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# 1 History of the patent system

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## 1. INTRODUCTION

Unlike trademarks, which can develop even in comparatively primitive societies in which particular makers' marks can acquire goodwill as people come to rely on them,<sup>1</sup> or copyright, which seems to represent a fairly basic instinct about the relationship of an author to his or her works,<sup>2</sup> patents seem to be a creation of advanced societies. Although it has sometimes been asserted that the earliest form of patents might have existed in 500 BC in Sybaris, Greece, where monopolies were granted to new dishes for a period of one year, and that the patents may also have existed in the Roman Empire where guilds existed, the only reliable historical evidence is that the system originated in Venice in the fifteenth century. A few patents had already been granted prior to 1474 when Venice promulgated its patent statute, probably the first modern patent law.

We have among us men of great genius, apt to invent and discover ingenious devices; and in view of the grandeur and virtue of our city, more such men come to us every day from divers parts. Now, if provision were made for the works and devices discovered by such persons, so that others who may see them could not build them and take the inventor's honour away, more men would then apply their genius, would discover, and would build devices of great utility and benefit to our commonwealth. Therefore:

Be it enacted that, by the authority of this Council, every person who shall build any new and ingenious device in this City, not previously made in our Commonwealth, shall give notice of it to the office of our General Welfare Board when it has been reduced to perfection so that it can be used and operated. It being forbidden to every other person in any of our territories and towns to make any further device conforming with and similar to said one, without the consent and license of the author, for the term of ten years.<sup>3</sup>

The next part of the story takes place in England and Wales. The ending of the wars in France in the mid-fifteenth century was succeeded by the dynastic Wars of the Roses, which ended with the battle of Bosworth in 1485, and the beginning of the Tudor monarchy. Quite a lot is known about the conditions in England in the early sixteenth century.<sup>4</sup> It was fertile, but in comparison to France, very underpopulated. It was also

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<sup>1</sup> See Schechter 40 HLR 813 (1927).

<sup>2</sup> See Dock, 'The Origin and Development of the Literary Property Concept' [1975]. *Revue Internationale du Droit d'Auteur* 126; Phillips, 'St Columba as Copyright Infringer' [1985] EIPR 350; K. Bowrey [1996] EIPR 322.

<sup>3</sup> Translation provided by Vishwas Devaiah I., *A History of Patent Law*, Alternative Law Forum website.

<sup>4</sup> See Hoskins, *The Age of Plunder*, Longman: London and New York (1976).

still essentially a mediaeval society. By the end of the Tudor dynasty in 1603 the country had changed dramatically. The dissolution of the monasteries, and subsequent break up of the monastic lands after 1535, which were concomitant with the Church of England's split with Rome, had released large amounts of capital. Major civil engineering projects such as the draining of the fens began to be undertaken, and the pre-conditions for the economic developments that would lead to England becoming the first industrial nation were beginning to fall into place. A significant development in this respect was the beginning of the modern patent system. Historians have argued about how the practice of granting a patent monopoly to a deserving inventor as a reward for invention arose. A clear statement anticipating modern thinking can be found in the grant of a patent to Jacobus Acontius:<sup>5</sup> '... it is right that inventors should be rewarded and protected against others making profit out of their discoveries'.<sup>6</sup> Acontius may well have known about the Venetian patent system, but whether or not he, in effect, caused the invention of the English patent system has been much debated.<sup>7</sup> At all events in the decades following this grant, there came to be two distinct kinds of patents: those granting monopolies over things already invented including consumer staple products such as the manufacture of playing cards,<sup>8</sup> and those granting monopolies in inventions. The former were generally resented by both Parliament and the public, but the latter were viewed favourably. After the *Case of Monopolies*,<sup>9</sup> which struck down the grant of a monopoly in the manufacture of playing cards, and the Statute of Monopolies 1623–4, the Crown's right to grant monopolies was restricted, saving the grant of monopolies for new and useful inventions. Section 6 of the Statute of Monopolies allowed patent monopolies for 14 years,<sup>10</sup> for 'any manner of new manufacture' within the realm to be granted to the true and first inventor.<sup>11</sup> The terms of the section make it clear that the statute was an instrument of economic policy; rather than being motivated by the desire to do justice to the inventor, it was meant to encourage industry, employment and growth. The patentee's consideration for the grant was that he would put the invention to use.

Between the passing of the Statute of Monopolies and 1800, the Union of Scotland, England and Wales took place,<sup>12</sup> and the United Kingdom emerged as the first industrial

<sup>5</sup> Acontius was born in Trent in Northern Italy around the end of the fifteenth century. He qualified as a lawyer, but was also a talented engineer, undertaking among other things the fortification of the town of Berwick on Tweed, and the draining of the Plumstead Marshes – *Dictionary of National Biography*, vol. I, p. 63.

<sup>6</sup> Calendar of Patent Rolls, 7 Eliz 331.

<sup>7</sup> See Phillips [1983] EIPR 41. The grant of patents to foreigners who wished to practise their crafts in England started in 1331, but it was not linked to any requirement of inventiveness. Indeed, the grant of patents was largely a money-raising device for the Crown.

<sup>8</sup> See *Darcy v. Allen* (1602) 11 Co Rep 84b.

<sup>9</sup> *Darcy v. Allen* (above).

<sup>10</sup> This period seems to have been arrived at on the basis of two apprenticeship terms which were considered sufficient to teach the art to the unskilled. The fact that the term for copyright was set at the same period by the Statute of Anne 1709–10, and that trademarks were renewable for seven-year terms down to the Trade Marks Act 1994 shows the lasting influence of the 1623–4 Act.

<sup>11</sup> This must be understood as the first introducer of a new technology into the realm, not the first inventor in worldwide terms as is the modern requirement – *Edgeberry v. Stephens* (1693) 1 WPC 35.

<sup>12</sup> Through the Acts of Union which were a pair of Parliamentary Acts passed in 1706 and

nation.<sup>13</sup> Although, as it were, the building blocks for the emergence of a modern patent system were in place by 1700, the transformation of the system in the course of the eighteenth century is a crucial part of our story.

## 2. THE DEVELOPMENT OF THE UNITED KINGDOM PATENT SYSTEM DURING THE EIGHTEENTH CENTURY

Little work has been done on the history of patent law in the eighteenth century since the pioneering articles of Wyndham Hulme and Seaborne Davies at the turn of the nineteenth and twentieth centuries.<sup>14</sup> Holdsworth relied heavily on this work.<sup>15</sup> Holdsworth took the view that Lord Mansfield's decision in *Liardet v. Johnson* (1778)<sup>16</sup> was crucial to the development of the modern law. Hulme believed that with *Liardet v. Johnson* the law took a wrong turn. Under the old practice the test of novelty was whether or not the invention had already been used and worked in the realm. Under the 'new' practice, the test was whether prior disclosure within the realm in any form had been made (i.e. the law was moving towards the modern test). The result was first of all to attach undue importance to the patent specification, and secondly to debar the inventor from incorporating into his claims unused public knowledge. He considered that the valuable consideration which the inventor brings in return for the patent monopoly is the expenditure of personal effort and capital, and that this obligation should never have been allowed to disappear from the law.<sup>17</sup> It is worth quoting Hulme's views on the significance of *Liardet v. Johnson* at length, for in the course of this chapter it will be argued that they are largely wrong. He suggested that:<sup>18</sup>

In 1778 Lord Mansfield in *Liardet v Johnson* – a trial which may be regarded as a landmark in the history of English patent law – invested the patent specification with a character and function totally distinct from that with which it had originally been introduced . . . From [Bramah's letter<sup>19</sup>] we gather that the doctrine of the instruction of the public by means of the personal

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1707 by the Parliament of England and the Parliament of Scotland respectively that took effect on 1 May 1707. These Acts were the implementation of the Treaty of Union negotiated between the two countries. The Kingdom of Great Britain was created by merging the Kingdom of England and the Kingdom of Scotland. Since the Union of the Crowns in 1603, the two countries shared a monarch but retained separate and sovereign parliaments. The Acts of Union dissolved both the parliaments of England and Scotland and replaced them with a new parliament, called the Parliament of Great Britain. This new parliament was (and still is) based in Westminster, the former home of the English parliament.

<sup>13</sup> See Mathias, *The First Industrial Nation: An Economic History of Britain 1700–1914*, Scribners: New York (1969).

<sup>14</sup> Hulme (1896) 12 LQR 141; (1897) 13 LQR 313; (1900) 16 LQR 44; (1902) 18 LQR 280; (1907) 23 LQR 348; (1917) 33 LQR 63; Davies (1932) 48 LQR 394; (1934) 50 LQR 86, 260.

<sup>15</sup> XI HEL 424 *et seq.*

<sup>16</sup> The references to this case are given under the relevant points in the text.

<sup>17</sup> (1917) 33 LQR 194–5.

<sup>18</sup> (1897) 13 LQR 313.

<sup>19</sup> Joseph Bramah was a notable British inventor and the holder of many patents. He was one of the first people to propose the use of the screw propeller for ships.

efforts and supervision of the grantee was definitely and finally laid aside in favour of the novel theory that this function belongs to the patent specification, an instrument introduced by the irony of fate to make the grant more certain! At the same time, the novelty of the invention was subjected to a new and more searching test. Hitherto the novelty of no grant appears to have been successfully challenged except upon the ground of prior user within the Realm, but in this trial the practice of what is known as 'mosaic anticipation', was admitted in impeachment of the inventor's privilege. So complete a *volte face* could hardly have been effected if the history of the law had possessed some sort of continuity. This however does not appear to have been the case.

He goes on to note that for over a century the reports are destitute of any decision of importance in this branch of jurisprudence.<sup>20</sup> At the end of the eighteenth century, therefore, the common law judges were left to pick up the threads of the principles of law without the aid of recent and reliable precedents.

