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PATENTS AND INNOVATIONS IN ENGLAND BETWEEN THE 16th AND THE
19th CENTURY

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For my parents

*Oh, to be in England
Now that autumn's there*

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PREFACE

In today's world, the concept of patents is one most people are familiar with: generally speaking, a patent grants an inventor the right to exclude others from the commercial exploitation of his invention for a set period.

Nonetheless, this has not always been the case, with the first grants in Europe leaning more towards privileges accorded by the governing bodies than towards the proper recognition of the inventor's rights¹.

The most notable difference, however, between patents as seen during the latter part of the Middle Ages and the early modern period, and the contemporary idea of patents, must be their object, *i.e.* inventions: according to the Oxford English Dictionary, an invention is “the original contrivance or production of a new method or means of doing something, of an art, kind of instrument, etc. previously unknown [...]”. On the other hand, a rapid glance at the main patent systems within Europe during their first stages makes for a very different picture. As a matter of facts, two fundamental examples could be found in Continental Europe, besides from the English case: these were the systems operating in Venice and in France.

1.1 The 1474 Venetian Statute

In the heavily-guild-influenced Venetian economy, where many goods could only be produced and traded by the respective guild members, privileges started to be issued from the 15th century in order to allow individuals who were not part of guilds to establish their own production and trade².

¹ J. KOSTYLO, *I. From gunpowder to print: the common origins of copyright and patent*, in *Privilege and Property*, edited by R. Deazley, M. Kretschmer and L. Bently, Cambridge, 2010, pp. 21-22.

² T. SICHELMAN and S. O'CONNOR, *Patents as Promoters of Competition: The Guild Origins of Patent Law in the Venetian Republic*, in *San Diego Law Review*, 2012, 49, pp. 1268-1269.

The thinking process behind these grants was very clear, as the governing bodies aimed at incentivizing progress within Venice itself, while also calling for foreigners to introduce techniques they had witnessed abroad: this meant that privileges could be awarded not only to inventors, but also to importers³, as was the case with the patent granted in 1469 to Johann von Speyer⁴ for introducing the hand press printing technique he had learnt in Mainz. Therefore, anyone who introduced a new technique or product in the Republic of Venice could seek economic incentives through a grant: as a matter of facts, during the modern period the unwritten definition of the term “invention” generally included the concept of “introduction” for centuries.

With Johann von Speyer’s being but one of the many patents issued in Venice during that period, all was set for the enacting of a Statute, which eventually saw life in 1474. This was the very first piece of legislation regulating the matter worldwide and the Senate, when approving it, deemed it necessary in order to prevent inventors from keeping their new-found production means hidden, scared that they could be replicated by others without any recognition for the originals⁵. Also, the lack of explicit publication requirements was compensated by the custom of keeping apprentices in the laboratories, a practice which made sure that an invention could be mastered properly after the expiration of the patent itself, without the need to make its description public⁶.

The Statute of 1474 proved to be a turning point for patent law, as it marked the overcoming of a case-by-case system and the introduction of a clear piece of legislation which inventors could trust and rely upon when looking for protection.

³ F. D. PRAGER, *History of Intellectual Property. From 1545 to 1788*, in *Journal of the Patent Office Society*, 1944, 26, pp. 714-715.

⁴ For the original document, see *Johannes of Speyer's Printing Monopoly, Venice (1469)*, in *Primary Sources on Copyright (1450-1900)*, edited by L. Bently and M. Kretschmer, www.copyrighthistory.org [consulted on 12 July 2024].

⁵ B. MURACA, *Dalla legge veneziana del 1474 alle privative industriali*, in *Il Contributo italiano alla storia del Pensiero – Tecnica*, 2013, online at [https://www.treccani.it/enciclopedia/dalla-legge-veneziana-del-1474-alle-privative-industriali_\(II-Contributo-italiano-alla-storia-del-Pensiero:-Tecnica\)/](https://www.treccani.it/enciclopedia/dalla-legge-veneziana-del-1474-alle-privative-industriali_(II-Contributo-italiano-alla-storia-del-Pensiero:-Tecnica)/) [consulted on 15 July 2024].

⁶ T. SICHELMAN and S. O’CONNOR, *Patents as Promoters of Competition*, p. 1278.

1.2. The 1762 French *Déclaration*

Because of unclarity in the documents, it is still debated whether the very first privileges were granted for the outright introduction of new technologies or for the minor improvements that the inventors performed on old, imported ones⁷, but it is unquestionable that this minute detail did not play any major role in the decision behind the issuing of early patents: what mattered was the ability of the inventor (as said, this notion included the importers) to produce relevant economic utility through the introduction of a technique or product.

The same *ratio* can be found in the first French privileges⁸, but progress was slow in the Bourbon kingdom. From the 16th to most of the 18th century the biggest innovation brought to this system was the introduction of a pre-emptive examination of inventions. Such an examination would be carried out (but only after a specific request was filed by the king's council) by the *Académie des Sciences*, founded by none other than Jean-Baptiste Colbert in 1666⁹. The *Académie* was specifically required to examine the novelty and the utility of new machines, while also obliging the inventors who were granted an approval to “*laisser un modèle*”¹⁰.

French inventors had to wait until the 1762 *Déclaration Concernant les Privilèges en fait de Commerce* for a broader and comprehensive piece of legislation. The *Déclaration* introduced a number of new provisions, also clarifying what the primary utility of a privilege was: first of all, it was remarked how privileges granted without any time limit were not considered as a reward for the inventors themselves, but rather as inheritable assets¹¹; said privileges were also faulted in the way that they would often be inherited by people deemed incapable of exploiting them commercially, therefore hindering

⁷ F. D. PRAGER, *History of Intellectual Property*, p. 718.

⁸ *Ivi*, pp. 722-723.

⁹ *History of the French Académie des Sciences*, <https://www.academie-sciences.fr/en/Histoire-de-l-Academie-des-sciences/history-of-the-french-academie-des-sciences.html> [consulted on 15 July 2024].

¹⁰ *Règlement ordonné par le Roi pour l'Académie royale des sciences*, in *Histoire de l'Académie royale des sciences, année 1699, avec les mémoires de mathématique et de physique pour la même année*, edited by J. Boudot, Paris, 1699, p. 8, article XXXI.

¹¹ *Déclaration du Roy, Concernant les Privilèges en fait de Commerce*, in *Bibliothèque nationale de France Gallica*, gallica.bnf.fr / Bibliothèque nationale de France, p. 1 [consulted on 18 July 2024].

technological progress and, crucially (at least in the minds of 18th century lawmakers), the economic potential of patented inventions¹².

This was the main reason behind the newly imposed authorization process, which *mortis causa* heirs had to go through in order to fully acquire the rights associated with inherited privileges, as this would not happen “*sans avoir obtenu de Nous*¹³ *une confirmation, après avoir justifié de leur capacité*”¹⁴: if the proof were insufficient, the succession would be invalidated¹⁵.

Despite this being a major improvement over the erratic system which was in place in the previous centuries, the *Déclaration* was still relying heavily on the royal council¹⁶ for the authorization, denial, issuing, etc. of patents: this was just one of the many ways in which France’s monarchical absolutism showed its face.

The sovereign did actually hold a weighty interest in determining the commercial policies that the State would have to follow in the subsequent years, and the administration of privileges (read “monopolies”) was certainly a key aspect in this. At the same time, deciding on the balance between the inventors’ interests and public interest was also a prerogative of the king, hence making indisputable his resolutions about the matters of duration, degree of protection and validity of the privileges he had granted¹⁷.

Naturally, this absolutistic regime came to an end with the French revolution in 1789, which made *tabula rasa* of the *Ancien Régime* regulations: this, of course, also extended to patent law, with the approval, in 1791, of another piece of legislation¹⁸.

¹² F. MAZZARELLA, *Diritto e invenzioni. Un’introduzione storica*, in *Rivista di Storia del Diritto Italiano*, 2010, 83, p. 73.

¹³ *i.e.* from the King’s council.

¹⁴ *Déclaration du Roy, Concernant les Privilèges en fait de Commerce*, p. 3, article V.

¹⁵ *Ibidem*.

¹⁶ As that “*Nous*”, found in many articles, suggests. See also note 12.

¹⁷ F. MAZZARELLA, *Diritto e invenzioni*, pp. 80-81.

¹⁸ For a more detailed view, see: G. GALVAEZ-BEHAR, *The Patent System during the French Industrial Revolution: Institutional Changes and Economic Effects*, in *Jahrbuch für Wirtschaftsgeschichte / Economic History Yearbook*, 2019, 60.

1.3 Two systems compared

Despite the fact that France was an absolutistic monarchy, while Venice nominally a republic, many common traits can be found between these two approaches: in both cases, the monopoly was only issued after a plead to the governing bodies by the inventor and, while the latter could only hope for the utility of his invention to be noticed (in order to be granted a patent), the formers always preserved some kind of power to diminish, or generally act on, the degree of protection, adducing some often-trivial public interest or commercial competitiveness reasons.

After having mentioned the similarities, however, it is of key importance to notice the differences, the most prominent of which must be the year of enacting of the two aforementioned regulations: the Venetian Statute preceded the French one by almost three centuries, and its novelty and forward-thinking nature stand as a testament of the extremely advanced trading and commercial environment that characterised Venice at the time.

