

The Patent System of the Netherlands in a Belgian Mirror, 1817-1869¹

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Abstract

This article is an institutional study of the patent systems of the United Kingdom of the Netherlands and its successor states Belgium and the Netherlands in the nineteenth century. The patent law of 1817 gave the state wide discretion to accept or refuse patents and to customize their duration, fees, and terms on a case-by-case basis. Through an in-depth reconstruction of the patent system's administrative process, I demonstrate (1) how this system developed informal rules of procedure in its initial years, and (2) how the law after Belgium's independence fared differently from 1830 onward in each successor state. While in an industrializing Belgium the patent system became widely used and increasingly codified by the state, culminating in an 1850s reform, in the Netherlands slow industrialization coincided with the state neglecting the patent system, which led in 1869 to its abolition there. The institutional study thus provides a new perspective on the Dutch patent abolition, and a foundation for future research on the Dutch and Belgian cases to study the relationships between patents, industrialization, and innovation.

¹ I thank Stephen Billington, Graham Brownlow, Chris Colvin, Christopher Coyle, Norma Dawson, Alexander Donges, Philip Fliers, Oscar Gelderblom, Joost Jonker, Apolline Malevez, Alessandro Nuvolari, John Turner, and the editors of *TSEG* and anonymous reviewers for their help and comments. I thank David Bijsterbosch and Dorine Smit-Maarschalkerweerd for their assistance in digitizing part of the patent registries. I acknowledge the financial support by the Northern Ireland Department of the Economy and the European Union under the Marie Skłodowska Curie COFUND SPaRK project (H2020-EU.1.3.4. 754507), as well as the Utrecht Network Young Researchers' Grant (2019).

Introduction

This article investigates the patent system of the Low Countries in the context of the First Industrial Revolution. It focuses on the 1817 patent law introduced by the United Kingdom of the Netherlands (henceforth UKNL) – a state that spanned present-day Belgium, the Netherlands, and Luxemburg – and its fate in the successor states of Belgium and the Netherlands.

The relationship between the institution of patents and innovation/industrialization is a prominent subfield of economic history and, more generally, of economics.² Patents are known to have conflicting effects on the innovation, dissemination, and economic application of technology. On the one hand, they grant temporary exclusive rights that enable a patentee to protect, sell, or license their patented invention, thereby enabling or promoting its commercialization and thus enhancing incentives to innovate. Patents also codify graphically and textually the invention in the patent ‘specification’, which permits enforcement while at the same time enhancing the dissemination of the invention if made public. At the same time, however, an exclusive right necessarily limits the use of and improvement in that innovation during the patent’s duration.³

How much discretion should be given to the state in granting patent rights is an important dilemma in the economic literature on the design of patent institutions: are patents most effective in promoting innovation when they rigidly provide a ‘credible commitment’ to guarantee the same rights whatever the consequences, as some scholars argue,⁴ or does too little government discretion in patent systems lead to undesirable or inefficient outcomes that are worse?⁵ After all,

2 Christine MacLeod and Alessandro Nuvolari, ‘Inventive activities, patents and early industrialisation. A synthesis of research issues’, *Rivista Di Storia Economica* 1:April (2016) 77-107; Jochen Streb, ‘The cliometric study of innovations’, in: Claude Diebolt and Michael Hauptert (eds), *Handbook of cliometrics* (Cham 2016).

3 Suzanne Scotchmer, *Innovation and incentives* (Cambridge MA 2006); Tom Nicholas, ‘Are patents creative or destructive?’, *Antitrust Law Journal* 79:2 (2014) 405-421.

4 Finn E. Kydland and Edward C. Prescott, ‘Rules rather than discretion. The inconsistency of optimal plans’, *Journal of Political Economy* 85:3 (1977) 473-491; Douglass C. North and Barry R. Weingast, ‘Constitutions and commitment. The evolution of institutions governing public choice in seventeenth-century England’, *The Journal of Economic History* 49:4 (1989) 803-832.

5 Scotchmer, *Innovation and incentives*; Angus C. Chu, ‘The welfare cost of one-size-fits-all patent protection’, *Journal of Economic Dynamics and Control* 35:6 (2011) 876-890; Daron Acemoglu and Ufuk Akcigit, ‘Intellectual property rights policy, competition and innovation’, *Journal of the European Economic Association* 10:1 (2012) 1-42.

guaranteeing the same rights to all applicants results in the attribution of the same period of exclusivity and fees to a minor or a major invention, to an invention in a fast-moving industry where innovations are quickly obsolete, or to a medicine that will still be taken three decades later, and to a foreigner as much as to a national. Calibration to the specifics of the case would arguably make patents more just and efficient, but also decreases their predictability and transparency, with more room for arbitrariness, corruption, and risk.

Patent systems in the nineteenth century had not fully crystallized and were more varied and often more flexible than patent institutions today.⁶ Some scholars argue that the developing patent institutions of late eighteenth- and early nineteenth-century Britain, France, and the United States played a major role in promoting their early industrialization and economic growth.⁷ Others argue that patents co-evolved with industrial development and were a consequence of economic growth, that patent rights are in fact only incidental to industrialization, or even that they impeded the Industrial Revolution.⁸

Since the direction of the causation is difficult to disentangle, a comparison of two countries with entirely different economic experiences sharing the same patent law may, then, provide more evidence on the link between patent institutions and industrialization. The Dutch-Belgian patent system of 1817, which the two countries continued to share after their separation in 1830, is an understudied

6 Nowadays, patent rights tend to converge in a standard model of pre-grant examination, a fixed maximum length, yearly patent renewal fees, and immediate accessibility of the patent specifications. Brad Sherman and Lionel Bently, *The making of modern intellectual property law. The British experience, 1760-1911* (Cambridge 2008); Alexander Donges and Felix Selgert, 'Do legal differences matter? A comparison of German patent law regimes before 1877', *Jahrbuch für Wirtschaftsgeschichte / Economic History Yearbook* 60:1 (2019) 57-92, <https://doi.org/10.1515/jbwg-2019-0004>.

7 Kenneth L. Sokoloff and B. Zorina Khan, 'The democratization of invention during early industrialization. Evidence from the United States, 1790-1846', *The Journal of Economic History* 50:2 (1990) 363-378; Sean Bottomley, *The British patent system during the Industrial Revolution, 1700-1852. From privilege to property* (Cambridge 2014); B. Zorina Khan, *Inventing ideas. Patents and innovation prizes, and the knowledge economy* (Oxford 2020).

8 Christine MacLeod, *Inventing the Industrial Revolution. The English patent system 1660-1800* (Cambridge 1988); David Greasley and Les Oxley, 'Patenting, intellectual property rights and sectoral outputs in Industrial Revolution Britain, 1780-1851', *Journal of Econometrics, The Econometrics of Intellectual Property* 139:2 (2007) 340-354, <https://doi.org/10.1016/j.jeconom.2006.10.018>; Joel Mokyr, 'Intellectual property rights, the Industrial Revolution, and the beginnings of modern economic growth', *The American Economic Review* 99:2 (2009) 349-355; Liliane Hilaire-Pérez et al., 'Innovation without patents', *Revue Économique* 64:1 (2013) 5-8; MacLeod and Nuvolari, 'Inventive activities'; Petra Moser, 'Patents and innovation in economic history', *Annual Review of Economics* 8:1 (2016) 241-258, <https://doi.org/10.1146/annurev-economics-080315-015136>.

case that has not featured in the aforementioned academic debates so far. While Belgium was the second European country to industrialize after Britain, its patent system has been studied in only two unpublished PhD dissertations, by De Favereau and by Péters, which take their points of departure only after Belgium's independence in 1830.⁹ By contrast, the Netherlands did not begin industrializing until the 1860s,¹⁰ and the only in-depth investigation of its nineteenth-century patent system is Doorman's work of 1947.¹¹ The unprecedented Dutch abolition of its patent system has interested more scholars, although their articles rely on juxtaposing summaries of contemporary publications and parliamentary debates during an era when patents were controversial across Western Europe,¹² all reaching the conclusion that the abolished law was badly designed and malfunctioning.¹³ However, they did not investigate how the system actually functioned at the time, nor how the system had performed before it supposedly became malfunctioning.

In this article, I therefore contribute to these debates with an institutional analysis reconstructing the Dutch-Belgian patent system and its development, tracing it from its introduction in 1817 to its 1854 reform (Belgium) and its 1869 abolition (the Netherlands). I study its actual implementation beyond merely relying on the legal stipulations,

9 C. De Favereau, 'Faire germer le progrès. Déterminants techniques, sociologiques et culturels de l'inventivité brevetée agricole en Belgique (1830-1913)' (unpublished PhD dissertation, Catholic University of Louvain 2011); Arnaud Péters, 'Course à l'innovation et mécanique des brevets. L'évolution technologique dans l'industrie belge du zinc (1806-1873)' (unpublished PhD dissertation, University of Liège 2014).

10 J.L. van Zanden and Arthur van Riel, *Nederland 1780-1914. Staat, instituties en economische ontwikkeling* (Amsterdam 2000); Arthur van Riel, 'Trials of convergence. Prices, markets and industrialization in the Netherlands, 1800-1913' (PhD dissertation, Utrecht University 2018).