A re-examination of this topic is timely in view of the proposals made by Professor Kingston of Trinity College Dublin over the last quarter century that something like the old system should be re-introduced, and limited monopolies granted in return for the introduction of new industries.<sup>21</sup>

There are other reasons too for taking a fresh look at this topic. Since Hulme and Davies' time much work has been done on eighteenth-century patents by historians of science, and by economic historians,<sup>22</sup> but, interesting as these are, they have tended to neglect the legal aspects. Professor Robinson's work on the Boulton and Watt papers has also revealed some exceptionally interesting material.<sup>23</sup> The Mansfield Court Notebooks have been found, and these contain the notes of one of the two *Liardet v. Johnson* hearings as well as other cases of interest. Moreover, a great deal of work has been done on the background to *Liardet v. Johnson* by Frank Kelsall.<sup>24</sup> Finally, it has become much easier to gain access to law-related materials such as printed pamphlets through the *Bibliography of Eighteenth Century Legal Literature*,<sup>25</sup> and in the case of British Library holdings, through the Eighteenth Century Short Title Catalogue which is available online through the British Library Catalogue. All these sources were used in writing this chapter.

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<sup>20</sup> There are no reported cases from *Edgeberry v. Stephens* (1693) Salk 447 to *Turner v. Winter* (1787) 1 TR 602. However, cases such as *Dolland's* (1766) did find their way at a later date into the specialist series of reports produced by Davies, Carpmael and Webster.

<sup>21</sup> See, e.g., Kingston. 'The Political Economy of Innovation' 15 *R & D Management* 251 (1985). These proposals have been much misunderstood. What Professor Kingston proposes is not replacement of the present patent system, but the introduction of a parallel system to encourage innovation directly (which the patent system only does indirectly).

<sup>22</sup> See, e.g., Mountfield 2 *Industrial Archaeology* (1978); Winship 16 *Industrial Archaeology* 261 (1981).

<sup>23</sup> 'James Watt and the Law of Patents' 13 *Technology and Culture* 18 (1972).

<sup>24</sup> Frank Kelsall worked for the Greater London Council as an architectural historian from the 1960s to 1986. He then joined English Heritage as an inspector of historic buildings. Since early retirement in 1998 he has acted as casework adviser to the Ancient Monuments Society and, with Dr James Anderson, has founded the Architectural History Practice. A copy of this paper was kindly made available to me by the author.

<sup>25</sup> Adams, Averley and Robinson. Newcastle upon Tyne. Avero. 1982.

## 2.1 The Traditional Account

Holdsworth writes:

Perhaps the greatest change in patent law, which [the transfer from the Council] to the courts made,<sup>26</sup> was the view taken by the courts as to the consideration for the grant of the patent. Under the old practice the consideration for the grant was the introduction into, and working of, a manufacture which was new to Great Britain.

Under the new practice the consideration is the written disclosure of the invention contained in the specification.<sup>27</sup>

He goes on to point out that the reason why the courts were able to introduce this new principle into the law was a change in the kinds of invention for which patents were sought. He cites Hulme:<sup>28</sup>

So long as the monopoly system aimed at the introduction of new industries such as copper, lead, gold and silver mining, or the manufacture of glass, paper, alum etc. etc., the requisition of a full description would have required a treatise rather than a specification . . . But when, by natural development, the system began to [be] utilised by inventors working more or less on the same lines for the same objects, the latter for their own protection draughted their applications with a view of distinguishing their processes from those of their immediate predecessors, and of ensuring priority against all subsequent applicants. Hence, while the recitals of the sixteenth century deal almost exclusively with suggestions of the advantages which would accrue to the State from the possession of certain industries, or with statements respecting steps taken by the applicants to qualify themselves for the monopoly, those of a later date not infrequently deal with the technical nature of the proposed improvement. These recitals, therefore, while forming no part of the consideration of the grant, are undoubtedly the precursors of the modern patent specification . . . About the year 1730 the form of proviso voiding the grant in the case of non-filing a specification was substituted. Still the practice of requiring a specification cannot be said to have been recognised as essential to the validity of the grant prior to the middle of the eighteenth century.

Now the question of the origin of the practice of enrolling specifications is of some importance. If enrolment were *required* from the outset, it would suggest that the function of the specification had always been the dissemination to the public of information about the invention,<sup>29</sup> in which case *Liardet v. Johnson* looks much less revolutionary. Hulme had another explanation for the origins of the practice, however. He suggested that the enrolment of specifications was done in the first place at the suggestion of the grantees, to make the grant more certain. This suggestion was largely based on certain words in Nasmyth's Patent 1711, which is the first patent to involve enrolment of a specification,<sup>30</sup>

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<sup>26</sup> That is, the transfer to the courts of the Council's jurisdiction in patent cases.

<sup>27</sup> XI HEL 427.

<sup>28</sup> (1897) 13 LQR 313, 317.

<sup>29</sup> The distinction between the description element of the specification and the claim was a statutory creation – Patents Act 1883 s. 5 – First Schedule. Actual practice long pre-dated the Act, however, to the extent that patentees did end their specifications with a statement of the features of the invention that they considered new and important. See *R v. Else* (1785) Dav Pat Cas 144, 1 Web 76, Carp 103; *Bovill v. Moore* (1816) 2 Marsh 211. The requirement of a claim was introduced in the United States by the Act of 1836.

<sup>30</sup> Patent Roll 10 Anne Part 2.

in particular the words that the grantee had ‘proposed to ascertain the same in writing’. He also relied on an apparent anticipation of enrolment in Sturtevant’s Patent of a hundred years before. However, Davies demonstrates that Hulme may have over-estimated the importance of this particular instance.<sup>31</sup> Seaborne Davies however adduced two further arguments to support Hulme’s view: (1) if the Crown had insisted on enrolment, it is strange that for the next 20 years or so,<sup>32</sup> enrolments are intermittent, and it is not until 1723 that it is definitely stated that a patent will be voided for non-enrolment within the time specified;<sup>33</sup> (2) a letter in State Papers Domestic dated 20 May 1710 addressed to Boyle, the Secretary of State, from one ‘T. T.’ discloses the dangers of piracy to which inventors were exposed,<sup>34</sup> suggesting that inventors at the time were exercised to find a solution to this problem. We will argue that alternative explanations are available both for the fact that enrolments were at first sporadic, and for the fact that the system of enrolment was introduced in 1711. The best support for Hulme’s argument is the wording of Nasmyth’s Patent. As Seaborne Davies pointed out, however, it is dangerous practice to rely too much on the exact language of historical documents. Even in the limited field of patent law, examples can be found of suggestions emanating from the Crown being embodied in patents in language which suggests they were made by the patentees, and vice versa.<sup>35</sup>

No direct evidence appears to exist about the origin of the practice, and we must therefore make what we can of the circumstantial evidence. In this respect both Hulme and Davies seem surprisingly to have overlooked two obvious facts. In the first place, there is a time stipulated in the proviso for the filing of the specification and the time stipulated differs from patent to patent throughout the century.<sup>36</sup> Secondly, the filing of drawings and plans of mechanical inventions becomes increasingly common from about 1741.

The fact that the time stipulated for filing is sometimes one month, sometimes two, sometimes three, sometimes four and sometimes six months is difficult to explain if the filing of the specification was suggested by the patentees.<sup>37</sup> Surely a uniform time would have been fixed. More importantly, why in fact stipulate a time at all? It looks more likely that a bargain was struck between the Crown and the applicant on a case-by-case basis.<sup>38</sup> Why then were specifications not filed in all cases between 1711 and 1734? A clue may

<sup>31</sup> (1934) 50 LQR 86, 91.

<sup>32</sup> It did not become the rule until after 1734, and was not uniformly required until after 1740. There are exceptions thereafter, e.g. Nos. 581 and 653 – Davies, *loc. cit.*

<sup>33</sup> Davies does not give the reference, but it is in fact Champion’s Patent 1723 No. 454. See also Barlow’s Patent 1731 No. 526.

<sup>34</sup> S. P. Dom. Anne, Bd. 12 No. 74.

<sup>35</sup> (1934) 50 LQR 86, 91.

<sup>36</sup> Towards the end of the period it is generally, but not always, one month.

<sup>37</sup> In Nasmyth’s grant itself, a period of one month was originally fixed, but at his request the period was extended to six months – S. P. Dom. Anne, Bd. 16 No. 88. This is cited by Davies, *loc. cit.* Indeed we can find the odd example of what amounts to a specification being included in the grant itself until quite a late period, e.g. Plenius Patent 1745 No. 613.