Finally, though, it must be noticed how guilds were still a determining factor within both systems, whether we are looking at Venice in the 15th century or at France in the 17th and 18th centuries.

This, as Chapter I will try to prove, turned out to be a major difference between the thinking processes behind those legislations and the ones behind the English system, which was influenced by other mechanisms.

CHAPTER I

The English system from the Elizabethan era to the Stuart restoration

The very first recorded privilege granted in England dates back to 1331 and was awarded to “Johanne Kempe de Flandria”¹⁹, a Flemish weaver, by Edward III. This letter aimed at protecting the trade of John Kemp and his company, while also promising other foreigners who mastered that same textile art a similar handling if they ever decided to introduce their know-how in the English kingdom²⁰.

This chapter will try to act as a guide in the journey between the early privileges and letters of protection and the state of the English patent system after the Stuart Restoration in 1660.

1.1 Early patenting practices

During the late Middle Ages, England was noticeably lagging behind Continental Europe with regards to manufacturing and pre-industrial techniques in general: even though the political situation was mostly stable and society cohesive, settlements were still rural for the most part and subjects were typically involved in agricultural and pastoral activities, with some mining communities establishing in the areas where ore was quarried²¹.

¹⁹ E. WYNDHAM HULME, *The History of the Patent System under the Prerogative and at Common Law*, in *The Law Quarterly Review*, 1896, 46, p. 141. Edward Wyndham Hulme’s collection of English patent records must be considered one of the most complete available, thanks also to his position as an employee in the British Patent Office for many years up until 1919: for these reasons, all further mentions to the records will be based off his works.

²⁰ *Ibidem*.

²¹ J. A. WILLIAMSON, *Storia di Inghilterra*, translated by L. Villari, Bologna, 1963, pp. 255-260.

It is within this scenario that the privilege of John Kemp was granted, and for one obvious reason, *i.e.* to promote that particular production sector; it is no wonder, then, how the weaving and cloth businesses became the first relevant manufacturing industries in the history of England²².

However, the analysis of this privilege, as well as of the ones which closely followed, is not as straightforward as one might believe, and this has to do with the nature of the letters according the aforementioned protection.

Those letters of protection went under the name of letters patent or, rather, were a part of them as a subcategory: letters patent were, in fact, documents used for awarding special privileges, which could range from the granting of land or titles, to the institution of monopolies, as was the case with John Kemp's. Moreover, letters patent were a very popular instrument in many European courts, as they could be used by sovereigns and by their councils to strengthen their will in a written document, hence making life much easier for those who were awarded one and had to prove their right²³.

Therefore, it is quite clear how distinguishing between letters patent generally promising protection²⁴ and the ones which we would consider similar, in their *ratio*, to contemporary patents, proves to be a very difficult task.

All of this considered, one of the possible evaluation *criteria* could be to “[look] for grants made in furtherance of particular industries”, as Edward Wyndham Hulme suggested in an attempt to rationalize the records of letters patent²⁵: this, of course, would not include just the instances in which it was a monopoly to be accorded, but it must be borne into mind that such a grant, in the minds of the issuing authorities, would not have been pondered as the only way to encourage a trade or an industry.

More specifically, the most represented sectors in the early privilege records were the cloth and weaving industry, mining (especially for water-draining machines),

²² The term, here, is not used in its modern connotation, but rather referring to the “production in a noticeable scale”, which would have hitherto been considered impossible.

²³ P. WELLS and T. TERREFE, *A Brief History of the Evolution of the Patent of Invention in England*, in *Canadian Intellectual Property Review / Revue Canadienne de Propriété Intellectuelle*, 2020, 35, p. 66.

²⁴ At the time, providing an accommodation to the inventor, for instance, was also seen as a form of protection, even though it had barely anything to do with directly incentivizing his industry or trade.

²⁵ E. WYNDHAM HULME, *The History of the Patent System*, p. 141.

clockmaking and the salt manufacturing business. This saw a partial shift under the monarchs from the House of Tudor: the number of letters patent did not increase much, as the kings started granting privileges in a more discreet fashion, almost keeping them secret, while letters patent, as the Latin etymology suggests, were meant to be open and public. The cause of such a change in the king's council's policies is to be looked for in the search for capable artisans and manufacturers in the fields which were closer to weapon-making and, more in general, military scopes²⁶.

The mass production of cutting-edge weapons and warships was still one of the fundamental requirements that any king had, but being able to finance all of this was even more important, and it is precisely for this reason that the system of letters patent was prone to be abused by the Crown: kings could very easily negotiate the granting of a monopoly for a specific trade with a courtier who would, in return for the privilege, pay a substantial amount of money²⁷.

1.2 Elizabethan patent policies

The reign of Elizabeth I has often been described as one of the most enlightened in the history of England, thanks especially to the flourishing of education and arts which corresponded to it²⁸, but its political aspect, while usually overlooked, is equally notable. According to the records, it was shortly after Elizabeth's accession to the throne that she was advised on the matter of letters patent by an Italian engineer who went by the name of James Acontius, as it was him who pointed at the granting of monopolies as "the most effectual method of rewarding an inventor"²⁹. Thus, the kind of protection awarded through letters patent from 1560 onwards started to coincide more and more with the institution of monopoly rights specifically.

²⁶ *Ibidem*.

²⁷ R. GODSON, *A Practical Treatise on the Law of Patents for Inventions and of Copyright*, London, 1840, p. 5.

²⁸ J. A. WILLIAMSON, *Storia di Inghilterra*, pp. 264. It should be noted that Williamson is doubtful about the actual contribution that the Tudors had on this cultural *phenomenon*.

²⁹ E. WYNDHAM HULME, *The History of the Patent System*, p. 149.

Something which had not changed over the previous two centuries was the reason behind the need to issue privileges, since the Queen's intention was still to acquire technology from the Continent, in an everlasting attempt to compensate for the lack of inventiveness, which had plagued England for a long time.

Such an aim was valiantly pursued by Elizabeth's best-known adviser, William Cecil, 1st Baron Burghley; his impact on the patent system was long lasting, as he saw patents as a means of reducing both the price of products, which would have previously been imported at great expense, and unemployment³⁰. The former was the precise reason why the vast majority of patents granted under Lord Burghley's supervision bore a *caveat* which required the final products of the patented processes to be less expensive than their Continental counterparts³¹, while the latter meant that the inventors of techniques or machines which could potentially save some workforce would not be accorded a privilege. This second policy remained a determining factor in the patent system for very long after.

Another implication (which lasted just as long) of the aforementioned approach was that inventors who had solely come up with an improvement of an existing invention could not seek protection through a royal privilege: to say it with Sir Edward Coke's very vivacious and famous words, an improvement to an old invention was "but a new button" on "an old cloak"³².

Nevertheless, the number of letters patent for inventions awarded during the reign of Elizabeth steadily increased and quickly outnumbered the privileges issued by her predecessors; all of this despite the fact that there was still no clear law regulating the patent system and the matter was pretty much a royal prerogative.

It was also for this reason that patents started to drift once again³³ towards economic speculation, which was caused by the indebtedness of Elizabeth³⁴ and worsened by the

³⁰ There are instances of patents which explicitly required the inventor to employ a certain number of servants of native birth in order for the grant to be valid. See E. WYNDHAM HULME, *The History of the Patent System* for the complete texts and records.

³¹ C. MACLEOD, *Inventing the Industrial Revolution. The English patent system 1660-1800*, Cambridge, 2002, p. 12.

³² S. D. WHITE, *Sir Edward Coke and "The grievances of the commonwealth", 1621-1628*, Chapel Hill, 1979, p. 134.

³³ See the end of paragraph 1.1.

absence of both a specific regulation and a proper record: this meant that courtiers would often spark controversies when attempting to exert their monopoly rights, as they caused conflict with an existing trade or industry³⁵. Moreover, these controversies would be judged by the Queen's Court or by the Privy Council, both of which operated following her interests and prerogative.

The year 1601 saw the House of Commons rise against such practice, leading Elizabeth to withdraw the most objectionable patents she had issued, while additionally transferring her power on the remaining and future ones to common law; therefore, the year 1601 marks the end of patents under the royal prerogative and the beginning of patents under common law, which implied that from that point onwards patent-related controversies would end up in common law courts³⁶.

2 Tensions and the Statute of Monopolies

Queen Elizabeth I would die in 1603, leaving the Crown in the hands of her cousin, James I of England and Ireland, previously James VI of Scotland. The glory of the Elizabethan era was still present in some aspects of society, but the first signs of a slow, yet irrecoverable decay quickly started to show. The causes of such decline are multiple, however the main reason was the incompatibility between the absolutist approach of James and the livelier-by-the-day aspirations that the Parliament (and the country) had about limiting the monarch's prerogative³⁷.

The Statute of Monopolies (Act 21 Jac. 1, c. 3) was enacted *motu populi* in 1624 for these very reasons; since its importance seems to often be either exaggerated or underestimated, an objective analysis could provide a starting point for the reader to form an opinion on it.

First and foremost, the Statute was concerned with monopolies in general, and the impact it would subsequently have on letters patent for inventions was almost incidental.