11 G. Doorman, *Het Nederlandsch octrooiwezen en de techniek der 19e eeuw* (The Hague 1947).

12 While European countries and their (former) colonies almost all introduced patent laws during the late eighteenth and nineteenth centuries, patents became controversial in several developed European countries (France, Prussia, United Kingdom, and the Netherlands) during the third quarter of nineteenth century. By the 1870s, this controversy had subsided, and from this time patents became increasingly stable and uniform through multilateral intellectual property treaties. During the patent controversy, the Netherlands was the only country to repeal its patent law. Switzerland, by contrast, was relatively unique for never having introduced one. Fritz Machlup and Edith Penrose, 'The patent controversy in the nineteenth century', *The Journal of Economic History* 10:1 (1950) 1-29; Eric Schiff, *Industrialization without national patents. The Netherlands, 1869-1912, Switzerland, 1850-1907* (Princeton NJ 1971).

13 Machlup and Penrose, 'The patent controversy'; D. den Hertog, 'De anti-octrooibeweging in Nederland (1850-1886)', *Bijblad bij De Industriële Eigendom* 44:2 (1976) 27-35; Stef van Gompel, 'Patent abolition. A real-life historical case study', *American University International Law Review* 34:4 (2019) 877-922.

in order to observe the shape the institutions took in practice, thus allowing for further research on their economic effects.

This analysis is important because the effect of legal changes on lived practice depends, among other things, on how (consistently) these changes are obeyed, enforced, and implemented; on the interaction with uncoded practices in bureaucracies or in society more widely; on the strength of interest groups and stakeholders to monitor the implementation and influence further development; and on the extent of resources available to a bureaucracy to enact change. I thus follow a tradition in political science that emphasizes policy implementation to understand institutional performance and institutional change.¹⁴

This article is the necessary first step, laying the foundation for follow-up work on any future (econometric) analysis of the impact that the UKNL patent system could have had on the Dutch or Belgian economy or society, thus also providing foundational evidence for research on the relations between patent institutions and industrialization considering the widely diverging outcomes of the Netherlands and Belgium. The crucial and novel contribution of this paper is its understanding of the (set of) institution(s).

Its detailed reconstruction is particularly welcome because the Dutch-Belgian law was extremely discretionary: the government could decide whether to grant the patent for each application, its duration, patent fees, and other conditions. This process might have become arbitrary, but, as I show, the UKNL augmented the formal statutory rules of operation by developing informal bureaucratic operating practices that made its application more predictable and consistent. However, I also show how this flexibility ultimately affected the institutions' stability. I argue that the application and the future of the same patent law diverged after the Dutch-Belgian split in 1830: while in a industrializing Belgium, the patent system was increasingly used and codified up to a radical patent law reform in 1854, the Netherlands, lagging behind in industrialization, increasingly neglected and decreased the effectiveness of its patent system to the point that it became easy to repeal in 1869.

Methodologically, the present study relies on the well-preserved patent dossiers at the Dutch National Archives, in addition to contemporary published sources, as well as on the work of Péters for

14 Peter L. Hupe and Michael J. Hill, "And the rest is implementation". Comparing approaches to what happens in policy processes beyond great expectations', *Public Policy and Administration* 31:2 (2016) 103-121.

the Belgian developments from 1830 onward.¹⁵ I first sampled patent dossiers from the archives every five years from 1815 to 1870, in order to observe changes in practice to further investigate those periods where changes occurred. I also relied on the *Indices op de verbalen*, which summarized all the documents entering and leaving the ministry, allowing quick reconstruction of the patent process.¹⁶ Thus I naturally concentrated on what emerged as the most discretionary early years, 1817-1830, where I read every dossier. The focus of this close reading was the procedure followed, the characteristics (origin, class, etc.) of the patentee and the invention, and the reasoning behind the decisions made (to accept or reject a patent, to augment or reduce its duration, to reduce fees or grant loans, etc.). At the same time, I formed a patent database from the registries, so as to derive descriptive statistics on the use of the system.¹⁷ By juxtaposing these results with the secondary literature and historiography on the Dutch and Belgian patent systems and economies, I established a new perspective on their institutional development.

This article is divided into four sections. First, I elaborate on why patents should be studied by economic historians of the Industrial Revolution. Then, using primary data, I reconstruct the patent law of the UKNL. I discuss how civil servants attempted to create consistent practices in granting patents in the period up to Belgium's independence (1830). Next, I analyze how partition radically influenced the development path of the patent institutions of both Belgium and the Netherlands. Finally, I demonstrate how the historical development of the Dutch patent system is crucial knowledge for understanding why it was abolished. In the conclusion, I link back to the previous discussion of patents and the Industrial Revolution.

15 Unfortunately, Belgium's archives have preserved little documentation on the process of patenting. Péters thus had to rely mostly on published source material. See: Péters, 'Course à l'innovation'.

16 See Nationaal Archief, Den Haag (hereafter NL-HaNA), Archief Binnenlandse Zaken, 1813-1848 (hereafter BiZa 1813-1848), entry no. 2.04.01, inventory nos. 4049-4051, 4190-4196, 4925-4954. Use the *Klappers op de indices* to search for subject. For these, see inventory nos. 4052-4053, 4197-4203, and 4955-4979.

17 The registries, including the replacement of a lost registry made by Doorman on the basis of other sources, can be found in NL-HaNA, Ministerie van Binnenlandse Zaken: Afdeling Nijverheid en voorgangers (hereafter BiZa / Nijverheid), 1817-1877, 2.04.23.01, 1236-1240 (Registers van verleende octrooien). The digitization also made use of Doorman, *Het Nederlandsch octrooiwezen*. Doorman's book reproduces most details in the Dutch patent registers, while adding an introduction with several thematic articles and technical commentaries on the most important patents.

Patents in theory and history

The triangular relationship between patents, innovation, and industrialization is complex. Already in his 1838 historical study of Belgian innovation and industrialization, the economist Natalis Briavoinne observed that patents were an unreliable source for the study of technological change and innovation, because many important inventions were not patented or even patentable, and many patents do not cover a successful invention.¹⁸ Empirical studies of patents commonly find that only a minority of patents have a positive commercial value.¹⁹ Furthermore, once a country or a region is technologically falling behind, the relative importance of dissemination over innovation increases, meaning that it could be beneficial not to protect intellectual property (as much).²⁰

Moreover, the direction of causality between patenting and industrialization can run in two directions.²¹ The existence of patents could have created the incentives to innovate, as well as a means for making technical knowledge widely available,²² both stimulating inventions that could have influenced the industrial transformation. Similarly, the increased scale of production, the size of markets, and transportation speeds associated with industrialization may have increased the need to protect invention against competitors – as well as creating a need for abstract symbols of reputation and quality which patents could help provide. Consequently, industrialization and patenting can create mutually reinforcing dynamics.

Patenting activity also has several self-reinforcing mechanisms, without requiring widespread economic growth or industrialization as such. Macleod shows evidence of patents following one another from the same community, implying a learning effect, as well as evidence

18 See Natalis Marie Briavoinne, 'Sur les inventions et perfectionnements dans l'industrie, depuis la fin du XVIIIe siècle jusqu'à nos jours: mémoire couronné le 8 Mai 1837', *Mémoires Couronnés par l'Académie Royale des Sciences et Belles-Lettres de Bruxelles*, XIII (1838) 4.

19 Zvi Griliches, 'Patent statistics as economic indicators. A survey', *Journal of Economic Literature* 28:4 (1990) 1661-1707; Streb, 'The cliometric study of innovations'.

20 Indeed, Eric Schiff's argument has been to link the origin and rise of several important Dutch multinationals (Unilever, Philips, ...), which could build on the inventions of others, to the lack of patent protection. See Schiff, *Industrialization without national patents*.

21 Greasley and Oxley, 'Patenting, intellectual property rights and sectoral outputs'; MacLeod and Nuvolari, 'Inventive activities', 81.

22 Gary W. Cox, 'Patent disclosure and England's early Industrial Revolution', *European Review of Economic History* 24:3 (2020) 447-467, <https://doi.org/10.1093/ereh/hez012>.

that the increasing spread of patents in society makes inventors preemptively take patents lest someone else steal their invention, patent it, profit from its sale or licensing, and worse, prevent the actual inventors from using it. Consequently, the more widespread patents become, the more economic actors are forced to use it, inducing further patenting.²³

Furthermore, once the amount of patenting reaches a certain critical mass, professionals like patent agents can emerge to make a living out of specializing in patents, thus facilitating new patent applications by knowing how to take on the bureaucratic hurdles, as well as helping with their marketing, sales, and licensing. Patent agents and other specialists help bring together buyers and sellers of new technology, thereby creating markets for technology that again stimulate further patenting by making patents potentially more lucrative. In the end, even professional inventors could emerge: inventors or firms who depend on markets for innovation so that they can specialize in research and innovation, which they license or sell to firms rather than commercialize themselves, thus again increasing the patenting rate, though crucially also the rate of innovation as such.²⁴

In her review of the economic history literature on patents and innovation, Moser argues that economic history helps address the big unresolved questions in economics about the efficacy of patent system configurations and policies. To that end, history provides for both a reserve of variations in policies that have been tried in the past, and a wealth of alternative data sources to measure innovation.²⁵ Moser herself used the abolition of the Dutch patent system as an example of such a historical policy, combining the abolition with data from exhibits at industrial fairs, making the argument that most innovation occurs outside of the patent system, and that patent systems change the *direction* innovation takes.

While subscribing to Moser's perspective that the study of historical policy and system designs is crucial to understand the effects of patent systems of the past and the present, with this article I aim to contribute specifically by provide a stronger foundation for further research by historians and economists, like Moser, who wish to use the case of the Dutch patent system and its abolition to draw conclusions on the effects

23 MacLeod, *Inventing the Industrial Revolution*, 75-96.

24 Naomi R. Lamoreaux and Kenneth L. Sokoloff, 'Market trade in patents and the rise of a class of specialized inventors in the 19th-century United States', *American Economic Review* 91:2 (2001) 39-44.