<sup>38</sup> See, e.g., Puckle’s Patent 1718 No. 418 which was for a precursor of the Gatling gun. It recites that the Petitioner ‘having humbly prated etc. buy thinks it not safe to specify wherein the new Invention consists . . . ascertained etc. . . .three months’. A plan of the gun was enrolled.

possibly be gathered from the early practice of the American patent system. The Patent Act of 1790 provided for an examination for conformity with the laws, and for novelty, by a Board of Examiners consisting of the Secretary of State (Thomas Jefferson), the Attorney-General and the Secretary of War. It was soon discovered however that the Board of Examiners could not cope with the workload. The burden of work involved proved too much for these busy officials, and after three years the examination requirement was dropped and replaced by a simple registration system, validity being determined by the district courts. Registration therefore involved simply a clerical act.<sup>39</sup> Now the English patent system throughout the eighteenth century similarly involved purely clerical acts. The procedure for the grant described by Collier in this *Essay on the Law of Patents* of 1803 is the same as at the beginning of the eighteenth century, with of course a requirement of enrolment of a specification by then being invariable. A petition accompanied by an oath taken before a master in Chancery declaring the invention to be new was formally made to the Crown. It was dealt with by the Secretary of State, who in turn passed it on to the Attorney-General or Solicitor-General for a report. The particular Law Officer then reported to the Crown as to whether it should be granted. Assuming the reports were favourable, the patent would be issued and the specification would then have to be enrolled within the time specified. The report of the Law Officers was a matter of course.<sup>40</sup> At no point did the system offer any real opportunity for examination as to novelty, nor in due course as to the adequacy of the specification. These matters would only be tested if the validity of the patent were challenged. The fact that the Law Officers probably administered the system in the most cursory way is suggested by a case as late as 1774 where the Lord Chancellor refused to append the Great Seal to a patent, presumably on the ground that the claim was so obviously fraudulent.<sup>41</sup> Indeed the very fact that the specifications were required to be enrolled in Chancery, rather than form a part of the petitioning procedure, suggests that the Law Officers did not wish to be encumbered with additional administrative work. We must remember that they were busy men, who throughout the century had to handle their work through their chambers. No doubt enrolment could be helpful to inventors themselves in assisting them in asserting their patent rights against infringers and the idea of requiring some form of enrolment may have gained currency among them.<sup>42</sup> Equally, however, it seems probable that it was the Law Officers themselves who, having become dissatisfied with the dissemination of information about inventions, hit upon the idea of requiring enrolment where they thought fit, and when they thought fit, which in the early days was no doubt when, occasionally, they actually put their minds to it.<sup>43</sup> It is also to be noted that, throughout the century, specifications were enrolled

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<sup>39</sup> See Coryton, *A Treatise on the Law of Letters Patent*, H. Sweet: London (1855).

<sup>40</sup> Godson, *Treatise on the Law for Patents and Inventions*, Saunders & Benning: London, p. 140.

<sup>41</sup> Hannay's Patent 1774. The subject was a protective wash against venereal disease. See also *ex parte Reilly* (1790) 1 Ves Ch 112 – refusal to seal a patent for presenting Italian operas.

<sup>42</sup> See Davies (1934) 50 LQR 86 and 260 for possible seventeenth-century anticipations.

<sup>43</sup> Nasmyth's application passed through the hands of the Attorney-General. It is unlikely however that such an innovation would have been made without consultation. In Lombe's Patent No. 422 (1718) which involved the pirating of an Italian machine for making organzine (silk), the discovery of the Italian secret was considered so important that a requirement that models (presumably plans) be permitted to be taken and lodged in the Tower was inserted.

which could in no way have enabled those skilled in the art to carry out the invention, and which would have been valueless in an infringement action, suggesting therefore that enrolment was always a requirement imposed upon persons often reluctant to disclose their inventions.<sup>44</sup> There were two opposing views on the desirability of permitting patents for useless inventions. One view was that it did not matter: if an invention were a commercial success, that indicated its utility (a view which survives to this day); if not, no harm was done because obviously no one wanted the thing. The other view was that these valueless patents were an oppression.<sup>45</sup>

It seems likely moreover that from the outset failure to enrol, or failure to enrol an adequate specification, would have been liable to render the patent void *if challenged*. If it is correct to assume that enrolment was from the outset a requirement, it is unlikely that anyone would be required to enrol a specification which did not necessarily have to convey any useful information at all. Why indeed, as we have just observed, are so many specifications vague and evasive if patentees were trying to make their grants more certain?<sup>46</sup> Why bother to enrol such specifications? The fact is that it is not specifically declared that a patent is void for failure to file until 1723 is not necessarily particularly significant.<sup>47</sup>

Why then did enrolment first become a requirement in 1711? We have noted the evidence adduced by Seaborne Davies that inventors themselves were concerned about piracy. However, a possibly more significant development which supports our argument has been suggested by Dr Jeremy Phillips. From 1709 a proprietary monopoly in books was granted, actionable when copies were deposited, the value of the ‘monopoly’ depending on the text of the book.<sup>48</sup> It seems quite likely that this system was transferred to patents, and indeed the tendency to confuse the two types of monopoly continued for most of the century. For example, ‘The Patent’<sup>49</sup> begins with the lines –

Hail to the Patent! Which enables Man  
To vend a *folio* (emphasis added) or a warming pan

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<sup>44</sup> The validity of the patent may not have been of prime importance to many ‘inventors’. Merely to describe the goods as ‘patented’ seems to have had a marketing draw. ‘The Patent’, a poem by the author of ‘The Graces’ (1776) contains the following lines:

Hail to the Patent! which enables man To vend a folio . . . or a Warming-pan.

This makes the Windlass work with double force, And Smoke-jacks whirl more rapid in their course; Confers a sanction on the Doctor’s pill,

Oft known to cure but not unknown to kill. What man would scruple to resign his breath, Provided he could die a Patent death.

<sup>45</sup> See *Hornblower v. Boulton* (1799) 8 TR 95, 98 per Kenyon CJ (later Lord Kenyon), and see ‘Observations on the Utility of Patents’ (1791), catalogued in the BL under ‘Kenyon, Lloyd’, *passim*, but especially pp. 18–19. It is probably by Beetham, the inventor of a washing mill, given the extensive ‘plug’ given for that apparatus.

<sup>46</sup> Most of the early specifications are vague, but some are particularly so. See e.g. Allen’s Patent No. 513 (1729); Churchman’s No. 514 (173) and 539 (1733); and Henry’s No. 601 (1744).

<sup>47</sup> Champion’s Patent No. 454 (1723).

<sup>48</sup> 9 Anne c. 19 (1709–10). Copyright is not of course a monopoly in the same sense that a patent is. *Millar v. Taylor* (1769) 4 Burr 2303 illustrates this tendency to equate the two, see especially pp. 2387 *et seq.*

<sup>49</sup> Above n. 44.



The second point we believe to be significant is the tendency to file plans and drawings after about 1741. This is no doubt connected with the increasingly technical nature of inventions, which were difficult to explain in words, but it is consistent with the view that the doctrine that the function of the specification was to instruct the public long preceded *Liardet v. Johnson*. The older doctrine of instruction by means of personal efforts and supervision must simply have fallen into disuse: it was certainly not expressly abolished in *Liardet v. Johnson* or in any other known authority. The filing of plans must also have become increasingly necessary because many inventions were improvements to existing manufactures, rather than entirely new manufactures. Coke had held in *Bircot's* case that an addition to an existing manufacture was not patentable,<sup>50</sup> but in the quite different industrial climate of England in the eighteenth century this view was clearly untenable, and actual practice seems to have significantly anticipated an actual decision to this effect.<sup>51</sup> Apart from anything else, adherence to Coke's view would have begged the awkward question as to when an improvement transformed a machine into another machine. In general, from quite early on, specifications for well-known but complicated machines spell out the novel features and make these the specific subject of the patent. This is well illustrated by the harpsichord and piano patents.<sup>52</sup> It was not always the case, however. In this respect too, specifications are sometimes vague and evasive and, as has been pointed out above, this was inevitable in the absence of an examination system.<sup>53</sup> Moreover, as we will see later, there is clear evidence that even before *Liardet v. Johnson* inventors had to confront the agonising choice between exact specification, with the risk of 'inventions' being distinguished by minor variations, and over-general specifications, with the risk of invalidity.

Finally, if *Liardet v. Johnson* were of central importance, we would expect it to be well recorded and much used in the literature on patents which appeared from early in the nineteenth century. As we shall see, it is not. After a short popular notoriety, because of the parties involved in the litigation, it virtually passed out of public consciousness. Let us now consider the case.

## 2.2 The Patent

On 3 April 1773,<sup>54</sup> John Liardet was granted a patent for a composition or cement upon what was by this time the usual proviso that he should enrol a specification in this case within four months.<sup>55</sup> According to his naturalisation bill,<sup>56</sup> John Liardet was born in Lausanne, in the Canton of Berne, Switzerland. He was the son of George and Margaret

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<sup>50</sup> Inst. 181, 182–3.

<sup>51</sup> *Morris v. Branson* (1776), a decision of Lord Mansfield referred to in *Boulton & Watt v. Hornblower* (1795) 2 HY B1 489.

<sup>52</sup> See Nos. 581 (1741), 613 (1745), and 1081 (1774). Similarly, watch patents, No. 698 (1755). In *Jessop's* case, referred to in *Boulton v. Bull* (1795) 2 H B1 487, 489, a watch patent was held void because it extended to the whole watch, not the particular movement.

<sup>53</sup> See, e.g., No. 947 (1769) Shudi's Patent for a harpsichord.

<sup>54</sup> Part 15 No. 5 ms. 10–12.

<sup>55</sup> Enrolled 3 August 1773 – i.e. within the time. 1 Y & CC 527.

<sup>56</sup> 16 Geo III c. 41 passed 25 March 1776.

Liardet. He was a Protestant and apparently a clergyman. For many years before 1773 he had ‘employed his time and thoughts in philosophical and mercantile researches for the improvement and embellishment of arts, and your orator attentively pursued a course of speculation and experiments for that purpose, with a prospect and view of deriving some profit and emolument from such his discoveries’.<sup>57</sup> These researches produced his patented stucco, which formed the bone of contention in *Liardet v. Johnson*. This invention had been taken up by the Duke of Northumberland, who put Liardet in touch with the Adam family.<sup>58</sup> The Duke recommended a partnership, Liardet being ‘a very studious abstracted man and wholly inexperienced in transactions of that nature’. In April 1774 Samuel Smith, an attorney of Marylebone, drew up an agreement. Liardet, it appears, could not understand English, and Lady Straughan, a friend of Liardet’s wife, approved the draft. The partnership was dated 20 May 1774, and in consideration of £100 paid on that date, and £400 to be paid later, Liardet assigned the patent to the Adams.