³⁴ J. D. COLLIER, *An Essay on the Law of Patents*, London, 1803, p. 16.

³⁵ C. MACLEOD, *Inventing the Industrial Revolution*, p. 14.

³⁶ E. WYNDHAM HULME, *The History of the Patent System*, pp. 150-151.

³⁷ J. A. WILLIAMSON, *Storia di Inghilterra*, pp. 267-272.

Its first Section stated that “all monopolies and all commissions, grants, licenses, charters, and letters patent heretofore made or granted [...] are altogether contrary to the laws of this realm, and so are and shall be utterly void and of none effect”, while also setting the ground, in the second Section, for the examination of all future monopolies according to the common law of the realm.

The crucial Section for patent law, however, was the sixth, which must be fully quoted:

“Provided also and be it declared and enacted that any declaration before mentioned shall not extend to any letters patent and grants of privilege for the term of fourteen years or under, hereafter to be made, of the sole working or making of any manner of new manufactures within this realm, to the true and first inventor and inventors of such manufactures, which others at the time of making such letters patent and grants shall not use, so as also they be not contrary to law, nor mischievous to the State, by raising prices of commodities at home, or hurt of trade, or generally inconvenient; the said fourteen years to be accounted from the date of the first letters patent, or grant of such privilege hereafter to be made, but that the same shall be of such force as they should be if this Act had never been made, and of none other.”³⁸

The most fitting commentary on Section 6 of the Statute of Monopolies is the one authored by Sir Edward Coke, the most prominent jurist and MP under the Stuarts, who stood in defence of the common law and participated in the debates leading up to the Statute³⁹. According to his view, the Statute was to be interpreted so that letters patent for inventions would not be voided by it if they enjoyed seven properties. First, that the term was at most of fourteen years. Secondly, that they be “granted to the first and true inventor”. Thirdly, that they be “of such manufactures, which any other at the making of such letters patent did not use”, a notion which included both inventors and importers. Fourthly, “the privilege must not be contrary to law: [...] if the substance was *in esse* before and a new addition thereunto, though that addition make the former more profitable, yet is it not a new manufacture in law”. Fifthly, the new manufacture could not be raising the prices of commodities at home, calling for the principles of *urgens*

³⁸ C. MACLEOD, *Inventing the Industrial Revolution*, p. 17 (modernized transcription of the original text).

³⁹ G. H. JONES, *Sir Edward Coke*, in *Encyclopedia Britannica*, <https://www.britannica.com/biography/Edward-Coke> [consulted on 25 July 2024].

necessitas and *evidens utilitas*. Sixthly, it should not be “to the hurt of trade” nor, seventhly, “generally inconvenient”⁴⁰, this last principle recalling the situations in which a new invention would replace the work of a number of men, creating unemployment, or be contrary to some other law.

The duration of fourteen years was not arbitrary, as it was exactly double the mandatory length of a trade apprenticeship at the time⁴¹, while referring to the “true and first inventor” was a formula conceived specifically to exclude the possibility that anyone, but mostly courtiers and favourites, could receive a patent for an invention to the introduction (be it discovery or importation) of which he had not actually contributed⁴². Also, the novelty of the invention would not be questioned, if the inventor could in any way prove that the industry or trade he promised to further had not yet surged to relevance within the realm, ongoing sales or instances of the to-be-patented techniques not precluding his privilege, if in small numbers. Finally, the approach which had first been set out by Cecil during the reign of Elizabeth still made for something of a *motif*: mere improvements of an old invention could not be patented, neither by themselves, nor as part of a perfected, old invention; moreover, the impact that the new manufacture had on the prices of commodities was a crucial aspect, as was the case with its implications on the field of employment (and many patents would be rejected solely on this basis).

It's important to note that the Statute of Monopolies was not the first English statute touching on the subject of patents, as some had already been enacted during the reigns of Henry VIII, Edward VI and Elizabeth I⁴³; nevertheless, it was the first time that a comprehensive act was dedicated to the matter of monopolies, with specific provisions regarding the way letters patent for inventions should be framed from that point onwards.

⁴⁰ E. COKE, *The Third Part of the Institutes of the Laws of England*, London, 1669, p. 184 (for the whole paragraph).

⁴¹ C. MACLEOD, *Inventing the Industrial Revolution*, p. 18.

⁴² E. WYNDHAM HULME, *The History of the Patent System*, p. 151.

⁴³ J. D. COLLIER, *An Essay on the Law of Patents*, p. 30.

In other words, the Statute of Monopolies was not necessarily an innovative piece of legislation on patents, since it rather fixed the existing common law doctrine, but it served as a baseline reference for the evolution of the patent system, and for a very long time; indeed, even the strongest advocates of the act could not have predicted its longevity of more than two centuries.

3 Revolution and Restoration

Regardless of the fact that the Statute of Monopolies could not actually be considered as a revolutionary act, it was still a major blow to the Stuarts. James I passed away in 1625, not long after the enacting of the Statute, his relationship with the Parliament having been turbulent to say the least: during his realm, he had dissolved it thrice⁴⁴, as the one which eventually passed the Statute was the fourth under James' jurisdiction.

These tensions would have probably quieted down for a while if James' successor had been more pondered, just like Elizabeth⁴⁵; however, Charles I had inherited all of the absolutistic beliefs of his father, believing that he was only subject to the authority of God. He dissolved his first Parliament within a year of his coronation and, after a few years of conflict with its following iterations, came to the conclusion that he could rule the kingdom without the aid of the Houses.

One of the crucial aspects of Charles' policies was the administration of the Crown's finances: since the Parliament would not approve any new bill regarding taxation, the King illegally introduced a number of new duties, also reverting back to monopolies⁴⁶. This led to the overruling of years and years of Statutes and common law on letters patent, as Charles began to award monopoly rights to anyone who promised to finance his endless expenses. It was not just the Statute of Monopolies to be disregarded, but the entirety of the English parliamentary tradition⁴⁷.

⁴⁴ J. A. WILLIAMSON, *Storia di Inghilterra*, pp. 273-274.

⁴⁵ Afterall, her step backwards in 1601, when she invalidated the most controversial patents she had previously issued, was in response to the threats coming from the Houses; if she had not acted so promptly, an act would have probably anticipated the Statute of Monopolies in the restriction of the royal prerogative.

⁴⁶ J. A. WILLIAMSON, *Storia di Inghilterra*, pp. 280-281.

⁴⁷ W. H. PRICE, *The English Patents of Monopoly*, Clark, 2006, pp. 40-41.

The year 1640 saw another round of general elections, which resulted in the rise of the so-called Long Parliament.

The newly elected Houses immediately started acting against the tyranny of Charles, eliminating many of his councils and imprisoning most of his advisors: one of them, Thomas Wentworth, 1st Earl of Strafford, was even sentenced to death with the approval of the King himself, as he felt like the choice was between his agreement and being overthrown by the Parliament⁴⁸.

During the following, tumultuous years, two factions formed inside the Long Parliament, one siding with the Crown, and the other composed of Puritan extremists. The King, who had remained passive since the 1640 general elections, ended up solving the *impasse* by becoming the protagonist of a revolutionary act in 1642, when he led a small army to Westminster and entered the House of Commons to arrest five MPs he had accused of high treason. Upon failing to do so, he fled the capital, and the English Civil War began.

What followed was a war of attrition, which saw the Puritans, led by Oliver Cromwell, prevail over the Royalists. As well know, in 1649 the Puritans voted for the decapitation of Charles I and founded the Commonwealth of England, a republican government. Cromwell would go on to nominate himself Lord Protector of the Commonwealth in the year 1653.

Even though the new government proved to be quite efficient in his administration, all of this was not enough to convince the English population, which had always been used to a monarchical regime and could not come to terms with the new system⁴⁹. This made the Commonwealth inherently flawed: the country was plagued by instability, and distrust in the government helped what was left of the Royalists in consolidating and expanding their positions.

After the death of Cromwell in 1658 and the resigning of his successor, his son Richard, in 1659, the ground was set for the Restoration of Charles II, heir of Charles I⁵⁰.

⁴⁸ J. A. WILLIAMSON, *Storia di Inghilterra*, pp. 285-286.

⁴⁹ *Ivi*, pp. 289-299.

⁵⁰ *Ivi*, pp. 300-301.

Although the monarchy had been restored, the consequences of the Revolution were multiple. With regards to letters patent and monopolies, the changes were unnoticeable, at least on the surface: the Statute of Monopolies was in full force, since even the disruptive nature of the Commonwealth and Protectorate had originated from the same spirit that had conceived the act, and the common law had been on an eighteen-year *hiatus*, but was still pretty much valid.

However, what had changed was the approach that the Crown had on the subject: Charles II briefly abused of monopolies after the Restoration⁵¹, but quickly remembered how both his father and grandfather had been fearlessly attacked by the Houses because of the same conduct, thus trying to avoid malpractices, in order to prevent any upset to his recently restored position.

Abuses would still happen on a sporadic basis in the subsequent years, but the massive recurrence to privileges aimed at financing the Crown's expenses would remain a thing of the past.

⁵¹ C. MACLEOD, *Inventing the Industrial Revolution*, p. 20.