25 Moser, 'Patents and innovation in economic history', 241-258.

of patents systems. It also proposes to add the Belgian case, which has been underexploited so far in the economic historical literature.

The patent system in the United Kingdom of the Netherlands, 1817-1830

The patent law of 1817 should be understood as part of a nationalist project in a context of state-building. King Willem I's government sought legitimacy for his new state by replacing French law with reinterpreted national traditions, while yet aiming for economic development in the context of a huge state debt.²⁶

The ministry drafting the patent law looked to England and France for examples, because it believed their supposed industrial prosperity owed much to their patent laws.²⁷ However, the patent system that emerged in the UKNL infused into these inspirations a distinct set of Dutch traditions. First, the French and English "registration" patent systems had no formal examination of an application's utility or novelty, thus allowing anyone to patent an invention as long as minimal administrative requirements were met.²⁸ By contrast, the Dutch Republic (1588-1795) had developed procedures for examining novelty and utility through informal standard practices.²⁹ The ministry officials inserted these historic features of the Dutch Republic into the template of the French patent law, introducing government discretion as to whether or not to grant a patent, with the argument that it would act as a safeguard against patents for insignificant inventions.³⁰

26 NL-HaNA, Archief Binnenlandse Zaken, 1813-1848 (hereafter BiZa 1813-1848), 2.04.01, 4042, Dossier Sebillé, 30-11-1815, no. 234. See also Peter A.J. van den Berg, 'De integratieve functie van het recht in het Verenigd Koninkrijk van Koning Willem I (1815-1830)', *De Negentiende Eeuw* 36:4 (2012) 244-262. For a more extensive discussion on the economic and financial situation in the early nineteenth-century kingdom, including the state debt and the economic and financial policies of Willem I, see Van Zanden and Van Riel, *Nederland 1780-1914*.

27 NL-HaNA, BiZa 1813-1848, 2.04.01, 4039, Dossier Wet en Algemeen, 1 July 1816, 640.

28 However, Bottomley argues that the British system (partly) compensated for a lack of examination in other ways (such as patent agents), and Baudry describes how France introduced an informal examination by the *Comité Consultatif des Arts et Manufactures*. See Bottomley, *The British patent system during the Industrial Revolution, 1700-1852*; Jérôme Baudry, 'Examining inventions, shaping property. The Savants and the French patent system', *History of Science* 57:1 (2019) 62-80, <https://doi.org/10.1177/0073275318767233>.

29 Karel Davids, 'Patents and patentees in the Dutch Republic between c.1580 and 1720', *History and Technology* 16:3 (2000) 263-283.

30 Letter of the Minister of the Interior to the Commissioner General for Education, Arts and Sciences, 15 November 1816, 5, in NL-HaNA, BiZa 1813-1848, 2.04.01, 4039.

A logical consequence of this government discretion was to reintroduce a preliminary examination.³¹ Since the law of 1817 had very little in the nature of an explanatory memorandum or parliamentary discussions to rely on, the philosophy behind the patent law, and its interpretation in particular, was only known to those intimately involved in the patent system's application, as it was only possible for me to reconstruct them by reading the internal discussions in patent dossiers. By doing so, I found that the government's philosophy combined economic policy with economic justice: rewarding inventors for their efforts, while aiming to optimize case-by-case the size of the incentive for the innovative activity needed to balance private and social gain.³²

The patent legislation of 1817 consisted of the law of 25 January 1817, in addition to a regulation of 26 March 1817.³³ Below, I discuss six aspects of the way that the law worked in practice: (1) eligibility and the administrative procedure, (2) the examination process, (3) the patent's duration and fees, (4) rewards as an alternative to patents, (5) the conditions attached to patents, and (6) the publication and enforcement of patents.

Eligibility and administrative procedure

Like the French legislation, applicants in the UKNL had to choose between three types of patent: invention, improvement, and importation. The first concerned patents for new inventions by domestic inhabitants; 'improvement' applied to improvements on inventions covered by earlier patents; and 'importation' referred to the first introduction of a technology to UKNL territory, no matter who invented it.³⁴ If someone could demonstrate that they had used an

31 See *Pasinomie*, 6 (1er janvier 1817-31 décembre 1818) (Administration Centrale de la Pasicrisie, 1860), 84.

32 The most explicit example is NL-HaNA, BiZa 1813-1848, 2.04.01, 4040, Dossier Hartsink & Blanckenay, 17-6-1817, 1172. A similar philosophy resurfaced during the reintroduction of patents in 1910. See Aloysius Bernardus Constantinus Triebels, 'Over den invloed der theorieën betreffende het rechtskarakter van het octrooi, op de ontwikkeling van het octrooirecht' (Amsterdam 1916) 125-126.

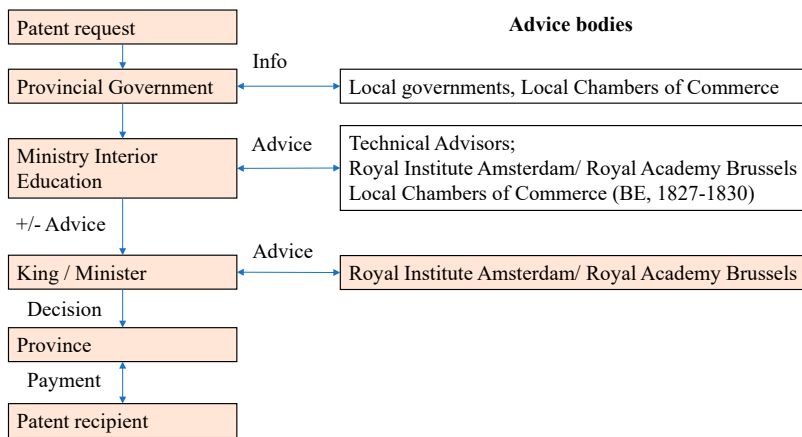
33 For a nineteenth-century Dutch reprint of the law – as well as a collection of other related legislation, literature references and summaries of case law – see Gebroeders Belinfante, *Wetgeving en andere officiële stukken betreffende de octrooyen van uitvinding, invoer en verbetering in Nederland en zijne overzeesche bezittingen benevens regtspraak, aantekeningen en bibliographie nopens het onderwerp*, 2e druk [1e druk 1839] (The Hague 1867). For an English translation of the Dutch patent legislation, see R.W. Urling, *The laws of patents in foreign countries, translated, with notes &c for the information of inventors and patentees* (London 1845).

34 NL-HaNA, BiZa 1813-1848, 2.04.01, 4082, 8-9-1819, 58/1391.

invention before a patent was requested, the law stipulated that they could continue to use it without harm from the new patent. Patents of improvement did not entail the right to use the original patent. Designs or ornamental changes were not considered patentable.

The application process imposed some constraints. Married women or minors could not apply without permission from their husband or guardian.³⁵ Indeed, the few women patent holders were all widows or unmarried, except for one woman whose husband acted on her behalf. Foreigners who did not live on UKNL territory had to nominate someone who could act as a correspondent about their patent from a permanent residence (*domicilie*) in the Netherlands. These local correspondents were usually lawyers, although diplomats, factory owners, and guesthouse managers also feature in the patent files.³⁶ Language was the third constraint. From 1823 onward, as part of a language policy to foster the creation of a nation-state, Dutch-speaking provinces returned patent applications written in a language other than Dutch for correction.³⁷

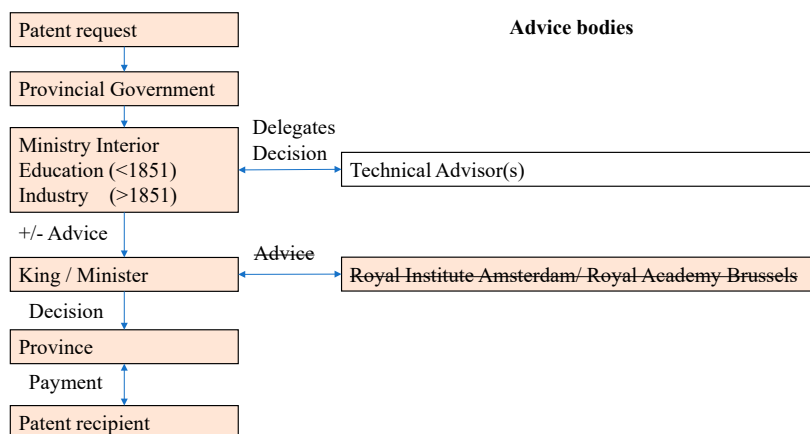
Figure 1a The patent application process (law shaded), 1817-1830



35 Antoine Perpigna *Manuel des inventeurs et des brevetés*, 8th ed. (Paris 1847) 23, observed that the law made no exception to the general rule.

36 See the patent registries: NL-HaNA, BiZa / Nijverheid, 2.04.23.01, 1236-1240.

37 Rik Vosters and Guy Janssens, 'Willems taalpolitiek in het zuiden: een splijtzwam?', in: Remieg Aerts and Gita Deneckere (eds), *Het (on)verenigd koninkrijk, 1815-1830 > 2015. Een politiek experiment in de Lage Landen* (Menin 2015). The ledgers on all ministerial communication (*index op de verbalen*) show it was a structural policy: NL-HaNA, BiZa 1813-1848, 2.04.01, 4190-4196; 4925-4954.