The patent was reassigned to Liardet on 10 February 1776 so that Liardet could apply for an Act of Parliament extending the term. An Act extending the term to 18 years was duly passed. The Act required Liardet to enrol a specification within four months, giving details of improvements to his original specification.<sup>59</sup> The enrolment was made on 4 September 1776. This Act fixed the prices which could be charged to the public at 6d per square foot on the surface of all plain buildings, and 2d per foot running measure for arrises. No reassignment of the patent to the Adams took place, but the Adams continued making and using the composition (presumably by implied licence from Liardet).

John Johnson, who, at the time of the trial, was living in Berners Street, in London, came originally from Leicester. He was at the beginning of a successful career in the course of which he built up a successful practice in London and designed several country houses. He also became county surveyor to Essex, and designed several buildings in Chelmsford. The Shire Hall there is perhaps his most famous work. The substantial allegation against Johnson was that he had inspected the specification,<sup>60</sup> copied it, and used the composition. There was also, however, an allegation that he had suborned some of the Adams’ workmen to acquire the trade secrets.

In May 1777,<sup>61</sup> a bill was filed by Liardet and the four Adam brothers, John, Robert, James and William, against John Johnson, Edward Downes and Edward Bellman, and praying an account and an injunction.<sup>62</sup> An affidavit setting out the grounds of complaint was filed on 27 May 1777. Johnson in reply put in an affidavit which tended to impeach the novelty of Liardet’s cement and also to prove that what he had used was materially different from it, but which did not directly deny the novelty of Liardet’s composition.<sup>63</sup>

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<sup>57</sup> For the following account of the background to the case, and the subsequent case of *Liardet v. Adam*, we are indebted to Frank Kelsall of the then GLC Historic Buildings Division, and particularly to his paper to the BIBA Library Group on 28 January 1974.

<sup>58</sup> The architects.

<sup>59</sup> 2 B 411 Hil 1777.

<sup>60</sup> This allegation presumably referred to the second specification. In fact he appears to have inspected both – n. 61 below.

<sup>61</sup> That is, a bill in Chancery, a document setting out the plaintiff’s case.

<sup>62</sup> PRO/C. 12/1346/22.

<sup>63</sup> 1 Y & CC 527, 528.

Counsel having been heard, on 12 July 1777 Bathurst LC issued an injunction against Johnson and his servants restraining him from making, using or vending the composition, on the plaintiff's undertaking to bring an action at law and proceed to trial without delay. Johnson, Downes and Bellman put in Answers on 2 September 1777.<sup>64</sup>

Johnson's Answer first of all asserted that he had been told that Liardet was not the inventor, nor were the 'imaginary improvements' made by Liardet.<sup>65</sup> The allegation was supported by citing supposedly similar recipes to those of Liardet's specification: (a) *A New and Universal Dictionary of Arts and Sciences* published by John Hinton (1751) and the second edition of this work published by Mr Owen (1764); (b) Charles Rawlinson's patent for a composition for slates on roofs (published in his *Directory for Patent Slating* (1772)). He also asserted that his own invention did not infringe Liardet's but improved on it by the addition of serum of blood. He had inspected Liardet's second specification to make sure that he was not infringing the patent.<sup>66</sup> John Johnson's Answer was signed by Johnson himself, and by Lloyd Kenyon and John Mitford, his counsel. Upon the Answers coming in, the plaintiffs brought an action on the case against Johnson. The declaration contained four counts: 'making, using and putting in practice' his invention; 'making, using and putting in practice' part of his invention; 'counterfeiting, imitating and resembling it'; 'making and causing to be made additions to his invention, whereby to pretend himself the inventor and for pretending himself the inventor'.

The case was first tried before Lord Mansfield on Saturday 21 February 1778 at Westminster Hall. The trial lasted six hours, and the jury was out one hour and brought a verdict for the plaintiff.<sup>67</sup> The fact that the Adam brothers were fellow Scots, and had stuccoed Mansfield's own house at Kenwood (Caen Wood) with the composition, caused some unfavourable comment and allegations of bias.<sup>68</sup> It may explain Mansfield's subsequent readiness to grant a new trial, on what does not seem to have been markedly different evidence from that given at the first trial.<sup>69</sup> He granted a rule saying that they ought to consider whether on the first trial the cause had been so completely discussed as to be a ground of perpetual injunction.<sup>70</sup> The second

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<sup>64</sup> 'I suppose though, as no proceedings were had against him, his answer was not stated in the briefs for the Plaintiff' – 1 Y & CC 527, 530. This insertion is presumably the actual reporter of the case, Douglas.

<sup>65</sup> He also questioned whether the original specification was enrolled in time, but this point does not seem to have got anywhere – 1 Y & CC 527.

<sup>66</sup> Probably both specifications – see *An Appeal to the Public on the Right of Using Oil Cement* (1778).

<sup>67</sup> *London Chronicle*, Tuesday 24 February 1778, *Daily Advertiser*, 24 February 1778. A fuller report combined in the *Morning Post and Daily Advertiser*, 23 February 1778, is quoted verbatim by Hulme in (1897) 13 LQR 313. Mansfield's own notes of this trial survive in his Notebooks, but not of the second trial.

<sup>68</sup> Evidence to the effect that Mansfield's house had been done four years previously was given by [Thomas] Rose, a well-known plasterer.

<sup>69</sup> This is confirmed by the notes on the first trial taken by Mansfield. The evidence given at the second trial appears in *An Appeal to the Public on the Right of Using Oil-cement or Composition for Stucco*.

<sup>70</sup> 1 Y & CC 526.

trial, which is reported as having taken place before Mansfield on 18 July 1778 at the Guildhall,<sup>71</sup> lasted 14–15 hours.<sup>72</sup>

### 2.3 The Cements

As Frank Kelsall has noted,<sup>73</sup> the trial, which should have been on the law of patents, rapidly turned into a trial of the relative merits of the cements.

The practice of stuccoing buildings went back as far as the sixteenth century, but became widespread only in the eighteenth century, with the fashion for Palladian architecture. The trouble was that the English climate is not as kind to stucco as the Italian, and the search therefore began for a more durable and lasting composition than lime plaster. In general the supposition seems to have been that an oil-based cement would be more durable, and the compositions considered in *Liardet v. Johnson* all employed this medium. It was not until the scientific experiments conducted by Dr Bryan Higgins (a witness in *Liardet v. Johnson*)<sup>74</sup> and by Smeaton demonstrated the fallacy of this theory, that a durable stucco emerged. Oil-based cements are a kind of putty, and as we all know, oil dries out and cracks develop. Water can penetrate these cracks and the frost then causes the stucco to come away from the wall. This in fact seems to have happened to Liardet's cement, as is apparent from the subsequent case of *Liardet v. Adam* in which he attempted to obtain from the Adams an account of the profits they had made.<sup>75</sup>

The plaintiff's invention consisted of a mixture of whiting, sand, lead (white or red), oil and drying ingredients, mixed together in certain proportions for the first coat, and differing proportions for the second coat. The chief novelty of this invention allegedly lay in the addition of a drying agent. The defendant alleged that his composition consisted of lime and sand, oil and serum of blood, in other words, that the plaintiff's recipe had no serum of blood, the defendant's no lead and no drying ingredients. However, as the evidence came out in court, it appeared that serum of blood was a useless addition, and that the defendant did in fact use both lead and drying ingredients. Dr Higgins performed an experiment upon a sample provided by the plaintiff, and upon a sample removed from a house which Johnson had plastered. He found the differences trifling.<sup>76</sup>

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<sup>71</sup> It is reported in the *Morning Post and Daily Advertiser* 20 July 1778 and the *Gazeteer and New Daily Advertiser* of 20 July 1778. The Notebook which must have contained Mansfield's notes of the trial is missing.

<sup>72</sup> Open letter, Joseph Bramah to Eyre CJ, BL Law Tracts 1716–1816. Bramah asserts that he was present throughout the trial. 1 Y & CC 526 gives it as lasting from am to 11.00 pm.

<sup>73</sup> See n. 24 above.

<sup>74</sup> Higgins was working on his own recipe at the time of the trials and obtained a patent on 8 January 1779. See Gibbs, 'Bryan Higgins and his Circle', *Chemistry in Britain* (1965), pp. 60–63. Reprinted in A.E. Mussan (ed.), *Science, Technology and Economic Growth in the Eighteenth Century*. London. 1972.

<sup>75</sup> Complaint of the Reverend John Liardet, 18 December 1782. PRO/C12/921/11. Again Frank Kelsall must be thanked for details of this case. The Answers filed by the Adams complain about the failures of the cement.

<sup>76</sup> This evidence by Higgins provoked the following lampoon from the Johnson camp:

Mr Alderman Cuttle, of Pudding Lane being much disordered on the morrow of the last city feast, dispatched his apothecary with four ounces troy of the indurated faeces, protruded a

Thus the question of the validity of the plaintiff's patent came to be raised. Was the cement a new invention or not? On this question much evidence was adduced, which in effect amounted to a challenge to the validity of the patent on the ground of 'mosaic anticipation';<sup>77</sup> Alberti's book,<sup>78</sup> a dictionary of 1726,<sup>79</sup> and four more to 1764. None of the recipes contained in these sources contained lead. Next Emerton's specification of 1737 and Rawlinson's of 1772 were produced. Rawlinson's patent was for a mortar for laying slates in, and it contained neither sand nor drying ingredients. Rawlinson alleged that in 1772 he had used a recipe similar to the plaintiffs, but had not patented it. Dr Higgins again did experiments on Rawlinson's three recipes and found the differences between them and the plaintiff's recipe to be very great. The questions for the jury were therefore: (1) whether the defendant had used the composition; (2) whether it was new or old; (3) whether it was in use in the trade, or really was a new invention; (4) whether the specification was sufficient to teach other artists to make use of the compound. Mansfield, it may be noted, relied on no authorities in posing these questions, but it is clear that the important fourth question reflected a view current before the case.<sup>80</sup> The jury brought in a verdict for the plaintiffs, and on 5 July 1780 Eyre B issued a perpetual injunction against Johnson.<sup>81</sup>

### 2.3.1 The subsequent record of the case

The *nisi prius* trials are not reported in any law report series. The first trial was reported in *The Morning Post* of 23 February 1778, *The Public Advertiser* of the same day and the *St James's Chronicle* 21–24 February 1778.<sup>82</sup>

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*retro* in the form of a Bologna sausage, requesting the Doctor to make an assay of the compound, and return the particulars of the analysis; a request he complied with in the terms and manner following:

Of turtle 3oz 0dt 0gr

Of green fat 0oz 10dt 0gr or more

Of marrow pudding 0oz 0dt 4gr or less Of crumb pudding 0oz 0dt 4gr or less Total 4oz 0dt 0gr

Let the world judge if an adept capable of decompounding aliment, so levigated by the animal organs or secretia and excretia as must have been the calipash, palipee, marrow pudding etc above mentioned – Let the impartial world judge, we say, if such an adept in chemistry can be incapable of discriminating in like manner the same quantum of sand, calcareous earth, linseed oils, and calx of lead, made up in the form of stucco.