CHAPTER II

Evolution of the English system under common law

Somewhat ironically, the most relevant influence on the English patent system after its transferral from royal prerogative to common law, was the Restoration itself: it was only thanks to the impact that the Commonwealth policies had left on the Crown that the Statute of Monopolies (and the system it theorized) could finally come into life. This chapter will first try to answer the questions regarding the actual application journey, and then illustrate how the system partially evolved under the thrust coming from the law courts, by examining the most notable cases.

1 Applying for a patent at common law during the 17th and early 18th centuries

The introduction of the Statute of Monopolies, in 1624, had gone almost unnoticed for most inventors because of the way in which James first, and Charles then, kept issuing privileges regardless of its provisions. The Restoration, as seen, had forever hindered the idea of absolutist reigning in England and, since Charles II was acting accordingly, the final form of the patent system could be established.

First, however, the King had to deal with all the requests coming from those who had sided with the Royalists during the Civil War and had seen their grants, whether they relate to land or inventions, stripped away by the Commonwealth⁵². Now these petitioners were backing their claims with proof of their loyalty towards Charles' father and grandfather, and of support for the newly crowned King, but Charles II was very cautious in his responses, and rightly so: he granted new privileges as replacements for

⁵² It was not just during the Commonwealth that the subject of letters patent was touched upon, as a massive recall of them had already been carried out by the Long Parliament in 1640 as a warning sign for Charles I.

the withdrawn ones, but did so in a very quiet and understated fashion, so as not to upset the Parliament, and, most importantly, avoiding to reissue the ones attributing outright monopoly rights⁵³.

From 1660 onwards, then, the only notable exceptions to the Statute of Monopolies patents would be the ones granted in the colonies, where a mixture of lack of opposition and of counterbalancing interests meant that royal officers and courtiers could be awarded with monopolies over valuable trades, even though they were not the actual inventors⁵⁴.

For all other patents, the uniformed procedure to apply for one could be found in a piece of legislation more than a century older than the Statute of Monopolies, *i.e.* the Clerks of the Signet and Privy Seal Act, approved in 1535 and regulating the issuing of all sorts of royal privileges⁵⁵.

The Act stated that anyone who sought a royal grant, in our case the inventor, first had to prepare a petition where he very briefly summarized the field in which the invention was to be used and how it could benefit the economic system; he would then have to forward it to the Secretaries of State. From there, the aspiring patentee had to present that same petition to a committee of law officers and, in case of approval, return it to the Secretaries of State, in order for them to issue a warrant which they would sign together with the King. This new royal warrant would then bounce back and forth between the Privy Council, the Signet Office and the Chancery, where the Lord Chancellor would, at last, provide the inventor with a patent in the form of a letter⁵⁶.

To make matters worse, the intricacy of this journey had to be dealt with by the petitioner alone, who had to forward the documents to each office by himself; it is thus very clear how courtiers or inventors who could count on someone at court, would be immensely facilitated, while aspiring patentees coming from elsewhere than London encountered great difficulties. This was one of the determining factors for the little to no diffusion of patents outside the City of London, at least during the 16th and 17th centuries.

⁵³ C. MACLEOD, *Inventing the Industrial Revolution*, pp. 24-25.

⁵⁴ *Ivi*, p. 28.

⁵⁵ *Ivi*, p. 40.

⁵⁶ For a complete description of the journey: *Ivi*, p. 41.

On the other hand, the whole journey for an English patent was mostly a formality, since the law officers would only carry out an actual control when examining whether the application met the requirements set by the Statute of Monopolies, and not even all of them: because the Privy Council held significant powers on the patents even after their issuing, it was that office which would invalidate patents on the basis that they were against the law, raising the prices of commodities or hurting trade. This was coupled with the fact that thorough scrutiny was only performed in the case of a patent being challenged by those who felt at a disadvantage because of it⁵⁷.

With regards to the content of the application, we must dedicate our attention to the specification. The specification consisted of a concise description of the invention for which the aspiring patentee was seeking a privilege, and its most notable trait was its non-necessity: neither the Statute of Monopolies, nor the Clerks Act encompassed such a thing, as did the common law. However, throughout the first half of the 17th century many applicants started including a specification when their invention was related to an already-existing trade or industry, as, to say it with Wyndham Hulme's words,

“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., the requisition of a full description would have required a treatise rather than a specification [...]. But when, by a natural development, the system began to be utilized 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 for ensuring priority against all subsequent applicants.”⁵⁸

By the early part of the 18th century, this had become somewhat of a custom among applicants, who would also, on a voluntary basis, provide a paper explaining the technicalities of the invention, or even a scaled down wooden model⁵⁹; again, these practices were in no way required by existing regulations, but became key elements in

⁵⁷ *Ivi*, p. 42.

⁵⁸ E. WYNDHAM HULME, *On the Consideration of the Patent Grant, Past and Present*, in *The Law Quarterly Review*, 1897, 51, p. 316.

⁵⁹ C. MACLEOD, *Inventing the Industrial Revolution*, p. 43.

the common law system, especially if the patent happened to be challenged by hurt tradesmen.

Lastly, there could be instances when an inventor did not immediately seek protection through a letters patent: *caveats* were conceived for this very purpose. A *caveat* was a “request lodged at certain offices, for the purpose of getting information of any patent being demanded for a certain object”⁶⁰, and its role was crucial, as, in the absence of a system for publishing applications, there was no other way in which an inventor could be warned of another grant being requested for the same (or similar) invention that he had considered patenting at some point in the future⁶¹.

2 Sir Richard Arkwright’s cotton-spinning machine and challenged patent

The once-occasionally included specification for a patent finally became an established requirement, at least at common law, during the second half of the 18th century: as already mentioned in the previous paragraph, no piece of legislation deemed it necessary, yet it proved to be a very convenient “insurance” for the court defence of challenged patents. The reason for this was that the specification was considered by many to be the main way in which a patent could become useful for the public: where the Venetian republic relied on apprentices learning patented techniques in order to spread them after their terms had expired, the same goal - English law courts theorized - could be pursued by reading patents’ specifications⁶². The turning point for this practice came with the challenging of a patent issued to one of England’s most revered inventors. Sir Richard Arkwright’s ascent to fame was quite abrupt and remarkable, as it was primarily based on a privilege he had requested in 1769: the machine in question was

⁶⁰ W. CARPMAEL, *The Law of Patents for Inventions, Familiarly Explained, for the Use of Inventors and Patentees*, London, 1832, p. 11. This description, while referring to the early 19th century *caveats*, is perfectly suitable for the situation of the previous two centuries. Carpmael’s manual was meant to be read as a practical explanation of patents, therefore it makes for a great source for those keen on understanding the point of view of inventors at the time.

⁶¹ C. MACLEOD, *Inventing the Industrial Revolution*, p. 44.

⁶² J. HEWISH, *Rex vs Arkwright, 1785: A judgment for patents as information*, in *World Patent Information*, 1986, 8, pp. 34-35.

one which revolutionized and characterized the English industrial revolution, as it covered a cotton-spinning machine that hugely facilitated the expansion of the cotton industry, thanks to both its practicality and convenience. Similar kinds of machinery had already been devised by a number of inventors before him, including one by the name of Thomas Highs: Arkwright came across Highs' flawed model and, through the help of clockmaker John Kay, perfected it and applied for a privilege, which he received in 1769⁶³. He followed up this first patent with a second one, in 1775, for "an invention of certain instruments or machines for preparing silk, cotton, flax, and wool, for spinning"⁶⁴, as the two were meant to work together.

When Arkwright began strenuously defending his patents from abuses by unlicensed industry men, controversies quickly rose, since, at the time, patentees would often find themselves in unrecoverable positions if they decided to legally pursue infringements. Even though one of his attempts in 1785 proved to be successful⁶⁵, earlier that same year Arkwright had been presented with a writ of *scire facias*⁶⁶ against which he had to defend: the identity of the person who first acted is still unknown, mainly due to the absence of records, but the subject was most likely a member of the Manchester association of manufacturers, one of Arkwright's most vexed targets. The allegations borne by the writ of *scire facias* ranged from the lack of novelty of the invention to, crucially, the fact that no proper description had been provided⁶⁷, and they were all in reference to Arkwright's 1775 patent⁶⁸.

The case was brought before the Court of King's Bench, for it was generally decreed that what had been granted by the Crown (in this case a letters patent) only the Crown

⁶³ R. L. HILLS, *Sir Richard Arkwright and His Patent Granted in 1769*, in *Notes and Records of the Royal Society of London*, 1970, 24, p. 254. This article provides a detailed description of both the machine itself, including some explanatory pictures, and its previous conceivers. Sir Arkwright's fame is testified by the author's suggestion that the former "must have possessed some ability, even if it was only using other people's ideas".

⁶⁴ W. CARPMAEL, *Law Reports of Patent Cases. Volume I*, London, 1843, p. 53.

⁶⁵ *Arkwright v. Nightingale*, in W. CARPMAEL, *Law Reports*, pp. 38-53.

⁶⁶ A writ of *scire facias* is a type of judicial warrant based, in this case, on a letters patent, and which requires the person who receives it to show cause why the letters patent in question should not be annulled.

⁶⁷ With regards to the process through which the specification had become the focal point in a patent, see: J. N. ADAMS, *History of the patent system*, in *Research Handbook on Patent Law and Theory*, edited by T. Takenaka, 2019, Cheltenham, pp. 4-10.