Figure 1b The patent application process in the Netherlands (1830-1869)

The procedure for eligible applicants was officially simple (see also the shaded elements in figure 1). Applicants would submit their requests to the provincial government, which would forward it to the national level within ten days. There, the responsible minister would write an advice to the king, who would decide whether or not to grant the patent, or to ask for a second opinion from the Academies of Science in Amsterdam or Brussels. Patents were thought to belong in the realm of science, so it fell under the responsibility of the Ministry of Education, Arts, and Science.

In practice, however, the patent files made clear that the Ministry of the Interior, to which the department of education, arts, and science belonged, was the central node in the system, obtaining as much information as it needed (figure 1's white elements). When applications were found incomplete, with insufficient descriptions or drawings, or formulated in the wrong language, they would be sent back for correction.³⁸ The ministry at first hired patent advisors in particular cases, but by the late 1820s patent advisors were involved in all patent applications. They were initially proven inventors, but from 1828 onward new appointees were engineers and university professors.³⁹

³⁸ More rarely, patent applicants sent specimens of the patented product (bits of leather, printed fabric, grains) but these did not play a role in the evaluation process. Prototypes were generally too costly to ship and generally only played a role in requests for financial support.

³⁹ Initially, Bernard Koning and Gerhard Roentgen, who had patents themselves; but when Koning died in 1828 he was replaced with the engineer Antoine Lipkens on the Dutch side, and the academics Jules Kindt and Charles Étienne Guillery on the Belgian side.

The ministry asked the provincial governors to send information about a patent applicant's local reputation and their ability to shoulder the patent fees.⁴⁰

Additionally, the ministry sometimes asked for information from the chambers of commerce, an advisory body representing the commercial and industrial interests of a given city.⁴¹ From 1827 onward, the government started to consult these organizations regularly for new patents of importation in the Southern Netherlands (present-day Belgium and Luxembourg), when some patents of importation had led to significant protests from local industry.⁴² These requests had a standard formula: whether the invention was already in use or would soon be, whether the patent should be granted, and if so, under what additional conditions to bring them into line 'with the interests of our manufacturers'.⁴³ These requests were not made in the northern provinces (present-day Netherlands), hinting at a first visible divergence in the patent system between North and South. By 1828, the Northern and the Southern Netherlands also had different patent advisors.⁴⁴

During the application process, applications could be challenged, although this possibility was not stipulated by law. The archives show regular attempts by competitors to prevent a patent from being granted. They warned about imminent patent requests or protested patent requests still under review.⁴⁵ While the state took these seriously, it did not facilitate these objections by announcing impending applications. Indeed, since the existing objectors to applications generally came from the same town as the applicant, they most likely had obtained their information from their local networks.

40 NL-HaNA, BiZa 1813-1848, 2.04.01, 4716, 24-11-1840, 98.

41 J.L.J.M. van Gerwen et al., *Mercurius' erfenis. Een geschiedenis en bronnenoverzicht van de Kamers van Koophandel en fabrieken in Nederland* (Amsterdam 1990); Luc François and Chantal Vancoppenolle, *Les Chambres de Commerce en Belgique (XVIIe-XXe siècles). Entre mission publique et intérêts privés*, trans. Raymond Doms (Brussels 1995).

42 Péters, 'Course à l'innovation', 154-155.

43 Translated from NL-HaNA, BiZa 1813-1848, 2.04.01, 4536, 17-8-1830, 10F. See also NL-HaNA, BiZa 1813-1848, 2.04.01, 4350, 14-08-1827, 17F.

44 This divergence could have a link with the wider political tensions that intensified from 1827 onward. For these tensions, see Jeroen van Zanten, *Schielijk, winzucht, zwaarhoofd en bedaard. Politieke discussie en oppositievorming 1813-1840* (Amsterdam 2004) 190, 218, 235.

45 For example, NL-HaNA, BiZa 1813-1848, 2.04.01, 4059, 4-7-1818, 193/757.

Examination process

The UKNL patent system developed a relatively modern examination system, around the same time as two other best-known early examples of examination systems, in Prussia (1815) and the United States (1830s). In these regards, I found the bureaucracy citing principles of rejection on grounds of novelty, non-obviousness, and utility, in addition to associated principles such as the prohibition against patenting general principles of nature.⁴⁶

The legislation had very broad definitions for patentable subject matter, namely, ‘inventions or real improvements in any branch of art or industry, new within the realm’; but in practice the definition was narrower.⁴⁷ Since the grant of patents was discretionary, the government could define what was patentable under the law. General principles of nature were excluded, such as ‘increasing the heat for melting iron’.⁴⁸ Any ‘broad’ patents for newly invented technologies were rejected, allowing only patents for specific applications or the specific configuration of that technology.⁴⁹ For instance, while steam-powered ships were not patentable, patents for a specific steam-engine for powering ships were, thus not preventing others from patenting a different steam-powered nautical engine. Similarly, patents for broad categories of objects were not allowed, only specific methods or machines for making them.⁵⁰

Besides this rejection of broad patents, certain subfields were excluded entirely: medicine, plants, and recipes for chemicals or food. Patent examiners thought they were too distinct from industry or machinery, yet also had specific reasons.⁵¹ For medicine, the state believed patents would conflict with a law requiring medicines to be tested before they were sold by pharmacists.⁵² Food, recipes, and compositions were deemed unenforceable as the technological abilities at the time made it insufficiently possible to chemically reconstruct

46 Sean Bottomley, ‘Patents, invention and democracy in Britain and the United States to 1852’, *Jahrbuch Für Wirtschaftsgeschichte / Economic History Yearbook* 60:1 (2019) 9-30, <https://doi.org/10.1515/jbwg-2019-0002>; Donges and Selgert, ‘Do legal differences matter?’

47 First article of the 1817 patent law. See for example Gebroeders Belinfante, *Wetgeving en andere officiële stukken betreffende de octrooyen van uitvinding*.

48 NL-HaNA, BiZa 1813-1848, 2.04.01, 4143, 27-11-1822, 1984.

49 NL-HaNA, BiZa 1813-1848, 2.04.01, 4218, 1-11-1824, 133A.

50 NL-HaNA, BiZa 1813-1848, 2.04.01, 4175, 31-3-1824, 109/310.

51 For plants see NL-HaNA, BiZa 1813-1848, 2.04.01, 4145, 28-12-1822, 2194.

52 NL-HaNA, BiZa 1813-1848, 2.04.01, 4039, dossier Lebrun, royal decree 17-8-1817 (KB no. 117); NL-HaNA, BiZa 1813-1848, 2.04.01, 4135, 12-6-1822, 1032.

what ingredients had been used in what composition in a final product, thus making it hard to enforce patents: 'Inventions that cannot be guaranteed by the law should not therefore be seen as falling under the spirit of the law.'⁵³

The state sometimes excluded patents for considerations of utility. Here, it was less consistent than with the other principles of rejection, revealing how the law's application could waver between a French-style registration system and an examination system. Particularly early on, examiners regularly rejected patents for inventions they considered technically impossible, not useful, or not a genuine improvement, with the idea of protecting both the inventor and the public.

By the mid-1820s, examiners had moved toward the principles of a registration system, where the applicant bore all the responsibility to determine whether their patent would either differ sufficiently from existing or previously patented technology, or had sufficient technical and economic potential. The state became thus more willing to grant patents for inventions that it suspected of being unfinished, impractical, or unprofitable, as long as the applicant paid their high fees,⁵⁴ 'because the imposition of the payment of these duties gives simple means of protection against the countless patent requests for worthless and chimerical inventions.'⁵⁵

Patent duration and fees

An applicant could apply for a patent lasting five, ten, or fifteen years. Patents of importation were limited by the remaining length of the original foreign patent on which they were often based. Patents of improvement could be adapted in length to the original patent, or go beyond, at the discretion of the examiner.

The state regularly reduced the requested patent length, by estimating the time the inventor would need to recover the investment costs and obtain a reasonable reward.⁵⁶ After the patent grant, it was possible to extend it up to a maximum of fifteen years, but this

53 Translation from NL-HaNA, BiZa 1813-1848, 2.04.01, 4106, 21-1-1821, 39/112. Petra Moser has found in her work that after the periodic table was found in 1869, relatively more significant chemical compositions were patented since trade secrecy no longer sufficed as protection against copycats. Petra Moser, 'Determinants of innovation evidence from 19th century world fairs', *The Journal of Economic History* 64:2 (2004) 548-552.

54 NL-HaNA, BiZa 1813-1848, 2.04.01, 4206, 31-5-1824, 153A.

55 Translated from NL-HaNA, BiZa 1813-1848, 2.04.01, 4256, 29-10-1825, 137A.

56 NL-HaNA, BiZa 1813-1848, 2.04.01, 4040, Dossier Hartsink & Blanckenay, 17-6-1817, 1172.

extension depended on being ‘justified with good reasons.’ Again, the same estimation principle was invoked to judge these reasons.

The life of a patent directly corresponded to the amount of the patent fees. A five-year patent cost 150 guilders, a ten-year patent 300, and a fifteen-year patent 600 guilders – a progressive rate chosen to encourage patentees to pick shorter patent lengths so that patented technology would be accessible for others earlier. Although the law gave the option to impose an even higher tariff on a ten- or fifteen-year patent ‘based on its importance’, this legal option was never used. A patent was costly, for the average daily wage for unskilled agricultural and industrial workers in 1819/1820 was about one guilder per day in the northern provinces in 1819/1820.⁵⁷ Moreover, the patent fees, wholly payable in advance, were hard for the less wealthy to afford.⁵⁸ Internationally, too, the patent fees were comparatively high, especially so considering the UKNL’s examination of patents made discouragement by high fees unnecessary.⁵⁹ However – diverging from the patent law – in practice the state regularly reduced or waived patent fees when it deemed inventions useful or when the inventor had no means to pay – a privilege for domestic citizens and a few foreign patentees.⁶⁰ Patents of improvement were generally made free.

