration process were met by a raft of administrative reforms. For example, the patent system was rationalized with the establishment of the Office for the Commissioners of Patents in 1852 (which became the Patent Office in 1883). In addition, patents were organized alphabetically and rules were introduced that helped to ensure that the titles of the patent corresponded to the patented invention. The growing practice of including a description of the invention in the patent application (now called the 'specification') was made a statutory requirement. There was also more attention given to the form and nature of the information disclosed in the patent.

While many of the criticisms made of the patent system were met by legal and administrative reforms, nonetheless the criticisms made of the patent system continued to have an impact upon the way patents were viewed long after the debates had ended. In part, this may explain why from '1883 until after the end of the [Second World War], the courts tended to regard patent monopolies with some disfavour as being generally contrary to the public interest'.<sup>12</sup> It is interesting to contrast these attitudes with the approach after 1949, when it was said that:

[T]he climate of opinion has changed. It is now generally recognized that it is in the public interest to encourage inventive genius. Accordingly the modern tendency of the courts has been to regard patent claims with considerably more favour than before.<sup>13</sup>

This trend has become even more marked in recent years as both UK courts and the EPO have grown increasingly inventive in their efforts to circumvent legislative obstacles to patent protection.

Another notable trend that developed over the nineteenth century was the growing influence that foreign patents systems had on the development of the British patent regime. As well as borrowing concepts from French and American patent law, aspects of the British registration process were modelled on foreign regimes. The second half of the nineteenth century also saw the growing internationalization of the patent system.<sup>14</sup>

<sup>12</sup> *Ethyl Corporation's Patent* [1972] RPC 169, 193.

<sup>13</sup> *Ibid.*

<sup>14</sup> Bilateral arrangements that dealt with patent-related issues were entered into in the early nineteenth century. These were usually in the form of treaties of freedom, commerce, and navigation.

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These moves reached their peak with the signing of the 1883 Paris Convention (which, at the time of writing, had 177 member countries).<sup>15</sup> One of the notable achievements of the Paris Convention was that it introduced the principle of 'national treatment'. This is the principle that a convention country must treat the nationals of other signatory countries in the same way as it treats its own.<sup>16</sup> Another notable aspect of the Convention was that it provided that an application for a patent in one member state should not prejudice subsequent applications in other member states.<sup>17</sup> This is achieved by requiring the later application to be treated as having the priority date of the earlier application. It should be noted that the Paris Convention does not impose minimum standards of protection for patents, as the Berne Convention does for copyright.<sup>18</sup>

### 3 JUSTIFICATIONS FOR PATENTS

Over time, a number of different justifications have been given in support of the patent system.<sup>19</sup> At times, the proponents of patent protection have emphasized the natural rights of inventors to the products of their mental labour.<sup>20</sup> Others have argued that justice demands that an inventor's contribution should be recognized by the grant of a reward.<sup>21</sup> While arguments of this ilk have occasionally been relied upon in discussing aspects of the patent system, they have not been as popular as the public interest rationales. Having said that, the current debates about how indigenous interests should best be accounted for in the patent system have seen a resurgence of interest in arguments about inherent rights and justice.

While commentators have occasionally drawn on natural rights in support of the grant of patents, the most common form of argument has concentrated on the public benefits that flow from the grant of patent monopolies. Although these arguments have changed over time, what they share in common is the basic idea that the public should only ever have to endure the harm caused by the grant of a patent if the public receives some corresponding benefit. These arguments have tended to dominate discussion of the function of the patent system since the nineteenth century.

Initially, the public interest in the patent system was said to flow from the fact that the patentee introduced a form of technology that had not previously been available in the United Kingdom. Often, this simply involved the patentee importing information about a trade or a craft from another country. Over time, this rationale was replaced by the argument that the public benefit lay in the disclosure of the invention that occurred on publication of the patent application—that is, the justifications focused on the role that the patent system played in the generation and circulation of technical information. (This is often referred to as the 'information function' of the patent system.) In particular, it is said that patents act as incentives to individuals or organizations to disclose information that might otherwise have remained secret.<sup>22</sup> Patents also encourage information to be

<sup>15</sup> See S. Ladas, *The International Protection of Industrial Property* (1930); S. Ricketson, *Paris Convention for the Protection of Industrial Property* (2015); E. Penrose, *The Economics of the International Patent System* (1951); *Asahi Kasei Kogyo* [1991] *RPC* 485 (HL), 532.