⁶⁸ W. CARPMAEL, *Law Reports*, p. 53.

could annul, and it went through three separate hearings before eventually coming to a conclusion. Right from the beginning, it was immediately clear how the most problematic allegation, among the four borne by the writ, was the one regarding the lack of a “best description”: the main criticism to Arkwright’s patent specification was the absence of an appropriate description concerning the essential components of the machine in question. The inventor was contested the fact that

“In explaining a complicated machine that was to perform a process in a manufacture, if it was meant to communicate it to other men, the course would have been to speak of that part of the machine which first begins to work; then to speak of that which succeeds in the next part of the operation; and so on to the end.”⁶⁹

This in relation to the roller, identified as the vital part of the machine itself. Mr. Bearcroft, on the part of the prosecution, then proceeded by arguing that the specification failed to mention both the second and third most important components in Arkwright’s machine, using a similar tone⁷⁰. The inventor was also accused of purposely attempting to “puzzle and confound the secret”⁷¹ by adding the description of a number of parts that were of no importance whatsoever for the manufacturing of the invention. Moreover, as Mr. Bearcroft suggested, the rest of the specification actually proved how Arkwright could be very precise in some passages, but equally as vague when describing components that were crucial to the invention’s working.

Late 18th century common law required a specification to be enough for a “mechanic of reasonable knowledge in his profession”⁷² to make the machine; therefore, many witnesses, including numerous tradesmen and none other than James Watt himself, were called to provide their opinion on the subject, opinions which turned out to be mostly negative. Unfortunately for Arkwright, the court verdict declared the patent void⁷³.

⁶⁹ W. CARPMAEL, *Law Reports*, pp. 59-60. The entirety of *The King v. Arkwright*, including the latter’s final appeal, can be found in Carpmael’s report, pp. 53-103.

⁷⁰ *Ibidem*.

⁷¹ *Ivi*, p. 75.

⁷² *Ivi*, p. 66.

⁷³ *Ivi*, pp. 78-103.

The King v. Arkwright is considered to be a cornerstone in the history of legal proceedings concerning patents, and not just with regards to the newly remarked necessity of a complete specification: during the case, indeed, all the aspects of a Statute of Monopolies patent were analysed cautiously, including the questions on the legality of an invention of mere improvements and on paternity.

3 James Watt, or how to properly defend a patent in litigation

Amusingly enough, James Watt's lifetime collaborator Matthew Boulton, when writing to the former about one of Arkwright's previous court failures, commented on the news by stating that "if Arkwright had been quiet, he might have gone on and got £40,000 pr. annum"⁷⁴, even without constantly reaffirming his monopoly rights to anyone who used his inventions without a license. The irony resides in the fact that the venture of Watt and Boulton has been the source of arguably the most important instances of litigation to have ever occurred in patent law history.

James Watt still holds a deserved reputation as one of the world's most notable inventors: born in Scotland in 1736, he is responsible for singlehandedly improving the working of steam engines, in what can be considered as the most crucial leap taken during the First Industrial Revolution⁷⁵.

Steam engines as we know them had been around for a few decades before Watt's time at university, when he had the chance to work on the most widespread type, known as the Newcomen engine, used primarily for the draining of mine water. While experimenting with it, Watt realised that the introduction of a number of improvements could have a great effect on its overall efficiency. The Scotsman was financially

⁷⁴ A. P. WADSWORTH and J. de L. MANN, *The Cotton Trade and Industrial Lancashire, 1600-1780*, Manchester, 1931, p. 490.

⁷⁵ Watt's enduring merits are proven by the epitaph dedicated to him in Westminster Abbey, which read "Not to perpetuate a name which must endure while the peaceful arts flourish, but to shew that mankind have learned to know those who best deserve their gratitude. The King, His Ministers, and many of the Nobles and Commoners of the Realm raised this monument to JAMES WATT who, directing the force of an original Genius, early exercised in philosophic research, to the improvement of the Steam Engine, enlarged the resources of his Country, increased the power of Man, and rose to an eminent place among the most illustrious followers of science and the real benefactors of the World. Born at Greenock MDCCXXXVI Died at Heathfield in Staffordshire MDCCCXIX". Online at <https://www.westminster-abbey.org/abbey-commemorations/commemorations/james-watt/> [consulted on 9 September 2024].

supported by John Roebuck first, and by Matthew Boulton, an English businessman and factory owner, then; in the meantime, more precisely in 1769, Watt managed to take out a patent for his revised steam engine (the terms of which he would later successfully demand the Parliament to extend to an unprecedented twenty-five years, from the statutory fourteen).⁷⁶

The journey, however, had not been as straightforward as one might imagine, since the matter of the specification had been taken into very serious consideration by James Watt⁷⁷: the Scottish inventor was concerned about the possibility that, by filing a very detailed description, interlopers could fiddle with the engine's components just slightly and call the result their own by patenting it; on the other hand, a specification that was too vague was very likely to be rejected by the law courts, which were generally most irresolute when it came to what requirements exactly satisfied them⁷⁸.

His final wording was something of a *unicum* at the time, as he described his invention as a “method of lessening the consumption of steam and fuel in fire-engines”⁷⁹, and proceeded in enunciating the principles in which the method consisted: this very specific choice was made in an attempt not to list as many different applications of those principles as possible, which had become common practice among 18th century inventors.

Thanks to Boulton's entrepreneurial talent, the new Watt steam engine became the most viable alternative to the one Newcomen had developed, and began taking the former's place all around the kingdom: on top of this, the two had devised an ingenious method for the payment of due royalties, as the owners of their machines only had to pay them a percentage of the fuel savings achieved through the improved efficiency of Watt engines⁸⁰.

⁷⁶ B. SPEAR, *James Watt: The steam engine and the commercialization of patents*, in *World Patent Information*, 2008, 30, p. 55.

⁷⁷ After all, that specific period of English patent law history period presented many cases similar to Arkwright's, whose first relevant patent was granted during the same exact year as Watt's.

⁷⁸ E. ROBINSON, *James Watt and the Law of Patents*, in *Technology and Culture*, 1972, 13, pp. 118-120.

⁷⁹ *Patent N° 913/1769. Steam Engines, &c. Watt's Specification*, in *Deutsches Patent- und Markenamt*, https://www.dpma.de/docs/dpma/veroeffentlichungen/gb000176900913a_watt1769.pdf [consulted on 6 September 2024].

⁸⁰ B. SPEAR, *James Watt: The steam engine*, p. 55.

These efforts, however, paled in comparison to the ones in the law courts: many engineers attempted to modify slightly Watt's engine and installed the results in as many mines as they could, and the two most prominent examples were the ones of Johnathan Hornblower and Edward Bull⁸¹.

Boulton and Watt's answer was always prompt and decisive, and incidentally generated some of the most relevant court cases that English law has to offer: such is the case with *Boulton and Watt v. Bull*⁸². Bull was brought in front of the Court of Common Pleas in 1793, where the jury agreed with Boulton and Watt's part; however, upon a further patent infringement by Bull, the case dragged itself well into 1795.

What can be seen as a clear sign of the uncertainty still surrounding late 18th century patent law is the fact that, when deciding, the four judges split in two and two, and no judgement was agreed upon: this was caused by the evident confusion that the term "principle" had caused, leading some to believe that Watt had generally tried to patent the use of the force of steam; the more modern interpretation, however, was the one which allowed the patenting of principles, as long as they were sufficiently integrated in a proper machine or technique⁸³.

This and other cases in which Watt's monopoly rights were reaffirmed greatly aided the progress of English patent law, and they did so to the point that, after Boulton and Watt's campaigns, defending a patent in court became a custom among inventors.

Finally, it is worth pointing out how James Watt became not only an expert in patent law, in order to back his claims, but also a pioneer in theorizing ways in which the patent system could be improved: most of his visions went unnoticed, but a few, key intuitions deeply influenced the events of the first half of the 19th century.

⁸¹ Ivi, p. 56.

⁸² W. CARPMAEL, *Law Reports*, pp. 119-155.

⁸³ E. ROBINSON, *James Watt and the Law*, pp. 122-123.

CHAPTER III

The birth of the modern English patent system

When England entered the 19th century, it was a very different nation from 1624, and one of the main symptoms of these changes was the number of patents granted: the number, measured over a decade, had gone from thirty-six between 1660 and 1669, to six-hundred-forty-seven between 1790 and 1799⁸⁴. The Statute of Monopolies was clearly no longer up to the task, and it is important to remember how the resulting patent system was established only incidentally, with little to no specific provisions set out by the Statute itself.

The ground was set for a major reform and some inspiration could be drawn from what was happening in other systems overseas.

1 Patents as rights rather than privileges: the instances of France and the United States of America

Patents had been considered as part of the realm of privileges right from their introduction, yet this mentality was slowly starting to be overthrown by the advent of the Age of Enlightenment, and the effects of such a movement were most present in France.

Many Enlightened philosophers had begun theorizing patents as something belonging to the sphere of the inventor's natural rights⁸⁵, which was in open contrast with the merely economic meaning that early laws (including the Statute of Monopolies) ascribed to letters patent. Such theory had become so relevant that the preamble of the 1791 *Loi relative aux découvertes utiles* stated that "every novel idea, the manifestation

⁸⁴ A very detailed table can be found at: C. MACLEOD, *Inventing the Industrial Revolution*, p. 150.