The proceeds of the fees went into a ring-fenced fund for the promotion of industry. In fact, the fund served to finance the administrative costs of the patent system, to reduce or waive the costs of obtaining a patent,⁶¹ and also to provide premiums and rewards for inventions that either replaced patents or were in addition to them.

57 Van Zanden and Van Riel, *Nederland 1780-1914*, 84.

58 A rare exception of payment in terms was granted to H.A. Delvaux. See NL-HaNA, BiZa 1813-1848, 2.04.01, 4536, 18-8-1830, 14F.

59 In an 1850 comparison, a patent’s fees were almost equal to that of France or the Austrian Empire in absolute terms and to two-thirds of an English patent, even though the UKNL territory, population, and market size would have been significantly smaller. Moreover, European systems tended to have high fees deliberately to limit ‘useless’ applications – the United States and Prussia used an examination system to filter them and had correspondingly lower fees to stimulate innovation – an important argument of Zorina Khan to show why the American system was more conducive to innovation. See W. Neilson Hancock, *On the cost of patents of invention in different countries. A paper read before the statistical section of the British Association at Edinburgh, August 2nd, 1850* (Dublin 1850); B. Zorina Khan, *The democratization of invention. Patents and copyrights in American economic development, 1790-1920* (Cambridge 2005).

60 NL-HaNA, BiZa 1813-1848, 2.04.01, 4042, Dossier Asmore & Wathier te Luik, 3-9-1817, 1889.

61 The law did not sanction fee reductions. The state circumvented this by rewarding the same amount as the patent fees. See 2.04.01, 4269, 27-12-1825, 4F.

The alternative to a patent: Subsidies, rewards, and loans

When inventors wished to receive a monetary reward, subsidy, or loan instead of or on top of a patent, their invention came under additional scrutiny.⁶² At first, the government invited their academies to investigate the invention. They would visit or invite the inventor to test the invention in a procedure much like the French Academy's during the *ancien regime*.⁶³ The consultation of the Royal Academy of Brussels was held only in the first two years of the patent law, while the Amsterdam equivalent was frequently consulted until the mid-1820s.

Consultation grew more infrequent as the ministry became increasingly skeptical of rewards. Initially, the state granted inventors subsidies to develop and test their ideas, but even by 1819, the minister was warning the king of exhausting the patent fund if this policy became standard.⁶⁴ Many of the "inventions" for which support was requested were perpetual motion devices, so from 1822 onward the ministry required applicants to show support from a scholarly society or renowned scientists before applying.⁶⁵ Rewards and subsidies were usually around the same level as the patent fees, between 200 and 500 guilders, while bigger loans (for example 1,000 or 2,000) were granted. In 1825, after some mixed experiences, the ministry recommended that the king redirect applicants to patents (since these cost the state nothing),⁶⁶ although subsidies and loans were still provided thereafter.

Conditions attached to a patent

Patents had legal conditions attached. First, a working clause required every patentee to produce the patented good or use the patented process on UKNL territory within two years; however, requests for extensions to the deadline were regularly granted.⁶⁷ Sometimes the state reduced the working clause term when it considered the invention to be particularly valuable. In practice, these terms could be longer, for they were seldom enforced. The UKNL enforced the clause in 1823

62 The role of prizes and subsidies to stimulate technology as an addition or alternative to patents is a subniche in the economic (historical) patent literature. See for example Scotchmer, *Innovation and incentives*; Petra Moser and Tom Nicholas, 'Prizes, publicity and patents. Non-monetary awards as a mechanism to encourage innovation', *The Journal of Industrial Economics* 61:3 (2013) 763-788; Khan, *Inventing ideas*.

63 Liliane Hilaire-Pérez, *L'invention technique au siècle des Lumières* (Paris 2000).

64 NL-HaNA, BiZa 1813-1848, 2.04.01, 4073, 13-4-1819, 598.

65 NL-HaNA, BiZa 1813-1848, 2.04.01, 4128, 9-2-1822, 235.

66 NL-HaNA, BiZa 1813-1848, 2.04.01, 4246, 4-8-1825, 31A.

67 For example, NL-HaNA, BiZa 1813-1848, 2.04.01, 4101, 24-10-1820, 85/1536.

and 1827 through asking each province to report on its patentees. The state then asked those patentees who had failed to use their patent to mention any extenuating circumstances before their patents were declared null and void.

Second, if patentees sought a patent for the same invention abroad, they would void their patent. This clause had been copied from the French law, but was never acted upon. The ministry admitted that patent holders could easily circumvent the clause by using another person's name abroad, while a foreign patent would not actually harm the UKNL's industry.⁶⁸ Exceptions to this clause were always granted when requested.⁶⁹ The clause was ridiculed in guides in the 1840s and 1850s as ineffective and counterproductive, yet the authors were unaware it was a dead letter.⁷⁰

Besides the working clause and the protectionist clause above, the state introduced open license clauses between 1825 and 1830, even though they were not mentioned in the law.⁷¹ Open licenses allowed anybody to demand access to the invention in return for a 'fair' payment. The state used open license clauses when it estimated that the patent would be too disruptive to competition on the market.

Grant, enforcement, and publication

Once the patent was granted and paid for, it would be announced in the *Staatscourant*, which listed the patentee, the patent title, the duration, and any special conditions. Many patentees were mainly interested in this publication, because they regularly used their patent as a sign of quality (see also illustrations 1 and 2).⁷² The patent allowed holders to enforce their patent with a civil law procedure.⁷³

If other parties suspected a violation of the patent law, they often did not sue in court to annul a patent but addressed the government. Although not known to the general public, already by 1818 the ministry and king had decided that whereas reasons for annulment listed in the

68 NL-HaNA, BiZa 1813-1848, 2.04.01, 4293, 18-7-1826, 89A.

69 The ledgers mention, for instance, Bles (14-2-1824), Dickson (28-4-1828), Embach (30-4-1829), and Bourguignon (23-12-1829).

70 Urling, *The laws of patents*, xxii, 5; A.J.B. Stoffels, *De wetgeving op de octrooijen voor uitvinding, verbetering en eerste invoering* (Leiden 1851) 138-139.

71 See the patent registries faithfully copied in Doorman, *Het Nederlandsch octrooiwezen*.

72 On patentees' use of state insignia, see NL-HaNA, BiZa 1813-1848, 2.04.01, 4133, 14-5-1822, 1e afdeling no. 853; and NL-HaNA, Algemene Staatssecretarie, 2.02.01, 1453, 6-7-1822, 123.

73 Péters, 'Course à l'innovation', 148.

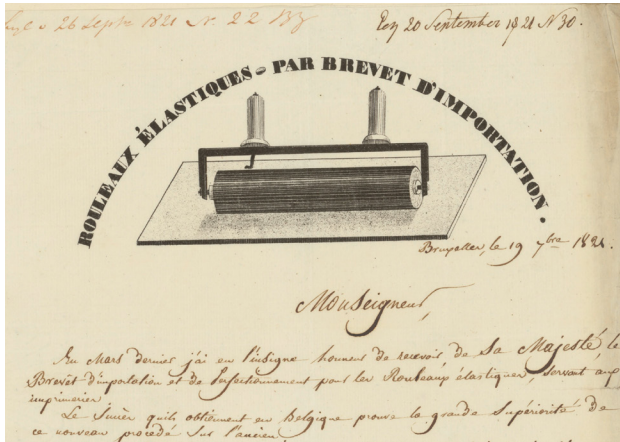


Illustration 1 'By patent of importation' a stamp on a letter by Claude Valentin Moureau Deswez, a printer. (Source: NL-HaNA, BiZa 1813-1848, 2.04.01, 4120, 24-9-1821, 1592.)

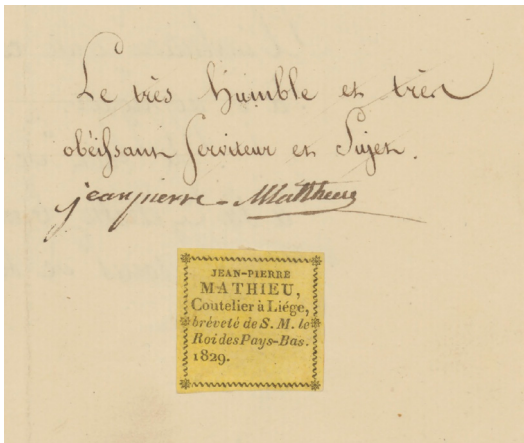


Illustration 2 'Patented by the King of the Netherlands, 1829', a business card pasted on a letter by Jean-Pierre Mathieu, a cutler. (Source: NL-HaNA, BiZa 1813-1848, 2.04.01, 4498, 25-11-1829, 25F.)

law were the prerogative of the king's government, a conflict over the first to invent something should be determined in court.⁷⁴

Unlike England or France, the UKNL did not make patent specifications consultable. The law stipulated secrecy for patent specifications until their expiry, when they were to be published in full. Considering such a request to consult in 1837, the civil servants could

⁷⁴ NL-HaNA, BiZa 1813-1848, 2.04.01, 4040, Dossier de Heer & comp, 19-1-1818, 150.

not remember any earlier occasions.⁷⁵ The only earlier attempt in 1827 was told to obtain permission from the patent holder.⁷⁶ This choice of secrecy was not unusual for the time. Contemporary German states also generally opted for secrecy to protect against international industrial espionage.⁷⁷

Between 1827 and 1831, *De Staatscourant* published lists of patents fallen into the public domain.⁷⁸ Between 1824 and 1830, the government also made extensive preparations to publish the patent specifications,⁷⁹ as well as started a process for reforming the patent system in 1829.⁸⁰ However, the war of independence with Belgium cut short these initiatives.