*Magna est veritas et prevalebit*

<sup>77</sup> According to Hulme, this was a further innovation for which this case was responsible – see text above n. 17.

<sup>78</sup> Presumably the 1726 translation of his works by J. Leoni: see *An Appeal*, p. 52.

<sup>79</sup> See *An Appeal*, p. 56, and Mansfield's summing up in *A Reply to Observations and Two Trials at Law* (1778).

<sup>80</sup> See letter written to Wolf in 1769 by William Small, cited in Robinson, *loc. cit.*

<sup>81</sup> 1 Y & CC 526.

<sup>82</sup> Wyndham Hulme records having found only these three reports, having searched the: *Morning Chronicle*, *Gazetteer & New Daily Advertiser*, *Daily Advertiser*, *London Chronicle*, *London Evening Post*, *General Advertiser* and *Morning Intelligencer*, *General Evening Post*, *Westminster Journal* and *London Political Miscellany* – see the documents placed by him in the Patent Office Library (now the British Library) under the title 'Liardet v Johnson'. It also appears however in the *London Chronicle*, 24 February 1778. It is by no means clear that he realised that a second and

The second trial is known to us principally through pamphlets published by the parties after the second trial. Johnson caused to be published *An Appeal to the Public on the Rights of Using Oil-cement or Composition for Stucco*.<sup>83</sup> The Adams published a *Reply* to this pamphlet which sets out Mansfield's summing up to the jury and Wallace's reply to Dunning, who had been one of Johnson's counsel.<sup>84</sup> Joseph Bramah also wrote an account of the case in an open letter to Eyre B when he was involved in *Boulton v. Bull*.<sup>85</sup>

As soon afterwards as 1787 in *Turner v. Winter*,<sup>86</sup> Buller J mentions only the case of trusses,<sup>87</sup> but not *Liardet v. Johnson*. The reporter has added a reference to the fifth edition of Buller's *Nisi Prius* at p. 75 which is in fact *Liardet v. Johnson*. This is no doubt the source of subsequent confusion, for a number of later authorities identify *Liardet v. Johnson* as the case of trusses. Buller's *Nisi Prius* in fact incorrectly records the outcome.<sup>88</sup> His version is evidently based on the defendant's pamphlet.<sup>89</sup> This version finds its way into Carpmael's<sup>90</sup> and Webster's<sup>91</sup> Patent Cases, which therefore also mis-record the outcome. Davies' collection of cases published in 1816 only has Lord Ellenborough's citation of the case in *Hamar v. Playne* (sic)<sup>92</sup> for the proposition that the specification must teach persons of reasonably competent skill to make the invention, not persons utterly ignorant of the whole art. This is interesting, as Davies worked in the Rolls Chapel Office and clearly had a fairly good knowledge of the case. His collection begins with the *Arkwright* cases.<sup>93</sup> These, *Turner v. Winter*,<sup>94</sup> and the cases on Watt's steam engine<sup>95</sup> are the principal cases relied on in the treatises for the principles of law they expound. The only decision of Mansfield correctly and regularly relied on is *Morris v. Branson*,<sup>96</sup> mentioned above.

*Liardet v. Johnson* does not fare well in the treatises either. Collier's *Essay on the Law of*

longer trial had taken place on 18 July 1778, and that it is that to which the pamphlets mentioned in the following paragraph refer.

<sup>83</sup> Printed 1778 and sold by J. Hand, 409 Oxford Street, J. Ben, Paternoster Row, and J. Pridden, 100 Fleet Street. See also the reports in the *Morning Post* and *Daily Advertiser*, 20 July 1778.

<sup>84</sup> *A Reply to Observations on Two Trials at Law* (1778).

<sup>85</sup> BL Law Tracts 1716–1816, *A Letter to the Rt Hon Sir James Eyre CJCP on the subject of the cause Boulton & Watt v. Hornblower & Maberley*, John Stockdale, Piccadilly 1797.

<sup>86</sup> (1787) TR 602, Web 77, Buller J observed that 'Many cases upon patents have arising within our memory, most of which have been decided against the patentees on the ground of their not having made a full and fair disclosure of their inventions' – he held the specification bad in that case.

<sup>87</sup> This appears to involve Brand's Patent No. 996 (1771). The case does not appear in the Mansfield Court Notebooks. It is the only patent case referred to in Sir William David Evans, *Decisions of Mansfield*, vol. 1 (1803), p. 404 under 'Patents'. Evans cites Buller J in *Turner v. Winter* as his source.

<sup>88</sup> 5th ed., p. 75.

<sup>89</sup> Hulme (1902) 18 LQR 280, 287.

<sup>90</sup> (1843), p. 118.

<sup>91</sup> (1884), p. 53.

<sup>92</sup> At p. 318.

<sup>93</sup> *Arkwright v. Mordaunt* (1781), Webster 59, *Arkwright v. Nightingale* (1785), Webster 60.

<sup>94</sup> (1787) 8 TR 95.

<sup>95</sup> *Boulton & Watt v. Bull* (1795) 3 Ves Jun 140, 2 H Bl 463. *Hornblower v. Boulton & Watt* (1799) 8 TR 95.

<sup>96</sup> (1776) Webster 51.

*Patents*<sup>97</sup> does not list the case in the table of authorities, though it is mentioned at p. 99 where the somewhat enigmatic assertion appears that it was decided ‘consistently with the principle that grants of any known trade are void as against freedom of trade’. Godson’s *Treatise on the Law of Patents*<sup>98</sup> and John William Smith’s *Epitome of the Laws Relating to Patents*<sup>99</sup> confuse it with the case of trusses. We can find no mention of the case at all in Carpmael’s *Law of Patents*.<sup>100</sup> Webster’s *Law and Practice of Letters Patent*<sup>101</sup> correctly states that the subject matter was stucco, but mis-records the outcome. Hindmarch’s *Treatise on the Law of Patents*<sup>102</sup> also confuses *Liardet v. Johnson* with the case of trusses. Billings’ *Law and Practice of Patents*<sup>103</sup> mentions the case twice,<sup>104</sup> once for the famous ‘water tabby’ example of an accidental discovery,<sup>105</sup> and once for the proposition that the meaning of a specification is that others may be taught to do the thing for which the specification (*sic*) is granted.<sup>106</sup>

The only law report of *Liardet v. Johnson* concerns the Chancery proceedings of 5 July 1780 in Lincoln’s Inn Hall subsequent to the trials at *nisi prius*.<sup>107</sup> It records that the plaintiffs in Chancery having replied, the cause was at issue and the defendants examined a number of witnesses, chiefly those who had been produced by them at the trials at law, with a view to establishing the same points on which they had relied before the jury. The plaintiffs only proved the records of the two verdicts in their favour, contending that as no new trial had been moved after the second verdict it was too late to impeach its truth, and that the temporary injunction ought now to be made perpetual. The defendants replied that the Court would never grant a perpetual injunction upon a verdict at law, that it would always direct an issue first and if dissatisfied with the verdict direct a new trial, that the defendants’ evidence most completely contradicted the verdict as to novelty, fitness and clearness of the specification and infringement by the defendants. Eyre B and Masters Graves and Leeds sitting for the Lord Chancellor decided that the injunction should be granted. It was observed that if the verdict was not to be conclusive, the plaintiff had been deceived by being brought into an undertaking to bring action, the result of which could not ascertain the right. Eyre B observed, however, that the injunction might not benefit the plaintiffs, because if the defendant were subsequently to be alleged to be infringing the patent, the defendant

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<sup>97</sup> (1803) – see below for a description of this work.

<sup>98</sup> (1823), p. 12.

<sup>99</sup> (1836), p. 18. This carries Amos’s lectures at London University on Patents as an Appendix. Amos cites Buller’s *Nisi Prius* and the case of trusses.

<sup>100</sup> 0 (1832).

<sup>101</sup> 1 (1841), p. 45.

<sup>102</sup> 2 (1845).

<sup>103</sup> 3 (1841), p. 45.

<sup>104</sup> 4 Pp. 25 and 89.

<sup>105</sup> Cited by Buller J in *Boulton v. Bull* (1795) 2 H Bl 487. Mansfield does refer to accidental inventions in *Liardet v. Johnson*, but cites Sir Epicure Mammon’s discovery of the cure for the itch (Johnson’s *The Alchemist*), not the water tabbies (a kind of watered silk).

<sup>106</sup> Citing Buller’s *Nisi Prius*.