⁸⁵ G. GALVAEZ-BEHAR, *The Patent System*, pp. 34-35.

or development of which can become useful for society, originally belongs to the person who has come up with it”: refusing to believe this corresponded to an attack to human rights⁸⁶.

However, the implications resulting from this original point of view were weighty: for instance, since the patent system had always been under the control of the crown (be it the English or French one), all its administrative functions had been carried out by the royal council and offices. Stripping the crown of such an undertaking would have created the necessity of a dedicated office and bureaucracy; this might seem now as a minor drawback, but, in an age when virtually every administrative aspect was managed by the crown, gathering the funds for such an office would have proven to be a challenging task.

It goes without saying, then, how a shift of this kind would have been considerably facilitated in the eventuality of a new nation being borne directly as a democratic system, and this was precisely what happened in the United States of America.

Up until independence in 1776, the applicable law in England’s American colonies was approximately the same as the motherland’s: this, of course, included patent law, and the situation remained unchanged for almost twenty years after the famous declaration. The attention to the subject, however, was not to be underestimated, as its first legislative mention is also the most important one: article I of the 1787 U.S. Constitution states that the Congress shall have power to “promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries”⁸⁷.

United States Congress eventually approved a new piece of legislation, the Patent Act, in 1790, just to replace it three years later with the definitive Act to promote the progress of useful Arts. Both regulations were innovative in the sense that they contemplated the idea of patents as expressions of a right, rather than a privilege (as a result of the great

⁸⁶ *Loi relative aux découvertes utiles et aux moyens d’en assurer la propriété aux auteurs*, found in: A. SCHULLER, *Handbuch der Gesetze über ausschliessende Privilegien auf neue Erfindungen, Entdeckungen und Verbesserungen im Gebiete der Industrie*, Wien, 1843, pp. 105-117.

⁸⁷ *Constitution of the United States of America-1787*, article I, section 8, point 8. Online at: <https://uscode.house.gov/static/constitution.pdf> [consulted on 23 September 2024].

impact that the French Revolution principles had had on the United States founding fathers)⁸⁸, while serving the very specific purpose of incentivizing inventiveness.

Interestingly, the Act to promote the progress of useful Arts turned a novelty introduced by the Statute of Monopolies into an institution: where the Statute affirmed that only the true and first inventor could be awarded a privilege, the Act remarked that “every inventor, before he can receive a patent, shall swear or affirm, that he does verily believe, that he is the true inventor or discoverer of the art”⁸⁹. On the surface, these two requirements may look similar, but the importance of this passage was far greater in the United States Act, since in England the aforementioned provision was almost never directly enforced⁹⁰.

Nevertheless, the Act to promote the progress of useful Arts did not come without its flaws: on the one hand, it was very accurate in defining the sums that interlopers would have to pay to the patentee in case they used his invention without a license⁹¹; on the other hand, nothing was done to properly scrutinize the legality of a patent. These much-needed improvements would eventually be introduced in 1836 through an updated Act, which also presented specific provisions for perfecting the lodging of *caveats*⁹².

With the United States being a common law system, court cases involving patents quickly sparked a very substantial doctrine, and what set it apart from other jurisdictions was its consistency, which enabled inventors to rely completely on the outcome of past cases to evaluate their chances before the judges⁹³.

⁸⁸ F. MAZZARELLA, *Diritto e invenzioni*, pp. 84-92.

⁸⁹ *An Act to promote the progress of useful Arts; and to repeal the act heretofore made for that purpose*, Section 3. Online at: <https://maint.loc.gov/law/help/statutes-at-large/2nd-congress/session-2/c2s2ch11.pdf> [consulted on 10 September 2024].

⁹⁰ The situation was especially critical in the colonies, as it was already mentioned in paragraph 1, Chapter II. The attention that the Act to promote the progress of useful Arts dedicates to this aspect can be seen as a sign of American lawmakers wanting to limit this kind of abuse, which they had witnessed in its worst form.

⁹¹ *An Act to promote the progress of useful Arts*, Section 5, which states that “every person so offending, shall forfeit and pay to the patentee, a sum, that shall be at least equal to three times the price, for which the patentee has usually sold or licensed to other persons, the use of the said invention”.

⁹² S. BOTTOMLEY, *Patents, Invention and Democracy in Britain and the United States to 1852*, in *Jahrbuch für Wirtschaftsgeschichte*, 2019, 60, pp. 13-15.

⁹³ *Ivi*, pp. 21-22. Even though the same could be said for England, the U.S. system was widely regarded to be the most favourable to patentees. Generally speaking, the results of litigations in England had kept being uncertain for almost two centuries before the judges started to embrace a more modern approach towards inventors (the turning point coincided with the Watt cases).

2 The seeds of a much-needed reform

Over the years, many historians have tackled the numerous questions surrounding the vertiginous rise in patent applications after the 1770s: moreover, the notable increase over the last two decades of the 18th century pales in comparison to the numbers reached after the year 1800⁹⁴.

This increase was clashing with the unsolved problems of the outgoing English patent system. First of all, the costs associated with patenting had become much greater in England than, for instance, in the United States; furthermore, patent systems within the United Kingdom were not unified, meaning that protection had to be sought separately for Scotland and Ireland: an English patent would have set an inventor back at least £145, the same as an Irish patent, while Scottish ones were slightly less expensive at about £90 each in the best possible scenario⁹⁵.

Secondly, the journey which inventors had to endure in order to obtain a patent had remained unchanged and its intricacy favoured the rise of patent agents who, behind the payment of a commission, would have followed the procedure themselves. Patent agents were often employed in the administrative offices which dealt with patents, among other things, and they offered a service which would have previously been performed by attorneys: hiring an agent allowed petitioners to significantly diminish the time between the filing of the application and receiving the patent, but the fees were considerable, and not many could afford this type of assistance⁹⁶.

Thirdly, it is critical to understand how the number of patented inventions was only a fraction of the total number of innovations: the propensity to patent varied among

⁹⁴ For another detailed table covering the years from 1700 to 1851 see: S. BOTTOMLEY, *Patenting in England, Scotland and Ireland during the Industrial Revolution, 1700-1852*, in *Explorations in Economic History*, 2014, 54, p. 55.

⁹⁵ S. BOTTOMLEY, *Patenting in England*, pp. 50-51. The sums are calculated for the years 1845 and 1849: they correspond respectively to about £15.000 (English and Irish patents) and £9.000 (Scottish patent), adjusted for inflation as of July 2024 at: <https://www.bankofengland.co.uk/monetary-policy/inflation/inflation-calculator> [consulted on 13 September 2024].

⁹⁶ S. BOTTOMLEY, *Patents, Invention and Democracy*, p. 13. Regarding the matter of costs, it is worth pointing out that the total of professional inventors (or inventors who had an aristocratic background) in England before 1852 greatly outnumbered inventors coming from the low or middle classes.

different trades and industries, and was predominantly impacted by the two aforementioned factors, *i.e.* costs considered as both in money and time⁹⁷.

Among the many patents issued during this time of uncertainty, one of the most prominent was the one granted to Cornish engineer Richard Trevithick and his cousin Andrew Vivian for the first ever high-pressure steam engine⁹⁸. The scarcity of coal in Cornwall was a major concern for mining businesses, as the cost of running the already-efficient Watt engines could sometimes be higher than the benefits they provided: it was for this very reason that many sought to improve standard steam engines. Richard Trevithick proved to be up to the task when, in the years around 1800, he developed an incredibly efficient engine, which relied on high-pressure steam to outperform other machines⁹⁹; the Cornishman would then go on and take out a patent for said invention in 1802. Nowadays, though, Trevithick is best remembered for one specific application of his engine: indeed, his patent specification also alluded to a type of steam-powered carriage he had been working on for a number of years, a machine which would then become the first railway locomotive¹⁰⁰.

3.1 A new dawn: the 1852 Act

Crucially, though, and in spite of the role played by the common law, the Statute of Monopolies was still the only clear regulation sanctioning patents; previously-mentioned issues were caused by a variety of factors and not directly by the Statute, but the latter was responsible for the general approach to patenting: it was still an essentially negative piece of legislation and the only rules it established were limitations intended to prevent inventors from destabilizing trades and industries within the realm¹⁰¹.

⁹⁷ S. BOTTOMLEY, *Patenting in England*, pp. 49-54.

⁹⁸ *Calendar of Patent Records*, in *Nature*, 1929, 123, p. 476.

⁹⁹ C. MACLEOD and A. NUVOLARI, *Patents and Industrialization: An Historical Overview of the British Case, 1624-1907*, in *LEM Working Paper Series*, 2010, 4, p. 13.

¹⁰⁰ For the complete transcription of Trevithick and Vivian's specification, as well as the former's biographical record, see: F. TREVITHICK, *Life of Richard Trevithick*, London, 1872, Volume I, Chapter VIII.

¹⁰¹ B. Z. KHAN and K. L. SOKOLOFF, *Patent Institutions, Industrial Organization and Early Technological Change: Britain and the United States, 1790-1850*, in *Technological Revolutions in Europe. Historical Perspectives*, edited by M. Berg and K. Bruland, Cheltenham, 1998, pp. 295-296.