Revolution and recalibration: Divergence after the Dutch-Belgian partition

The 1830 Belgian declaration of independence directly and indirectly led to changes in the political system in Belgium and the Netherlands, the successor states besides Luxemburg. The partition had a major influence on the patent systems emerging out of the breakup of the UKNL, even though both new polities started from the same law and more or less the same legal practice.

The Belgian Revolution

The new constitutional monarchy of Belgium largely continued the same implementation of the law as before independence, but codified the implementation policies and further developed the system in the same direction as before: generous financial conditions for domestic patentees, technical examination, and skepticism toward granting monopolies for imports of foreign technology. Péters gives an overview of the relevant decisions of the Belgian government: the appointment of patent examiners (1830), the policies surrounding patents of importation (1833), the introduction of payments in terms (1837), and a reform of patent examination (1841) ending reliance on

75 NL-HaNA, BiZa 1813-1848, 2.04.01, 4644, 3-3-1837, 139.

76 NL-HaNA, BiZa 1813-1848, 2.04.01, 4319, 1-2-1827, 100A.

77 Donges and Selgert, 'Do legal differences matter?', 83.

78 Doorman, *Het Nederlandsch octrooiwezen*, 35.

79 NL-HaNA, Staatssecretarie, 2.02.01, 2452, 18-03-1826, 150; NL-HaNA, 2.02.01, Staatssecretarie, 2770, 12-07-1827, 108; NL-HaNA, Staatssecretarie, 2.02.01, 3235, 31-07-1829, 11.

80 NL-HaNA, BiZa 1813-1848, 2.04.01, 4474, 15-7-1829, no 119A.

chambers of commerce.⁸¹ The latter attempted to fix the bottleneck that the chambers had become, overwhelmed by the deluge of patent requests. Crucially, Varlet, civil servant at the Ministry of the Interior's, also published a guide to patenting in Belgium in 1838, featuring an insider's commentary on the informal practices that had emerged.⁸² Consequently, the system became more transparent to the general public, which would have stimulated patenting.

Nevertheless, by the late 1830s, and particularly during the 1840s, the law became increasingly controversial within Belgium. The patent costs were deemed too high and unfair. Regardless of the strict rules against them, patents of importation remained highly controversial, and there were even debates on whether the duration for a patent should be extended indefinitely. The discretionary power used to exclude certain patents led to protests from foreign as well as domestic inventors. When a liberal government came to power in 1848, it took the initiative to review all aspects of intellectual property, from trademarks to patents.⁸³ It culminated in the reform of 1854, which drastically altered the patent system in a French direction, abolishing state discretion almost entirely, making patents public within three months of the patent grant, making patents of importation only possible with the consent of the original inventor, and introducing yearly renewable patent fees up to twenty years.⁸⁴

Belgium's state investment and interest in the patent system was in line with an increasing interest in patents in its society. Figure 2 shows that even before independence, the Belgian territories had markedly diverged from the territories that would become the Netherlands in their rate of patenting. While the 1830 partition reduced the number of patents initially in each successor state, Belgium's granted patents expanded strongly from the late 1830s onward, coinciding with the introduction of a payment in terms and Varlet's guide on patenting, respectively, in 1837 and 1838.⁸⁵ The Netherlands, by contrast, had only a short boom which soon petered out in the late 1830s and first half of the 1840s.

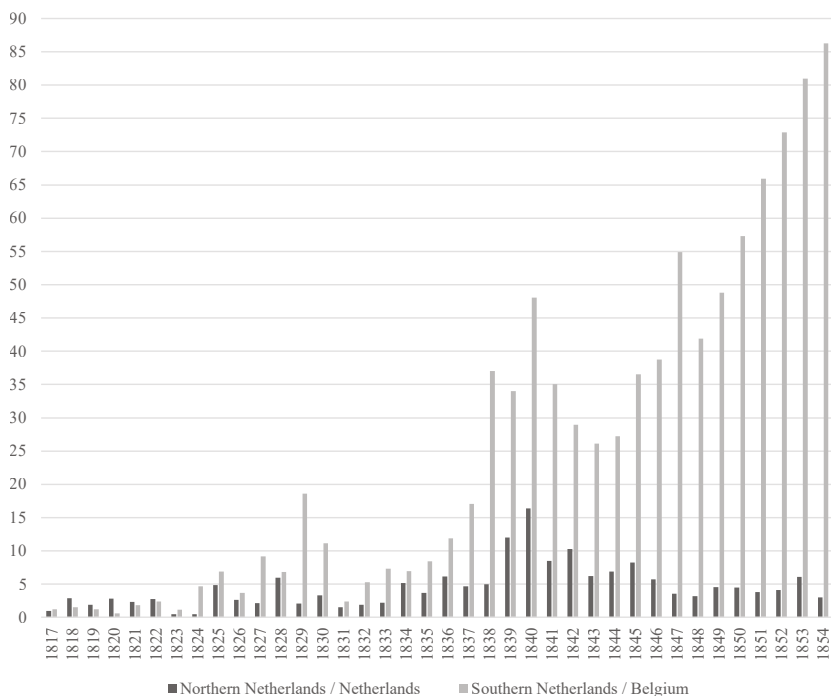
81 Péters, 'Course à l'innovation', 154-155.

82 M. Varlet, *Recueil des loi et réglemens en vigueur en Belgique, sur les brevets d'invention* (S.l. 1838).

83 Péters, 'Course à l'innovation'.

84 '223. 24 mai 1854 : Loi sur les brevets d'invention (Monit. du 25 mai 1854)', in *Pasinomie*, 35 (1854) (Administration Centrale de la Pasicrisie, 1860).

85 The decline of patenting after 1830 was due to economic upheaval and general uncertainty linked to the creation of the new state, but also simply because patents' attractiveness decreased significantly as the patent rights would now hold for a much smaller territory conditioned on the same patent fees and conditions.

Figure 2 Number of granted patents of invention per million inhabitants, 1817-1854

Notes: This graph only includes patented domestic innovation, excluding patents of importation and improvement. I distributed the applications of the United Kingdom of the Netherlands before 1830 by province of application into what would be later the Netherlands and Belgium. Belgium became de facto independent by late 1830, but was only de jure recognized by the Netherlands in 1839. Patent applications from the Belgian provinces immediately stopped coming in the Netherlands in the latter half of 1830, and Belgian applicants terminated their ongoing applications, so from the perspective of the patent system, the countries were fully split up by 1831. Sources: Dutch (1817-1869) and Belgian data (1817-1830): my own dataset.⁸⁶ Belgian data after 1830: Péters.⁸⁷ Yearly population statistics calculated from census data in Vrielinck.⁸⁸

The patterns of patenting roughly fit the industrialization patterns of both countries. Belgium's industrialization process was already having macroeconomic effects by the late 1820s.⁸⁹ The boom of Dutch patents

86 Homer Wagenaar, 'Rules, discretion and industrialisation. The patent system of the Netherlands, 1817-1869' (PhD dissertation, Queen's University Belfast 2022), <https://pure.qub.ac.uk/en/studentTheses/rules-discretion-and-industrialisation>.

87 Péters, 'Course à l'innovation', 963-964.

88 Sven Vrielinck, *De territoriale indeling van België (1795-1963). Bestuursgeografisch en statistisch repertorium van de gemeenten en de supracommunale eenheden (administratief en gerechtelijk)* (Leuven 2000) 91-92.

89 Erik Buyst, 'The causes of growth during Belgium's Industrial Revolution', *Journal of Interdisciplinary*

seems to have corresponded with a general industrial growth stimulated by government subsidies and colonial policies that lasted until 1845. The stagnation of patenting afterwards corresponds with what Van Zanden and van Riel identify as a period of industrial stagnation once these artificial incentives were removed. They argue that 1845-1865 was a period when the Netherlands underwent a painful structural transformation of state finances and economic liberalization.⁹⁰ On a superficial level, these associations seem to confirm a link between patents and industrialization, yet they do not provide sufficient evidence on the direction of causation or the vicious/virtuous cycles between the two, which would require further research. While in Belgium patent systems and industrialization seemingly developed hand-in-hand, in the Netherlands, as I will analyze now, a lack of use of the patent system accompanied a declining and neglected patent system.⁹¹

The Dutch minimalistic application

In contrast to Belgium's overt legislative activity, the government of the Netherlands showed little interest in its patent system. Any changes were reactive changes in bureaucratic processes unknown to the general public, thus only discernible from careful archival analysis. Indeed, when Stoffels published the first guide to the Dutch patent law in the Dutch language, his "guide" did not show any evidence that he had knowledge or experience of the law's practice. It was merely a negative commentary on the law, discouraging potential patentees from applying.⁹²

Belgium's independence led to a change in the use of discretion north of the border. Before 1830, the discretion on patent grants was left to ministry officials, who sometimes requested the advisor to further investigate or write a report on a patent request. After independence, the Netherlands entrusted the entire patent system to patent advisor Antoine Lipkens, a land registry engineer who later founded the first engineering school of the Netherlands in Delft. Lipkens led the professionalization of advice in the Netherlands. In 1834 he took the initiative of creating a library for the patent advisor, which contained patent and technical literature from France, England, central Europe,

History 49:1 (2018) 72.