<sup>16</sup> Paris, Art. 2.

<sup>17</sup> Paris, Art. 4. The priority period is 12 months.

<sup>18</sup> Although Paris, Art. 4*ter*, requires mention of the inventor, Art. 4*quater* requires that patents are not refused on the ground that sale of the product is restricted in domestic law, and Art. 5 restricts the ability to forfeit the patent and the availability of compulsory licences.

<sup>19</sup> See R. Merges, *Justifying Intellectual Property* (2011).

<sup>20</sup> F. Machlup and E. Penrose, 'The Patent Controversy' (1950) 10 *J Ec Hist* 1, 11–17.

<sup>21</sup> *Ibid.*, 17–21.

<sup>22</sup> See D. Davies, 'The Early History of the Patent Specification' (1934) 50 *LQR* 86.



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disclosed in a way that is practically useful. At a more general level, the public interest in allowing patents is said to flow from the fact that the numerous patents that have been granted over time constitute a substantive and valuable database of technical and scientific information. The information function of the patent system was reinforced by the Patents Act 1977 and the European Patent Convention, which emphasized the need for the invention to be disclosed in such a way that it could readily be put into practice.<sup>23</sup> The value and effectiveness of the information was also bolstered by the publication of patent specifications on the Internet.

While the primary focus of the patent system is on the disclosure of technical information for scientific and industrial reasons, the information that is collected at patent offices throughout the world is occasionally used for other purposes. For example, historians have used the patent system as an indicator of public attitudes towards different technologies.<sup>24</sup> More bizarrely, the fact that patent applications had been lodged for ovens for the burning of human corpses was used in a defamation action as evidence of the existence of gas chambers at Auschwitz.<sup>25</sup>

Patents have also been justified by the fact that they provide an incentive for the production of new inventions.<sup>26</sup> As Lord Oliver said in *Asahi*:

[The] underlying purpose of the patent system is the encouragement of improvements and innovation. In return for making known his improvement to the public the inventor receives the benefit of a period of monopoly during which he becomes entitled to prevent others from performing his invention except by his licence.<sup>27</sup>

More specifically, it is said that because patents provide the possibility for inventions to be exploited for a 20-year period, this means that investors will be more willing to fund research and development. In this sense, patents act as a vector that links scientific and technical research with commercial spheres.<sup>28</sup> Arguments of this nature have proved to be particularly important in situations in which an invention can be readily ascertained (or reverse-engineered) from the product that is put on the market (and no other form of protection exists).

The fact that a product is patented is often used by retailers trying to gain a competitive advantage to show the innovative nature of their products. There is also a sense in which the fact that a product has been patented suggests that the product (or process) has been publicly sanctioned in some way or other. This has proved to be an important consideration in the ethical debates about whether patents should be granted for genetically modified humans, animals, and plants.

If we reflect upon the way in which patent law has been viewed over the last century or so, a number of things stand out. The first notable feature is that the patent system has

<sup>23</sup> See Chapter 20, sections 1 and 2, p. xxx. <sup>24</sup> T. O'Dell, *Inventions and Official Secrecy* (1994).

<sup>25</sup> *Irving v. Penguin Books* (2001) *EWCA Civ* 1197, [7.65]; G. Reimann, *Patents for Hitler* (1945).

<sup>26</sup> Kitch emphasized the way in which the grant of patents could be analogized to the grant of mineral rights, giving the grantee an incentive to invest in the exploitation of the 'prospect': E. Kitch, 'An Economic Review of the Patent System' (1977) 20 *J L & Econ* 265.