Pressure from both inventors and industry men¹⁰², who no longer feared to be endangered by the granting of patents and wanted to take advantage of the system themselves, had been building up for decades when Parliament finally approved the Patent Law Amendment Act in 1852¹⁰³. Its enacting can be seen as an even more notable remark by Parliament, as those were the years during which the notorious patent controversy was starting to shake the very foundations of the traditional economic and entrepreneurial beliefs that had been considered as well established in Europe¹⁰⁴. However, the Patent Law Amendment Act left no-one astonished, since numerous Bills were almost made into Acts in the two decades prior to its approval¹⁰⁵. It can also be argued that the decisive push for the passing of the Act came from the Great Exhibition, held in London in 1851, with its main focus being inventions and, generally, innovations: to hold such an event in a nation where many were manifesting their disapproval of the old patent system was most certainly a contradiction¹⁰⁶.

The differences between the Statute of Monopolies and the Patent Law Amendment Act were profound, as the latter presented no less than fifty-seven articles which covered every conceivable aspect of patents: the Act was also important in the way it unified the patent systems within the United Kingdom, allowing inventors looking for protection throughout the realm to apply for a single patent rather than three.

Crucially, the figure of the Commissioner of Patents for Inventions was introduced: the Commissioners included the Lord Chancellor, Her Majesty's Attorney General for England and so on, as well as anyone who had been specifically appointed by Her

¹⁰² During the discussions on the Bill that preceded the Act, one MP stated that he had “received representations from various quarters regarding the evils of the present system”, therefore soliciting the passing of the reform. Part of the debates on the Patent Law Amendment Bill can be found at: <https://api.parliament.uk/historic-hansard/commons/1852/may/27/patent-law-amendment-bill> [consulted on 15 September 2024].

¹⁰³ *An Act for amending the Law for granting Patents for Inventions [1st July 1852]*, in *The Statutes of the United Kingdom of Great Britain and Ireland, 15 & 16 Victoria, 1852*, edited by Parliament of the United Kingdom of Great Britain and Ireland, London, 1852, p. 422, article LVI.

¹⁰⁴ For a more detailed dissertation, see: F. MACHLUP and E. PENROSE, *The Patent Controversy in the Nineteenth Century*, in *The Journal of Economic History*, 1950, 10, pp. 1-29. In the end, it was the patent advocates who prevailed, but the controversy had put many nations on hold when trying to legislate on patents.

¹⁰⁵ T. WEBSTER, *The New Patent Law: Its History, Objects and Provisions*, London, 1854, pp. 3-4.

¹⁰⁶ *Ivi*, pp. 5-6. We can consider the 1851 Great Exhibition as the moment when the concept of patents as property rights was officially accepted in the United Kingdom.

Majesty¹⁰⁷ for such a role. The Commissioners were essentially supervisors of the system, while holding some power when it came to setting specific rules and regulations on the matter of patents (those rules still had to be laid before both Houses of Parliament in order to be approved). Most importantly, the Commissioners were responsible for creating and maintaining the newly founded Office of the Commissioners¹⁰⁸. Though the present-day Patent Office was formally established in 1883, with a subsequent Act, it was largely based on the institution that was the Office of the Commissioners¹⁰⁹.

The new patenting procedure was markedly less intricate than the former: first of all, it required all applicants to leave their petition, together with the complete specification for their invention, at the Office, where a record was kept of all the applications (the application included the petition, the declaration and the complete specification). The application was then forwarded to the law officers, who would examine it with the help of scientists when needed, providing a certificate of allowance if they were satisfied with the way the specification described the invention. From this point onwards, the applicant was entitled to apply for a letters patent: upon manifesting his intention to do so, the patent office would publish his application, so as to allow anyone bearing opposing interests to submit a written objection (the terms would have to be set by the Commissioners). In case no objection was filed, or the examination of the submitted ones be negative, the law officer responsible for that application would have caused a warrant to be made for the issuing of a letters patent for the invention. Such procedure was not to be extended to affect the royal prerogative, meaning that the Crown could interfere with the patent office and dictate their own terms for individual patents: this clause, however, was a mere *pro forma*, as the chances of a direct intervention by the Queen were little to none¹¹⁰.

¹⁰⁷ Indeed, by 1852 Queen Victoria had been reigning for fifteen years.

¹⁰⁸ *An Act for amending the Law for granting Patents*, pp. 407-408, articles I, III, IV and V. Article V explicitly stated that Commissioners could appoint “such Clerks and Officers as the Commissioners may think proper” to work at the Office of the Commissioners.

¹⁰⁹ J. N. ADAMS, *History of the patent system*, p. 22. The partial reform of 1883 was initiated through the Patents, Designs, and Trade Marks Act.

¹¹⁰ *An Act for amending the Law for granting Patents*, pp. 409-411, articles from IX to XVI (for the whole paragraph).

Article XXV presented a very peculiar provision, regarding letters patent issued in the United Kingdom for an invention which had already been patented in a foreign country: the formers, the Act specified, would have become void at the expiration of the foreign patent¹¹¹.

Importantly, the Register of Patents and the Register of Proprietors were also first established: the former was set to contain every possible document and piece of information concerning all patents granted under the Act, making it all available for the public to inspect at all times. Its purposes were manifold, and they included its relevance as evidence in any court proceeding concerning its content. On the other hand, the Register of Proprietors served as a complete record of the patentees' personal information and shares in patents¹¹²: the combination of these two Registers provided what had been missing from the previous system, *i.e.* a modern patent roll¹¹³.

The doubts surrounding the formalities of applying for a patent were thoroughly answered by the numerous annexes of the Act itself, which not only included a comprehensive table showcasing the costs of each step of the procedure, but also the official version of the forms that applicants had to submit: a blank petition, declaration and specification were provided, thus clarifying once and for all what modules could be accepted and what not¹¹⁴. The official forms were not made mandatory, but all applications thereafter essentially resembled the overall structure that could be found in them, in order to avoid controversies before the law officers or the judges¹¹⁵.

It is thus obvious how the Patent Law Amendment Act can be considered as an altogether different piece of legislation from the Statute of Monopolies. The articles presented in the Act went into great depth, condensing over two centuries of juridical

¹¹¹ *Ivi*, pp. 413-414.

¹¹² *Ivi*, pp. 415-416, articles XXXIII, XXXIV and XXXV.

¹¹³ E. WYNDHAM HULME, *The History of the Patent System*, p. 141. Wyndham Hulme specifically recalls the mishap of 1827, when the Houses, in an effort to have a better understanding of what system the Statute of Monopolies and the common law had given birth to, had requested a complete list of all the patents issued under the Statute: however, "the resources of the Keepers of the National Records proved unequal to the demands made upon them; and as a matter of facts the return was never presented".

¹¹⁴ *An Act for amending the Law for granting Patents*, pp. 422-429.

¹¹⁵ J. W. GORDON, *Monopolies by Patents and the Statutable Remedies Available to the Public*, London, 1897, p. 107. In spite of the fact that Gordon is here referring to one of the subsequent iterations of the 1852 Act, *i.e.* the aforementioned Patents, Designs, and Trade Marks Act, the formulas and annexes are essentially identical to the original.

doctrine into a tight-packed and easily comprehensible regulation¹¹⁶. Furthermore, unifying the English, Scottish and Irish patent systems resulted in a noticeable decrease in both the costs of patenting and the trouble that each petitioner had to endure in order to obtain nation-wide protection for his invention: the initial cost of a United Kingdom patent was lowered to just £25¹¹⁷.

The 1852 Act finally established a system which, even in its imperfections, allowed the United Kingdom to make the transition from the recent heritage of the First Industrial Revolution to what would then become the Second: if, during the 18th century, inventors were doubtful on whether to apply for a patent or not (and those who did found themselves in a constant quarrel with the system), the situation during the second half of the 19th century was much improved, and seeking a patent rightfully became a habit.

3.2 Further reforms in a consolidated system

Unfortunately, hoping that the introduction of the Patent Law Amendment Act would mark the end of patent-related debates turned out to be quite optimistic: its enacting fuelled the spirits of a small, but qualified minority of MPs, who called for the abolishment of the patent system and managed to hold their ground for a while before the patent-advocate majority eventually prevailed. The reaction of those who favoured patents was overwhelming: not only did the United Kingdom not dismiss patents, but Parliament resolved to elaborate a further reform of the system¹¹⁸.

As a result of this, 1883 saw the passing of the Patents, Designs, and Trade Marks Act, a regulation intended to amend the 1852 Act and rectify some of the issues which had emerged during the two previous decades; since these problems originated from the unclarity of some passages from the original Act, many practical guidelines were provided. This was the case with the specification, as the 1883 Act enumerated the

¹¹⁶ The Act was written to such detail that some most peculiar topics and situations were covered, even going to the extent of specifying how patent rights did not apply to inventions used in foreign ships harboured in British ports, hence preventing foreign sailors from being brought in front of any court for the infringement of a letters patent (*An Act for amending the Law for granting Patents* p. 414, article XXVI).

¹¹⁷ C. MACLEOD and A. NUVOLARI, *Patents and Industrialization*, p. 16. £25 in 1852 equate to roughly £3.000 as of August 2024.