90 Van Zanden and Van Riel, *Nederland 1780-1914*.

91 MacLeod and Nuvolari, 'Inventive activities', 81.

92 Stoffels, *De wetgeving*.

and the United States.⁹³ He also reduced his workload by changing the examination procedures. Using his new library, he focused only on examining the novelty of the invention, which he formalized in the 1840s through standard, pro-forma documentation. Only on very rare occasions did the patent advisor reject patents on a basis other than novelty.⁹⁴ For example, to prevent cross-licensing for minor technological changes in a fast-developing field, Lipkens' successor recommended that patents should no longer be granted for the use of chemicals in sugar refinery.⁹⁵

Several conditions and clauses were no longer enforced. The first was the annulment of the language policy, since the breakaway of Belgium rendered nation-building unnecessary. Indeed, the patent files now started to include patent descriptions in French, English, or German without translation. Second, the Netherlands stopped enforcing the working clause, except when requested by a competitor.⁹⁶ Lastly, open license clauses were no longer imposed.

In consequence, patenting in the Netherlands became very open to foreigners, as international guidebooks on patenting reported.⁹⁷ Figure 3 illustrates how the share of patents for the importing of technology within the total number of patent requests changed over time in each territory. When they were still the UKNL, the Netherlands and Belgium had comparable shares of importation, but Belgium's independence heralded a marked divergence. By the 1850s, more than 90 percent of patents in the Netherlands were for foreign technology, while in Belgium it stayed somewhere between 30 and 50 percent, comparable to the rate before independence.

The publication of patents, similarly, was never implemented. When the patent advisor Lipkens brought the topic up in 1837, the king of the Netherlands decided to postpone publication.⁹⁸ It became an indefinite postponement. As Murphy argues in an altogether different

93 See NL-HaNA, Staatssecretarie, 2.02.01, 3877, Koninklijk Besluit 10-01-1834, 86; Staatssecretarie 2.02.01, 4026, Koninklijk Besluit 14-05-1835, 42; Staatssecretarie, 2.02.01, 4335, 6-2-1838, 85; Kabinet des Konings, Kabinet der Koningin 1841-1897 (hereafter KdK 1841-1897), 2.02.04, 112, Koninklijk Besluit 17-07-1842, 71. This library later became the library of the technical school of Delft. See Johan Christoffel Ramaer, 'Berg (Franciskus Johannes van den)', in: P.C. Molhuysen et al. (eds), *Nieuw Nederlandsch Biografisch Woordenboek* (The Hague 1927)..

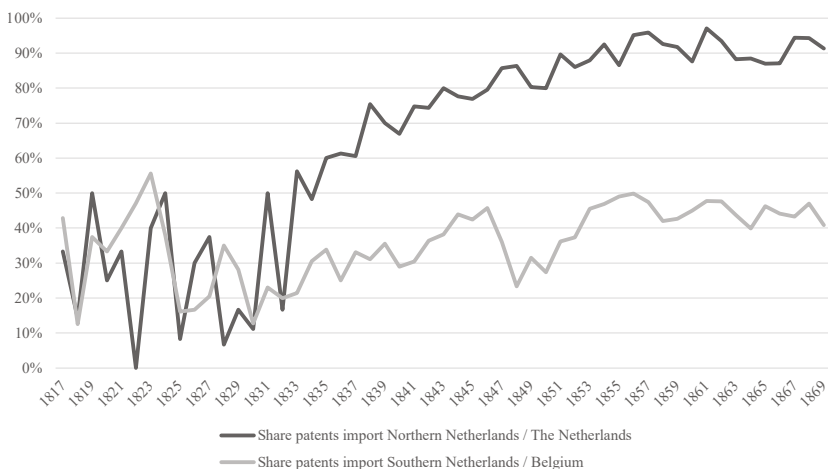
94 NL-HaNA, BiZa / Nijverheid, 2.04.23.01, 983, 8-12-1866, 52.

95 NL-HaNA, KdK 1841-1897, 2.02.04, 628, Koninklijk Besluit 15-8-1850 (59).

96 Doorman, *Het Nederlandsch octrooiwezen*, 35.

97 Varlet, *Recueil*; Urling, *The laws of patents*, xi-xxii; Perpigna, *Manuel*, 23.

98 NL-HaNA, BiZa 1813-1848, 2.04.01, 4648, 7-6-1837 (54).

Figure 3 Percentage of patents for imported innovations of the total number of patents

context, the absence of interest groups pressuring for publication was a crucial missing link for this institution to be established.⁹⁹ Once more the Netherlands contrasted with Belgium, which published patent specifications from the late 1830s onwards.

Lastly, the Netherlands also scaled down options for financial support, while enforcing less vigorously the payment of the patent fees. It abolished all special funds in an attempt to clarify the financial situation, including the patent fund left by King Willem I following his abdication. As a result, free patents, loans, and premiums disappeared, in turn making the patent system much less accessible to the less well-off. When the fund was abolished in 1844, it contained slightly less than 80,000 guilders, which reveals how few premiums and loans had been granted over the years.¹⁰⁰ As a small compensation, the Dutch state no longer demanded immediate payment after three months, allowing applicants to pay for up to two years, until the expiry of the working clause.¹⁰¹

By the mid-1840s these changes had made the patent system much less attractive. A declining number of granted patents reported in figure 2 were paid for by their applicants; consequently, fewer

99 Anne L. Murphy, 'Demanding "credible commitment". Public reactions to the failures of the early financial revolution', *Economic History Review* 66:1 (2013) 178-197.

100 'Wet van den 10 Februarij 1844, houdende regeling van uitgaven ten laste van op te heffen bijzondere fondsen', *Staatsblad van het Koninkrijk der Nederlanden*, 1844, no. 8; Kamerstukken Tweede Kamer, 1843-1844, no. XIII, no. 6, voorloopig verslag, 223.

101 Urling, *The laws of patents*, 25.

Figure 4 Percentage of granted patents paid for out of the total number of granted patents for imported and for domestic innovations in the UKNL (until 1830) and the Netherlands (from 1830)



Notes: The patents for which the fees have been paid include those that have been made free by the government. Before 1831, these figures are for the United Kingdom of the Netherlands, including the provinces in Belgium and Luxembourg. From 1831 onward, only the provinces of the Netherlands are included.

patents entered into force. As a result, the already stagnating figures of approved patents were even an overstatement. Figure 4 shows that granted patents were generally paid for until the early 1830s, either by the patentee or by the patent fund. After the 1830s a decline started, which was particularly steep for patents of importation. By the 1850s, less than 30 percent of the granted patents of importation had gained legal status.

By contrast, Belgium kept a very generous fee policy for patent applicants, which helps explain the continuing increase in patenting rates noted above in figure 2. Belgium continued to provide free patents and premiums liberally.¹⁰² Moreover, the Belgian state introduced special terms which permitted applicants to renounce the patent granted to them before the end of its maximum term in return for reduced fees. Indeed, the total amount of real payments of patents was so low that, even assuming everyone took the least expensive patent length, only 23 percent of Belgian patentees between 1831 and 1854 had paid for their patent (!).¹⁰³

¹⁰² Ministre de l'intérieur, *Statistique Générale de la Belgique, exposé de la situation du royaume (période décennale de 1841-1850)*, IV (Brussels 1852) 148.

¹⁰³ Based on dividing the income reported by Péters by the number of patents granted in that time.

The problem of enforcement in both countries

Even before independence, patent administrators in the UKNL had known that enforcement was a weakness of the system. In the early 1820s, a report revealed that Dutch lawyers discouraged patent infringement cases. Privacy and property law allowed competitors to bar entry into their factories, so patent holders would have found it hard to prove illegal use of their invention.¹⁰⁴ This enforcement problem led the state in 1829 to start investigating how to reform the law, a process cut short by Belgium's independence.¹⁰⁵ This reluctance of Dutch lawyers may also help explain why there were only three known court cases concerning the Dutch patent law between 1817 and 1869.¹⁰⁶ The Belgians seemed to have fewer problems in enforcing their patents: Péters found 105 cases between 1830 and 1874.¹⁰⁷

Indeed, when in 1845 a patent case was tried, the Dutch courts confirmed the fear of lawyers and interpreted the law in a direction that made its enforcement even less attractive. In this case, Rupe & Zoon had built copies for its own use of a machine it had bought from Derosne & Cail, a renowned sugar machinery multinational.¹⁰⁸ A similar case was heard in Belgium around the same time, where A. Oudart had built knitting machinery patented by P. Claussen for use in his factory.¹⁰⁹

In the Netherlands, the judges, from the lowest to the highest court, accepted the reasoning that the law banned only the 'production *and* selling' of patented products, making production *or* selling permissible. It was permissible because the courts saw patents as a privilege and therefore to be interpreted narrowly against more fundamental rights such as the inviolability of the home.¹¹⁰ The reasoning fits the judgment

Péters, 'Course à l'innovation', 199-200. Note that the number of patents as such does not as such reflect an economic worth: generally only a small minority of patents have any positive economic value. See Griliches, 'Patent statistics as economic indicators'; Streb, 'The cliometric study of innovations'. Nicholas has found that a patent fee reduction in the United Kingdom in 1883 did not affect the share of valuable patents of the whole. Tom Nicholas, 'Cheaper patents', *Research Policy* 40:2 (2011) 325-339, <https://doi.org/10.1016/j.respol.2010.10.012>.