<sup>27</sup> *Asahi Kasei Kogyo* [1991] *RPC* 485 (HL), 523; E. Mansfield, 'Patents and Innovation: An Empirical Study' (1986) 32 *Manag Sci* 173; *Esswein/Automatic programmer*, T 579/88 [1991] *EPOR* 120, 125. See J. Aubrey, 'A Justification of the Patent System', in J. Phillips (ed.), *Patents in Perspective* (1985); A. Plant, 'The Economic Theory Concerning Patents for Inventions' (1934) *Economica* 30; C. Taylor and A. Silbertson, *The Economic Impact of Patents* (1973), chs 2 and 14.

<sup>28</sup> The role that the patent system played in inducing the invention and implementation of new industrial practices has been widely, but inconclusively, debated. See C. MacLeod, *Inventing the Industrial Revolution* (1988); H. Dutton, *The Patent System and Inventive Activity during the Industrial Revolution: 1750–1852* (1986); S. Bottomley, *The British Patent System During the Industrial Revolution 1700–1852* (2014).

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widely been seen, both by supporters and critics alike, as a system of regulation—that is, as a regime that modifies behaviour. In some cases, this is explicit; in most cases, it is implicit in the way in which commentators think about patents.<sup>29</sup> Another notable and consistent trend has been that whenever commentators talk about the patent system in a *positive* sense—that is, as a system that regulates and controls behaviour in a desirable way—they have almost always seen it as a tool to promote economic ends, such as to encourage new industries, research and development, or innovation.<sup>30</sup> In contrast, whenever non-economic factors such as health, human rights, the environment, or ethics are discussed, they have either been treated as external (*negative*) constraints upon the core activities of the patent system or as undesirable side effects that need to be mitigated.

While there is no denying the important role that patents play in macro-economic policy, there is no reason why the patent system, as a regulatory tool, should only be used in the pursuit of economic ends, nor any reason why ‘external’ factors such as the impact of technology on the environment or health should not fall within the core remit of the patent system. That is, there is no compelling reason why the various practices, rules, and concepts that have been developed and fine-tuned over the last couple of centuries or so should be used only for economic ends. Given that modern patent law already performs a number of sometimes surprising non-economic roles, this is not as alien a proposition as it might first appear. For those who require an older lineage, there are also many examples from pre-modern patent law of instances in which the grant of a patent was used by the Crown to achieve political and personal, rather than economic, ends. As we will see later, arguments of this nature are beginning to have an influence on patent law, particularly in relation to its role in promoting food security, improving access to medicine, reducing climate change,<sup>31</sup> and protecting indigenous knowledge.<sup>32</sup>

#### 4 CURRENT LEGISLATIVE FRAMEWORK

The law that regulates the creation and use of patents that operate in the United Kingdom is a hybrid mixture of national, European, and international elements. In this section, we provide an introduction to the legislation, conventions, and treaties that we will encounter in subsequent chapters. We begin by looking at the most important regimes—namely, the European Patent Convention and the Patents Act 1977. We then go on to look at the impact that the European Commission has had on patent law. After looking at the Community Patent Convention, we turn to look at some of the international treaties that have shaped British patent law. In particular, we look at the Patent Cooperation Treaty, the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS), and the Convention on Biological Diversity.<sup>33</sup>

<sup>29</sup> Driven by a form of legal positivism that has long disappeared from most other areas of law, it is occasionally suggested that patent law does not regulate behaviour; rather, it merely grants property (or monopoly) rights in inventions. Invariably, however, the pretence of neutrality that underpins arguments of this nature disappears when commentators talk about the importance of patent protection in promoting technical innovation or investment in innovation.

<sup>30</sup> Occasionally, policy debates have also focused on the positive impact that patents have on the collection and distribution of technical information.

<sup>31</sup> For example, see E. Derclaye, ‘Should Patent Law Help to Cool the Planet?’ (2009) 31 *EIPR* 168, 227; M. Rimmer, *Intellectual Property and Climate Change: Inventing Clean Technologies* (2012).

<sup>32</sup> See section 4.6.3, pp. xxx–x. For general discussion, see G. Dutfield, ‘A Critical Analysis of the Debate in Traditional Knowledge, Drug Discovery and Patent-Based Biopiracy’ (2011) 33 *EIPR* 238.