<sup>107</sup> (1780) 1 Y & CC 527. Counsel for the plaintiffs at this hearing were [James] Mansfield, MacDonald, Arden, Thompson and Douglas. Counsel for the defendants were Maddocks, Kenyon and Mitford.

might adduce the evidence adduced to the Court of Chancery and perhaps show that no infringement had taken place.

This report is appended to the report of *Thomas v. Jones*<sup>108</sup> with a note that it had been extracted from the twentieth volume of Sergeant Hill's manuscripts, and, though not cited in that case, it would have been had argument been addressed to the Court on the question whether the Court would grant a perpetual injunction after a verdict at law, where the verdict was in an action brought by the plaintiff in equity, and not in an issue or action directed by the Court. The reporter is stated to have been Douglas.<sup>109</sup>

### 2.3.2 The law of patents in 1800

In 1785 a Committee of Patentees was formed with a view to effecting reforms and improvements in the law of patents. Abraham Weston, one of Boulton and Watt's attorneys, reported to the Committee:

... the books are silent in agitating the question: What is the law of Patents? In the reports since last Mansfield has sat on the bench, there are not even the Titles 'Patent' or 'Monopoly' in the Indexes to any of the reports of Cases adjudged in his time, tho' it is very well known, that a great number of Patent Cases have been tried before him; nor are there any other of the Books that furnish any information on this head.<sup>110</sup>

In fact it was not until after the *Arkwright* and *Boulton & Watt* cases that any significant literature appeared.

A note in Watt's hand probably dating from 1795 lists his own 'Doubts and Queries on Patents':

Whether the King can grant a patent for a method of doing or performing a mechanical process.  
 Whether in such a case patents would be valid without a description of an *organised* machine.  
 Whether a man improving his invention after patent granted, does not invalidate the patent.<sup>111</sup>  
 Whether patentee refusing to add his patent to an old machine does not render patent void [i.e. for failure to exploit the invention presumably].  
 Whether a patentee asking more than a common fair profit does not invalidate.  
 Whether a patent for an improvement of an old invention is valid.  
 Whether a patent for a new mode of using old instruments is valid.  
 Whether a patent for a chemical process is valid?<sup>112</sup>

<sup>108</sup> (1842) 1 Y & CC 510.

<sup>109</sup> A technical note on *Liardet v. Johnson*: the lead compounds added to Liardet's composition would act as driers. Johnson's composition seems to have been seriously defective in having no driers. Serum of ox blood was added to cements down to modern times, but for the purpose of causing apparent ageing. It is possible that Johnson's serum of blood was in fact red lead or potassium permanganate, well-known linseed oil driers, and that Johnson was simply trying to conceal his activities.

<sup>110</sup> Observations on Patents Parcel E, Boulton & Watt Collection, Birmingham Reference Library cited by Robinson, *James Watt on the Law of Patent in Technology and Culture* (1972), p. 115. The *General View of the Decisions of Lord Mansfield* by William David Evans, which appeared in 1801, gives only Buller J's citation of the case of trusses under the heading 'Patents'. That citation is alleged to have been made in *Farrer (sic) v. Winter* 1 TR 602.

<sup>111</sup> It will be recalled that Liardet had done this, and nevertheless had his patent extended.

<sup>112</sup> See Robinson, *loc. cit.*



Questions (1), (2) and (8) were in fact resolved in the Watt litigation. Question (6) had been discussed by Mansfield in *Morris v. Branson* cited in *R v. Else*.<sup>113</sup> Watt himself seems to have thought that Question (7) should be answered in the affirmative, as it subsequently was. Question (3) remained unanswered even by the time of the 1829 Commons Select Committee. Questions (4) and (5) seem to reflect the old fears about monopolies and involve issues that are debated to the present day.

Watt himself was much concerned to effect reform of the law of patents and actually drafted a Bill. It never, of course, reached the statute book. Probably vested interests in the fees which the existing system provided fairly abundantly were as much a block on change as lack of general understanding and sympathy.

Two publications, which it is not clear were known to Hulme, nor possibly to Davies or Holdsworth (though the first of them is listed in the old Sweet & Maxwell *Bibliography of the Common Law*), are of some interest in trying to evaluate the extent to which the law and practice had developed by 1800. These are John Dyer Collier's 'Essay on the Law of Patents' (1803) and John Clennel's paper on the 'Expediency of Disclosing the Process of Manufactories' delivered to the Literary and Philosophical Society of Newcastle upon Tyne.<sup>114</sup>

Collier appears to have been a patent agent.<sup>115</sup> His Preface attributes the obscurity of English law (he means the law generally, rather than just patent law) to the technical phraseology to which professors are confined and the comprehensive nature of the subject-matter. He asserts that Mansfield facilitated the formation of Digests by instructing juries on the legal principles of cases, and that since this time there have been special cases on point of law which his book attempts to collect. His only other reference to Mansfield in the Preface is for the observation that if patent grants were examined with rigorous attention, they might all, with very few exceptions, be rendered nugatory. The book is divided into 14 chapters with an appendix listing new inventions since 1800. The chapters of principal interest are chapter IX onwards.

Chapter IX deals with the question as to what is a new manufacture. It is something made by the hands of man.<sup>116</sup> It can be granted for improvements only.<sup>117</sup> An import can be a new manufacture.<sup>118</sup> A mere method is not a manufacture;<sup>119</sup> the product ought to be vendible. Machinery or substances such as medicines are 'manufactures'.<sup>120</sup> Chemical method patents in reality are patents for a vendible substance. You could not on the other hand patent the principle of using steam, only the engine.<sup>121</sup> Dr James could not

<sup>113</sup> (1785) Dav Pat Cas 144, 1 Web 76, 1 Carp 103.

<sup>114</sup> I am grateful to Dr F.J.G. Robinson for this reference, which he found in the course of his work on the Nineteenth Century Short Title Catalogue.

<sup>115</sup> There is a flier inserted at the end of the Bodleian copy of the book offering the author's services, and giving his address as Little Smith Street, College Street, Westminster.

<sup>116</sup> Citing *Hornblower v. Boulton* 8 TR 95.

<sup>117</sup> There is no citation at this point; *Morris v. Branson* is cited later. See also *Observations on the Utility of Patents*, London (1791), pp. 16 and 54, catalogued under 'Kenyon, Lloyd' in the BL Catalogues.

<sup>118</sup> Citing *Edgeberry v. Stephens* 2 Salk 447.

<sup>119</sup> *Watt v. Bull*, i.e. *Boulton & Watt v. Bull* (above).

<sup>120</sup> *Id.* citing Heath J.

<sup>121</sup> Citing Buller J in *Boulton & Watt v. Bull* (above).

have got his patent for the principles of using antimony, only for a special compound or powder.<sup>122</sup> The remainder of the chapter is devoted to an extensive reproduction of the case of *Boulton & Watt v. Bull*.

The only mention of *Liardet v. Johnson* is in the following chapter, for the enigmatic assertion already mentioned that all grants of a known trade are void.<sup>123</sup> This chapter however contains the important observation that an invention must not have been published prior to the patent. A patent is an agreement between the King and the inventor that the subject will put the public in possession of a useful secret. If the public is already in possession of the knowledge, the inventor can make no compensation or return for the grant.<sup>124</sup> Although this is consistent with the views of Mansfield expressed in *Liardet v. Johnson*, and inconsistent with the view that it was working the invention which mattered, there is no mention of that case as an authority supporting this proposition (nor indeed any authority). Yet, as we have already suggested, if that case were so revolutionary it would surely have been mentioned at this point.

Chapter X is also of some interest. It deals with the specification. It begins by citing the proviso requirements that a particular description is required of the invention to be enrolled within one month.<sup>125</sup> As to what description is required, it cites Buller J's dictum in *R v. Arkwright* that the patentee must 'disclose his secret, and specify his invention in such a way that others of the same trade may be taught to do the thing for which the patent is granted, by following the directions of the specifications without any new invention or addition of their own'. The above case, and *Boulton & Watt v. Bull*<sup>126</sup> and *Turner v. Winter*,<sup>127</sup> are the only cases cited in this chapter, though Dr James's patent and Dolland's are discussed. The summing up to the jury in *R v. Arkwright* is set out *in extenso*. Ashurst J's observations in *Turner v. Winter* that every patent would be against the principles of law, were it not for the public advantage derived from it, is also cited. He also states that it could not be dispensed with, even on the argument that it would benefit foreigners.<sup>128</sup>

There are other interesting developments noted by Collier. The rule that a patent licensee can challenge the validity of a patent was laid down in *Hayne v. Maltby*.<sup>129</sup> By contrast, a patentee could not challenge the patent's validity *vis-à-vis* an assignee.<sup>130</sup>

He also gives an account of a procedure for protecting priority while the invention is being perfected.<sup>131</sup> This consisted of lodging caveats at the chambers of the Attorney-General or the Solicitor-General. These were effective for one year, but renewable. The

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<sup>122</sup> Dr James's Powders were a very popular patent medicine – see 'The Patent', n. 44 above, and the Torrington diaries. Mansfield in *Liardet v. Johnson* doubted the validity of his patent, and Hulme considered that it might have been threatened litigation over Dr James's patent which resulted in the transfer of jurisdiction from the Council to the courts – see (1917) 33 LQR 194.

<sup>123</sup> p. 99.

<sup>124</sup> *Id.*

<sup>125</sup> As noted above, however, this time varied to the end of the eighteenth century.

<sup>126</sup> (1795) 81 Rep 479.

<sup>127</sup> (1787) 3 TR 602.

<sup>128</sup> p. 173 citing *Ex parte Hoops (sic)* (1802) 6 Ves 559.

<sup>129</sup> (1789) 3 TR 438.

<sup>130</sup> *Oldham v. Langmead*, cited in *Hayne v. Maltby* at p. 439.