¹¹⁸ *Ivi*, p. 17.

reasons that could render a patent void because of an improper description: such aid was warmly welcomed by applicants all over the nation, as it was the very first time that a piece of legislation clearly defined the requirements of something so controversial in the law courts¹¹⁹.

Patent-related costs were also addressed: while the initial cost had been lowered significantly throughout the years, it was the fees required to maintain a patent for the full, statutory fourteen years that prevented many patentees from keeping the validity of their patents. Once again, popular demand was met with the gradual reduction of those costs, making an early 20th century patent far easier to keep than any 19th century one¹²⁰.

Finally, one major concern was left to solve: the examination of applications was introduced, in some form, by the 1883 Act. It consisted of a mere control on the form of the application and specification, but it was not considered to be enough. A complete examination process was introduced incrementally, first through the 1902 Patent Act, which made an examination for prior art compulsory, then with the 1907 Patents and Designs Act, after which the novelty of the invention became a requirement that law officers had to scrutinise already in the application¹²¹.

¹¹⁹ The complete transcription of the Act can be found in: J. E. CRAWFORD MUNRO, *The Patents, Designs, and Trade Marks Act, 1883 (46 & 47 Vict. C. 57) with the Rules and Instructions, together with Pleadings, Orders, and Precedents*, London, 1884, pp. 1-70 (as for the sections dedicated to patents). The 1883 Act also further reduced the costs of the initial application.

¹²⁰ For a complete breakdown of the costs of maintaining a patent for four, seven and fourteen years, see: C. MACLEOD and A. NUVOLARI, *Patents and Industrialization*, pp. 19-20.

¹²¹ J. N. ADAMS, *History of the patent system*, p. 22; as well as: C. MACLEOD and A. NUVOLARI, *Patents and Industrialization*, p. 20.

Conclusions

At first glance, the history of English patent law might not appear to be the most notable one to examine: although the letter of protection awarded to Flandrien John Kemp predates other instances of privileges across Continental Europe, most interpretations see it more as a call to spread the weaving arts in question all around the kingdom, than as an actual grant of monopoly powers¹²².

The same argument can be made when examining actual laws sanctioning patents, as England first introduced theirs more than a century later than Venice, and, even then, without much success.

Nevertheless, this subject turns out to be extremely relevant when considered as a whole, since England offers a unique example of patent law evolution throughout the centuries, from the late Middle Ages to the modern era. The governmental system present in England as we know it today, *i.e.* a parliamentary monarchy, has remained unchanged for centuries, and even the English Revolution did not manage to replace the traditional monarchical government for long: its biggest consequence was a shift in the balance of powers between the Crown and Parliament, but the institutions of the kingdom survived almost unphased, and the roots of the nation were honoured, rather than overthrown¹²³.

1.1 The pointlessness of comparisons

It is because the variables are of minor importance and the general picture firm, that monitoring how English patent law institutions developed across a range of centuries makes full sense.

¹²² The privilege of “Johanne Kempe de Flandria” was already mentioned in the first paragraph of Chapter I: one of the most authoritative interpretations of such grant is the one by Wyndham Hulme, see note 19. For more information on other privileges in Continental Europe, see: J. KOSTYLO, *1. From gunpowder to print*, pp. 40-45.

¹²³ A more thorough analysis of the English Revolution can be found in the third paragraph of Chapter I.

Unfortunately, the same cannot be said when examining other scenarios: as it was already mentioned, pioneering work on patent regulations had been performed by the Venetian republic, but its contribution to modern patent laws is negligible, if anything for the fact that Venice as an independent entity ceased to exist in 1797, after having played a marginal role in the first half of the First Industrial Revolution¹²⁴.

France, on the other hand, despite being independent from the early Middle Ages, experienced a major turn of events in the form of the French Revolution; this meant that regulations were not simply updated, but altogether rewritten and based on the revolutionary principles that had given the drive for the overthrowing of the absolutistic monarchy. This implies that any comparison between pieces of legislation from different periods is faulted right from the beginning, as it would have to take into account the different systems that produced them: these issues become even more prominent when entering the 19th century, since the revolutionary government only lasted a handful of years.

Finally, since the United States are now, and have been for a while, at the forefront of intellectual property rights protection, one might be tempted to delve into its historical records: it would come as little to no surprise, then, how the origins of United States legislations coincide with 18th century English law, adequately updated by the influence of Enlightened principles and ideas.

1.2 The focus of our analysis

All things considered, the period which best showcases the evolution process of the English law of patents is, without any doubt, the one between the latter part of the 16th century and the first half of the 19th century. This period can be defined with such degree of precision because it ranges from the years when the awarding of privileges became part of an established policy funded by the government, to the times when a modern and contemporary-like Act regulating the matter was approved, and the reference points are very clearly outlined.

¹²⁴ J. FOOT, R. CESSI and D. E. COSGROVE, *Venice*, in *Encyclopedia Britannica*, <https://www.britannica.com/place/Venice> [consulted on 26 September 2024].

The historical figure that can be credited as the founder of the English patent system is unquestionably Lord Burghley, the most prominent member of Elizabeth I's council. He recognized the lack of innovations in England as a crucial problem and addressed it by advising the Queen to revert back to a strategy which her predecessors had been using on an occasional basis: the worth of Lord Burghley resides in the reasons why he intended to systematically award privileges to foreigners who imported techniques and inventions from the Continent, rather than in the idea of using grants at all, as this concept had already been developed centuries prior¹²⁵.

Burghley's intentions, it must be noticed, were more practical than theoretical, as they had sparked from his observation of the prices of commodities, which were significantly higher when supplies had to be imported. Therefore, consolidating key industries within the realm would have boosted the economy greatly, by lowering the cost of living and increasing occupation, as well as improving the life conditions of the population.

Inside this picture, the Statute of Monopolies strongly clashed with the Crown's advocacy of patents at the time, but was crucial in the way it expressed the population's disapproval towards monopolies: despite attracting a considerable amount of criticism, especially when examined through the lenses of a contemporary perspective, the Statute was very effective in defining the limits of patent protection¹²⁶. What must be taken into consideration when reading the Statute of Monopolies is the context in which it was approved, a time when Parliament was desperate to halt the abusive approach that James I had towards the awarding of letters patent. Still, it is worth remarking how, without the English Revolution, the Statute might not have been enough to prevent the aforementioned abuses of the system, and the difference in the approach taken by Charles I from that of his successor should be ascribed to the effects of the Commonwealth, rather than to those of legislations.

After the approval of the Statute, the weight of developing a patent law doctrine was transferred upon the shoulders of the law courts, as it is customary within common law jurisdictions. With regards to this topic, many scholars, throughout the years, have

¹²⁵ A deeper dive into Burghley's policies can be found in paragraph 1.2, Chapter I.

¹²⁶ The entirety of paragraph 2, Chapter I is dedicated to a proper analysis of Section 6, Statute of Monopolies.

highlighted what they perceived as hostility towards patentees by the judges, to which many others counterargued that, among other things, “the evidence for this, certainly when we look at the court records themselves, is sparse”¹²⁷. As it oftentimes is, the truth may lie in the middle: on the one hand, 18th century inventors were undeniably sceptical about applying for letters patent, as the records were populated by notable patent invalidations, such as Arkwright’s¹²⁸. On the other hand, those cases were mostly concerned with faulted specifications, rather than with an actual opposition towards monopolies by the judges; the uncertainty of the law surrounding specifications is unquestionable, but cases such as Watt’s demonstrate how there were ways to work around this problem, especially by closely studying the subject upon writing the description of the invention¹²⁹.

1.3 Obsolete laws in a thriving nation

Besides, what is relevant here is that, even without considering the years prior to the Restoration, the Statute of Monopolies had been the reference for English patent law for almost two centuries before eventually being replaced by the Patent Law Amendment Act: even more astonishingly, the procedure to apply for a letters patent was, at the eve of the 1852 Act’s passing, the same as three centuries earlier¹³⁰. This obsolete system had somehow endured what is now considered to be one of the milestones of Modern history, *i.e.* the First Industrial Revolution.

One further aspect which is worth mentioning is the shift in the mentality behind the granting of patents, which were no longer to be seen as means of rewarding importers of innovations, in accordance with Lord Burghley’s now-outdated late 16th century theories, but as formal recognitions of the inventors’ rights on their inventions.

To say that the Act of 1852 was a relief to many would be an understatement, since it brought the United Kingdom back on a par with other world-leading nations, and the

¹²⁷ S. BOTTOMLEY, *Patents, Invention and Democracy*, p. 20.

¹²⁸ See paragraph 2, Chapter II.

¹²⁹ E. ROBINSON, *James Watt and the Law*, pp. 125-130.

¹³⁰ As it was already mentioned, the standardized procedure for letters patent was defined by the 1535 Clerk’s Act.

importance of such reform also lies in the way it laid the foundations of contemporary English patent law; indeed, all subsequent Acts essentially updated what was first set out by the Patent Law Amendment Act.

In fact, regularly amending the law of patents became customary throughout the 20th century, preventing the United Kingdom from falling behind on a matter of this prominence in the same manner as what had happened from the second half of the 18th century onwards.

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