<sup>131</sup> As distinct from the period of grace for enrolling the specification, which as we have seen, Mansfield laid down to enable the invention to be perfected.

practice was that if applications were made by a third party, notice would be given to the person lodging the caveat, and evidence could then be presented to the Attorney-General by both parties as to who in fact had priority.<sup>132</sup>

In general the book is very crude. It is much padded out, with *R v. Arkwright* and *Boulton & Watt v. Bull* forming a substantial part of it – a fact not without significance in indicating the paucity of material known to the author.

John Clennel's paper is specifically concerned with the importance of disclosure of inventions. He first of all catalogues inventions lost to the world through non-disclosure, and asserts that the progress of science through the eighteenth century was through disclosure. His preferred solution was a system of rewards given by the government to inventors in return for putting the invention into the public domain, an idea which he may have borrowed from France. It is not altogether clear whether Clennel was aware that specifications were enrolled. He may well not have been for his alternative is disclosure at the expiry of the patent. He may possibly, however, simply have considered the existing system ineffective. At all events, his concerns include trade secrets generally, and not merely patented knowledge. In fact, the specifications in the patent rolls do seem to have been inspected by the public.<sup>133</sup> Collier actually gives information about this and the opening hours of the Petty Bag Office.<sup>134</sup> Perhaps this information had not penetrated as far north as Newcastle or possibly Clennel, who was a school-master and popular lecturer, simply did not know his subject well enough.

The central criticism of the law at that time was in fact that it had been impossible to specify a patent in a way which would satisfy the courts.<sup>135</sup> If the invention were specified too exactly, pirates could seize on minor variations to distinguish their 'inventions'; if too generally, the specification would be invalid. This problem can be seen in the agonising over the drafting of the Watt specification. In a letter to Watt of 5 February 1769 (nearly a decade before *Liardet v. Johnson*), William Small wrote that Boulton and he considered that

... you should neither give drawings nor descriptions of any particular machinery (if such omissions be allowed at the office) but specify in the clearest manner you can . . . as to your principles, we think they should be enunciated (to use a hard word) as generally as possible, to secure you as effectively against piracy as the nature of invention will allow.<sup>136</sup>

It was subsequently felt that this advice was erroneous, both on not appending a drawing and in apparently attempting to patent a principle of action rather than an application of principle, and indeed, the patent came close to being declared invalid in the subsequent litigation. In 1784 we find Argand wrestling with the same problem on drafting the

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<sup>132</sup> This practice led to abuse. So-called 'floating caveats' would be lodged as a means of getting wind of inventions, so that the unfortunate inventor's workmen could be bribed to disclose their master's secrets – John William Smith, *op. cit.*, pp. 15–16. Evidence on this was given to the Commons Select Committee on the Law of Patents (1829).

<sup>133</sup> The Committee of Patentees formed in 1785 actually strongly objected to the ease with which the specifications could be consulted; see Robinson, *loc. cit.*

<sup>134</sup> 10.00–2.00 and 5.00–8.00.

<sup>135</sup> See Robinson, *loc. cit.*

<sup>136</sup> Cited Robinson, *loc. cit.*

specification for his lamp, as Watt and his partner had in 1769. As Robinson pointed out,<sup>137</sup> clearly *Liardet v. Johnson* only six years earlier had done little to clarify the law on how a specification should be drafted in the intervening period. Argand specified in general terms and filed no drawing. Subsequently, he had his patent declared invalid for want of novelty; it could well have been invalidated, however, for insufficiency of specification.

Apart from the defects of the system we have already mentioned, the most obvious problem for inventors throughout the century was the expense of the procedure.<sup>138</sup> This is the substance of the poem 'The Patent' referred to above.

In *R v. Eley*,<sup>139</sup> Kenyon CJ (later Lord Kenyon) had apparently described patents as a 'great oppression practised on inferior mechanics by those who are more opulent', which in turn provoked a pamphlet apparently written by the inventor of a patent washing machine mentioned above.<sup>140</sup> As suggested above, vested interests in the fees involved probably operated as a block on the reform of the system.

## 2.4 Summary

Such developments in the law and practice of patents as took place in the eighteenth century were almost certainly gradual. The few legal decisions probably followed commercial thinking and practice, rather than anticipating and instigating it. It is highly unlikely that *Liardet v. Johnson*, or indeed any of Mansfield's decisions, differed from this pattern. Perhaps the most interesting aspect of the case for us today is the way in which the outcome turned on the opinion of expert witnesses, who continued to be used after the modern rule against opinion evidence emerged,<sup>141</sup> and Mansfield himself naturally adhered to the view that in scientific matters experts should be called.<sup>142</sup> However, the length, technicality and no doubt expense of the hearings in *Liardet v. Johnson* must have been unusual at the time, though they are familiar enough to us in patent actions at the present day.<sup>143</sup> In retrospect, that is probably the most significant feature of the case.<sup>144</sup>

<sup>137</sup> *Loc. cit.*

<sup>138</sup> See Collier, *op. cit.*, ch. XIV. According to the evidence given to the Commons Select Committee on the Law of Patents, a simple English patent was about £20 but a lengthier one about £200. Patents to cover England, Ireland and Scotland cost about £300. See also Charles Dickens, 'A Poor Man's Tale of a Patent'.

<sup>139</sup> Unreported. This case is possibly *R v. Else*, n. 113 above, but the citation should probably be *Hornblower v. Boulton* (1799) 8 TR 95, 98.

<sup>140</sup> 'Observations on the Utility of Patents' (1791) catalogued in the BL under Kenyon, Lloyd. See also the report of the *Boulton & Watt v. Hornblower* case, *The Times*, 26 January 1799.

<sup>141</sup> See IX HEL 212.

<sup>142</sup> See, e.g., *Folkes v. Chadd* (1782) 3 Doug 157, 159.

<sup>143</sup> The study of expert witness cases can provide important evidence of the current state of scientific knowledge and opinion on particular topics. For a good example from outside the field of patents see Fullmer 21 *Technology and Culture* (1980), p. 1, which describes the evidence given in the case of *Severn & King v. Imperial Insurance Co.*, 11 April 1820.

<sup>144</sup> There is an interesting and lengthy case in Mansfield's Court Notebooks shortly after *Liardet v. Johnson* which also involved technical evidence. The plaintiff, Joseph Medlin, was patentee of a 'compound harpsichord' i.e. an instrument combining the harpsichord and forte-piano action. One Ephraim Coulson had allegedly infringed this patent. John Broadwood (the piano manufacturer), among others, gave expert evidence.

## 2.5 Reform of the System

In spite of the trenchant criticisms of the then patent system offered to the Commons Select Committee in 1829, and the celebration of the UK's technical pre-eminence in the Great Exhibition of 1851, the old system survived until the Patent Law Amendment Act 1852, which followed the Report of the Select Committee on Patents 1851.<sup>145</sup> This Act made obtaining a patent cheap,<sup>146</sup> and simple. The applicant could in effect attain his patent by simply filing a specification. There was no examination for novelty or inventive step. A provisional specification could be filed first, followed by a full specification within one year. Unsurprisingly, the amount of patenting activity increased markedly.<sup>147</sup> This in turn, however, had obvious undesirable consequences in that the system could be used to block competitors, rather than fostering inventiveness. Further reform came slowly, however. The 1852 Act had entrusted the operation of the system to Commissioners; in 1883,<sup>148</sup> their role was taken over by a newly established Patent Office.<sup>149</sup> This began to examine for formal defects in the application, and for sufficiency of description in the specification. It was not, however, until after the report of the Fry Committee 1901, which suggested that more than 40 per cent of patents granted were for inventions which had been described in earlier British specifications, that a substantive examination was introduced.<sup>150</sup> This was confined to the issue of novelty alone, but a patent could be attacked in court for obviousness *or lack of inventive step*.<sup>151</sup> The inclusion of claims in the specifications had grown up naturally as inventions became more complex and built on prior art to produce improved machines; however it only became a formal statutory requirement with the Patents Act 1883.<sup>152</sup> After that the use of juries in patent cases was discontinued, and the result was a sharpening up of legal doctrine applicable to patents. Statutory revisions of 1907, 1919, 1932, and above all 1949 had the effect of codifying the law. The last major revision to UK law was effected by the Patents Act 1977, which implemented into domestic law the European Patent Convention signed at Munich in 1973. This treaty also established the European Patent Office in Munich, which opened for business on 1 June 1978.

## 3. THE SPREAD OF THE PATENT SYSTEM

This section is presented merely as an overview, as more detailed treatment of the points made about the various national systems appears elsewhere in this work.

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<sup>145</sup> BPP 1851 (486) XVIII.

<sup>146</sup> The initial cost fell to £25, the cost under the old system was set out above: for a patent covering the UK it was around £300.

<sup>147</sup> See Boehm, 'The British Patent System: I Administration', *Economic History Review* (1967).

<sup>148</sup> Patents Designs and Trade Marks Act 1883.

<sup>149</sup> This Act also further reduced the fees payable.

<sup>150</sup> Patents Act 1902. The Patent Office began to search prior British specifications in 1905.

<sup>151</sup> Fox, *Monopolies and Patents*, University of Toronto Press: Toronto, Canada (1947), Part II traces the origins of the doctrine to *Crane v. Price* (1842) 1 WPC 383, 411.

<sup>152</sup> S. 5(5).

### **3.1 The United States**

When the American colonies became independent from England, establishing an independent patent system was one of the tasks facing the country. The constitution of the federation, adopted in 1787, stipulated that ‘. . . in order to promote progress of useful technology and sciences . . . the parliament . . . shall grant limited exclusive rights for a certain period of time . . . to inventors’. This provision, Article 1(8).8, still provides the constitutional basis for a Federal patent and copyright law. The Patent Law 1790 was based on these constitutional provisions. It is also this constitutional basis that gives the US system a feature that is unique today: the person entitled to a patent is the first inventor, not as elsewhere the first to file.

The dropping of the examination requirement led to ‘rent seeking’, which is evidenced by the rapid increase of patent applications: these by 1812 had reached 238 (compared to 119 for the UK, a much more industrialised country at the time). Clearly the situation was unsatisfactory, and a statute was passed in 1836 which set in place the essential structure of the current patent system. In particular, the 1836 Patent Law established the Patent Office, whose trained and technically qualified employees were authorised to examine applications. Employees of the Patent Office were not permitted to obtain patent rights. In order to constrain the ability of examiners to engage in arbitrary actions, the applicant was given the right to file a bill in equity to contest the decisions of the Patent Office, with the further right of appeal to the Supreme Court of the United States.

### **3.2 France**

The initial Patent Law was enacted in France in 1791 (amended in 1800 and 1844). Patentees filed through a simple registration system without any need to specify what was new about their inventions (i.e. there were no claims), and could prosecute to grant even if warned that the patent was likely to be legally invalid. On each patent document the following caveat was printed: ‘The government, in granting a patent without prior examination, does not in any manner guarantee either the priority, merit or success of an invention.’ The inventor decided whether to obtain a patent for a period of 5, 10 or 15 years, and the term could only be extended through legislative action. Protection extended to all methods and manufactured articles, but excluded theoretical or scientific discoveries without practical application, financial methods, medicines, and items that could be covered by copyright.

The 1791 statute stipulated patent fees that were costly, ranging from 300 livres through 1500 livres, based on the declared term of the patent. The 1844 statute maintained this policy since fees were set at 500 francs (about \$100) for a five-year patent, 1000 francs for a 10-year patent and 1500 for a patent of 15 years, payable in annual instalments. In an obvious attempt to limit international diffusion of French discoveries, until 1844 patents were voided if the inventor attempted to obtain a patent overseas on the same invention. On the other hand, the first introducer of an invention covered by a foreign patent would enjoy the same ‘natural rights’ as the patentee of an original invention or improvement.

Patentees had to put the invention into practice within two years from the initial grant, or face a tribunal that had the power to repeal the patent unless the patentee could point to unforeseen events which had prevented his complying with the provisions of the law.

The rights of patentees were also restricted if the invention related to items that were controlled by the French government, such as printing presses and firearms.

In return for the limited monopoly right, the patentee was expected to describe the invention in such terms that a workman skilled in the art could replicate the invention and this information was expected to be made public. However, no provision was made for the publication or diffusion of these descriptions. At least until the law of 7 April 1902, specifications were only available in manuscript form in the office in which they had originally been lodged, and printed information was limited to brief titles in patent indexes. The attempt to obtain information on the prior art was also inhibited by restrictions placed on access: viewers had to state their motives; foreigners had to be assisted by French attorneys; and no extract from the manuscript could be copied until the patent had expired.

The state remained involved in the discretionary promotion of invention and innovation through policies beyond the granting of patents. In the first place, the patent statutes did not limit their offer of potential appropriation of returns only to property rights vested in patents. The inventor of a discovery of proven utility could choose between a patent or making a gift of the invention to the nation in exchange for an award from funds that were set aside for the encouragement of industry. Secondly, institutions such as the *Société d'encouragement pour l'industrie nationale* awarded a number of medals each year to stimulate new discoveries in areas they considered to be worth pursuing, and also to reward deserving inventors and manufacturers. Thirdly, the award of assistance and pensions to inventors and their families continued well into the nineteenth century. Fourthly, at times the Society purchased patent rights and turned the invention over to the public domain.

The basic principles of the modern French patent system were evident in the early French statutes and were retained in later revisions. Since France during the *ancien régime* was probably the first country to introduce systematic examinations of applications for privileges, it is somewhat ironic that commentators point to the retention of registration without prior examination as the defining feature of the 'French system' until 1978 when French law was brought into line with the system laid down in the European Patent Convention.

### 3.3 Germany

Germany did not, of course, exist as a state prior to unification, though some of the states which would form part of the unified state had. The Unification of Germany took place on 18 January 1871, when Prussian Prime Minister Otto von Bismarck managed to unify a number of independent German states into one nation. Before that, the enactment of intellectual property laws was a matter for the individual states. The new state enacted a comprehensive Patent Law which was based on the principle of mandatory examination, the first such system in the world, in 1877.

German patent policies encouraged diffusion, innovation and growth in specific industries with a view to fostering economic development. Patents could not be obtained for food products, pharmaceuticals or chemical products, although the process through which such items were produced could be protected. It has been argued that the lack of restrictions on the use of innovations and the incentives to patent around existing processes spurred productivity and diffusion in these industries. The authorities further ensured the diffusion of patent information by publishing claims and specification before

they were granted. The German patent system also facilitated the use of inventions by firms, with the early application of a 'work for hire' doctrine that allowed enterprises access to the rights and benefits of inventions of employees. Although the German system was close to the American patent system, it was in other ways more stringent, resulting in patent grants that were lower in number, but probably higher in average value.

In 1981 Germany also introduced the *Gebrauchsmuster* or petty patent, which was granted through a simple registration system. Patent protection was available for inventions that could be represented by drawings or models with only a slight degree of novelty, and for a limited term of three years (renewable once for a total life of six years). About twice as many utility patents as examined patents were granted early in the 1930s.

#### 4. THE PARIS CONVENTION

Again, this section provides only a brief overview, as detailed treatment of its subject matter is provided elsewhere in this work. After a diplomatic conference in Paris in 1880, the Convention, the first international treaty on intellectual property, was signed in 1883 by 11 countries: Belgium, Brazil, France, Guatemala, Italy, the Netherlands, Portugal, El Salvador, Serbia, Spain and Switzerland. It was revised at Brussels on 14 December 1900, at Washington, DC on 2 June 1911, at The Hague on 6 November 1925, at London on 2 June 1934, at Lisbon on 31 October 1958, and at Stockholm on 14 July 1967, and was amended on 28 September 1979. It is one of the treaties now administered by the World Intellectual Property Organization.

The Paris Convention for the Protection of Industrial Property was an important development. Through this treaty, industrial property systems, including patents, of any contracting state are accessible to the nationals of other states party to the Convention (the principle of 'national treatment'<sup>153</sup>). It also introduced a 'priority right': the 'Convention priority right', also called 'Paris Convention priority right' or 'Union priority right'. This provides that an applicant from one contracting state is able to use its first filing date (in one of the contracting states) as the effective filing date in another contracting state, provided that he or she files another application within 6 (for industrial designs and trademarks) or 12 months (for patents and utility models) from the date of first filing.

#### 5. PATENT CO-OPERATION TREATY

The World Intellectual Property Organization also administers filings pursuant to the Patent Co-operation Treaty, signed at Washington in 1970 and put into effect 1 June 1978. This allows applicants to submit a single application designating the member states in which patents are wanted. Chapter I of the Treaty establishes an international search conducted by national Patent Offices in Australia, Japan, Russia and the United States as well as the European Patent Office and to a more limited extent the Austrian and Swedish Offices. It has proved popular, especially as it enables an applicant to seek

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<sup>153</sup> On this principle as it affects patents see Evans [1966] EIPR 149.



patents in numerous countries by a single application, and to delay a final decision to proceed with the prosecution for 30 months from the priority date, thereby postponing the incurring of significant official fees, attorney's costs and translation costs (which are usually considerable).

Chapter II established an International Preliminary Examination. Participating states are not obliged to adhere to both chapters nor is the applicant obliged to have a Preliminary Examination.

## 6. TRIPS AND THE WORLD TRADE ORGANIZATION

A weakness with treaties such as the Paris Convention is that there is no mechanism to force signatory states to comply with the minimal standards set in them. The Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) is an international agreement administered by the World Trade Organization (WTO) that sets down minimum standards for many forms of intellectual property (IP) regulation. It was negotiated at the end of the Uruguay Round of the General Agreement on Tariffs and Trade (GATT) in 1994. The provisions contained in it on patentable subject matter and on disclosure bear a family resemblance to those in the European Patent Convention, and similarly those on the patent term and the scope of rights.<sup>154</sup> The treaty also restricts the right of member states to grant compulsory licences. TRIPS is sometimes referred to as 'Paris plus' (and 'Berne plus') because it ensures that member states adhere, *inter alia*, to the minimal standards set out in those conventions.

## 7. CONCLUSION

Perhaps the most striking feature of the development of the patent system which was exhibited early in that of England and Wales, the first modern system, was how early it moved from the protection of innovation to the protection of invention. Although it might be regretted by historians such as Hulme, and leave a lacuna which modern economists such as Professor Kingston have argued ought to be filled, it was probably an inevitable development. Given the bureaucratic constraints on those administering the system, the protection of invention was probably the only way to go. It is, however, no accident that in modern times the heaviest users of the system are those industries where the link between invention and innovation is closest, for example pharmaceuticals and aerospace. Backed by TRIPS, we now have what potentially may develop in the future into a world patent system.<sup>155</sup>

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<sup>154</sup> But rights do not have to be defined by reference to claims in a specification – Articles 28, 30, 33 and 34.

<sup>155</sup> See Cornish and Llewellyn, *Intellectual Property*, 5th ed. Sweet & Maxwell/Thomson. London. 2003. pp. 3–21 at p. 123.

Patents through history. The United States Patent and Trademark Office (USPTO) issued patent number 10 million on June 19, 2018. This milestone of human ingenuity perhaps exceeds even the Founding Fathers's™ expectations when they called for a patent system in the Constitution to "promote the Progress of Science and useful Arts." Follow the timeline below for important moments, notable inventors, changing patent designs, and other interesting facts over more than two centuries of innovation in America. Timeline Animations. 1790. Animation: Drawing of George Washington, Henry Knox, Thomas Jeffers