104 NL-HaNA, BiZa 1813-1848, 2.04.01, 4108, 22-2-1821, 294.

105 NL-HaNA, BiZa 1813-1848, 2.04.01, 4474, 15-7-1829, 119A.

106 Doorman, *Het Nederlandsch octrooiwezen*, 40-42.

107 Péters, 'Course à l'innovation', 226.

108 Nadia Fernández-de-Pinedo et al., 'Technology transfer networks in the first industrial age. The case of Derosne & Cail and the sugar industry (1818-1871)', *Business History*, 18 January (2019) 1-64.

109 *La Belgique Judiciaire* 4, no. 27 (5 March 1846) 436.

110 'Provinciaal Geregtschhof in Noord-Holland. Zittingen van 29 Mei en 26 Junij 1845', *Weekblad van het Regt* 7, no. 662 (22 December 1845) 405-406. 'Hooge Raad der Nederlanden, Burgelijke Kamer, Zittingen van 5 en 26 Februarij en 20 Maart 1846', *Weekblad van het Regt* 8, no. 691 (2 April 1846) 1-3.

of Machlup and Penrose that the Netherlands had a strong free-trade liberal ideology.¹¹¹ Stoffels's 1851 commentary on the patent law argued as well that the anti-patent bias of the court had rendered the Dutch patent almost worthless.¹¹²

While Oudart defended himself by citing the Dutch court's reasoning, the Brussels court reached exactly the opposite conclusion, arguing that the legislator had not made nor intended any explicit exceptions to the law for own use, and that allowing it would seriously limit the patent's usefulness.¹¹³ Although a Ghent court again countered the reasoning of the Brussels case in 1853, by arguing more in line with the Dutch courts,¹¹⁴ the matter was resolved in 1852-1854 during the parliamentary preparation of the new law. The emerging consensus there, as well as in the court jurisprudence afterwards, resulted in a nuanced compromise where the production or copying of an invention for industrial production or commercial use was prohibited, but in certain cases the private use of an invention was authorized.¹¹⁵

The Dutch government could have used legislation to repair the damage inflicted on the system by the court decision. Indeed, it did so in its colonies in present-day Indonesia: in 1850, a patent applicant wished to patent a process and was able to persuade the government to change the colonial regulations to explicitly prohibit the use by others of a patented invention.¹¹⁶ The government had thus neutralized the case of 1846, but only for a part of its colonies. When it came to patents and privileges, a clear distinction was made between colony and mainland.¹¹⁷

The abolition of the Dutch patent system

In 1868, the Dutch parliament discussed a bill to repeal the patent system of 1817, the culmination of an intense national and wider

¹¹¹ Machlup and Penrose, 'The patent controversy'.

¹¹² Stoffels, *De wetgeving*, 135.

¹¹³ *La Belgique Judiciaire* 4, no. 27 (5 March 1846) 436.

¹¹⁴ *La Belgique Judiciaire* 11, no. 72 (8 September 1853) 1150.

¹¹⁵ Edmond Picard and N. d'Hoffschmidt, 'Contrefaçon de brevets d'invention', in: *Pandectes Belges: encyclopédie de législation, de doctrine et de jurisprudence Belges*, vol. 25 (Brussels 1888) paras 62-64; 92-104.

¹¹⁶ NL-HaNA, KdK 1841-1897, 2.02.04, 635, 26-09-1850 (39).

¹¹⁷ The very same Derosne & Cail was granted a lucrative exclusive right to supply the sugar machinery for colonial Java for fifteen years, after its 1846 merger with Van Vlissingen, a Dutch machinery and shipbuilding company in Amsterdam. See Fernández-de-Pinedo et al., 'Technology transfer networks', 6.

European debate against patents.¹¹⁸ Although the Belgian reform of 1854 is widely considered the debate's starting point, dissatisfaction had already been expressed.¹¹⁹ When the time came to debate the issue in parliament, all the major societies of industrialists in the Netherlands were in favor of abolition.¹²⁰ In the Lower House, forty-nine members versus eight voted to repeal the patent legislation, while in the Senate only one member opposed the bill.

How should we explain this enthusiasm for abolishing the patent system? Other articles have analyzed in great detail the extensive debates in the Netherlands from the 1840s onwards, and I will not repeat them here.¹²¹ What I wish to emphasize from these debates in this context is the unanimous consensus that the patent law was dysfunctional – even proponents of patents agreed that the current law urgently needed reform¹²² – as well as the theory and anecdotes that the debate in parliament was based on, rather than empirical evidence.¹²³

Some authors emphasized, namely, that the strong presence of a free-trade ideology had made the Dutch believe a good patent law *could not* be designed, patents being antithetic to the freedom of industry.¹²⁴

118 Machlup and Penrose, 'The patent controversy'; Doorman, *Het Nederlandsch octrooiwezen*, 43-54; Den Hertog, 'De anti-octrooibeweging'; Van Gompel, 'Patent abolition'.

119 The first article to propose patent abolition was already published in 1842. See B.W.A.E. Sloet tot Oldhuis, 'Eenige aanmerkingen op de wet van 25 januarij, 1817, omtrent het verleenen van uitsluitende regten op uitvindingen en verbeteringen van kunst- en volksvljijt', *Tijdschrift voor Staathuishoudkunde en Statistiek* 1:3 (1842) 50-57. Minister of the Interior J.R. Thorbecke had asked the patent advisor in 1850 for advice whether to reform or abolish the patent law. See his letter to J.L. De Bruyn Kops, 16 December 1865, in Hooykaas et. al., *Briefwisseling van J.R. Thorbecke*, VII: 1862-1872 (The Hague 2002) 132, <http://resources.huylgens.knaw.nl/retroboeken/thorbecke>. From 1845 onward, the Netherlands society for the promotion of industry discussed patent law reform, culminating in an 1854 report to abolish it entirely. See 'Handelingen der 70e algemeene vergadering van de Nederlandsche Maatschappij ter Bevordering van Nijverheid, gehouden te Haarlem op den 20sten Julij 1847 en volgende dagen', *Tijdschrift ter Bevordering van Nijverheid* 12:1 (1847) 76; 123-124; 'Handelingen der 27e algemeene vergadering van de Nederlandsche Maatschappij ter Bevordering van Nijverheid, gehouden te Haarlem op den 18den Julij 1854 en volgende dagen', *Tijdschrift ter Bevordering van Nijverheid* 17:5-6 (1854) 282-293.

120 Handelingen Tweede Kamer der Staten-Generaal, 1868-1869, 106° Zitting, 22 Juni 1869, page 1467, *Bijblad van de Nederlandsche Staatscourant*.

121 Doorman, *Het Nederlandsch octrooiwezen*; Machlup and Penrose, 'The patent controversy'; Den Hertog, 'De anti-octrooibeweging'; Van Gompel, 'Patent abolition'.

122 Jan Heemskerk Azn – lawyer, politician, and (prime) minister – was one of the most prolific writers on the patent system, pleading for reform rather than abolition. See his speech in Handelingen Tweede Kamer der Staten-Generaal, 1868-1869 II, 105° zitting, 21 juni 1869, page 1460, *Bijblad van de Nederlandsche Staatscourant*.

123 Van Gompel, 'Patent abolition', 914.

124 The most important is Machlup and Penrose, 'The patent controversy'.

This free-trade ideology was supposedly infused with wider societal beliefs of a Dutch decline that could only be reversed by liberating the economy.¹²⁵ Van Gompel correctly questions whether the free-trade ideology in the Netherlands was so much stronger than in other European countries.¹²⁶ Indeed, he rather emphasizes a confluence of circumstances: 'It was a country in industrial development with a progressive liberal-economic government, an international accommodating environment, a malfunctioning patent law and a strong movement in favour of patent abolition that faced little-to-no opposition from the industries.'¹²⁷

I would add here that ideology could only reign free because the debate was largely theoretical: most legislators and public commentators lacked experience with a functioning patent law in living memory.¹²⁸ Indeed, it is no coincidence that none of the abolitionists owned patents, while three of the most important "reformists" – industrialist and senator Petrus Regout,¹²⁹ doctor and reformer Samuel Sarphati,¹³⁰ and professor of technology Salomon Bleekrode¹³¹ – all

125 J.L. Schippers, 'Worstelen met octrooien. De voorgeschiedenis van de octrooiwet van 1910', in: H.W.A.M. Hanneman (ed.), *Terugblik in vogelvlucht* (The Hague 2010) 13-25. <http://repository.tue.nl/694752>.

126 Van Gompel, 'Patent abolition', 879.

127 Ibid., 921.

128 Indeed, the patent advisor complained furiously to his minister in 1866 about parliamentary ignorance when he was asked to help the minister respond to questions from parliament. See NL-HaNA, BiZa / Nijverheid, 2.04.23.01, 983, 8-12-1866 (52).

129 Regout was the first in a long tradition to plead for patent reform in parliament during the discussion of the state budget in 1854, *Handelingen Eerste Kamer*, 1854-1855 II, 28 december 1854 page 81, *Staatsbegroting voor 1855*. (Hoofdstuk IV en V.) *Bijblad van de Nederlandsche Staatscourant*, 1854-1855.

130 Sarphati founded a society for the promotion of innovation and industry (Vereeniging voor Volksvljijt). In its first public meeting, the patent law was discussed, including whether it should need reform or abolition. During this meeting, where Bleekrode intervened strongly in favor of patents, it was agreed to ask the Dutch state formally for a reform of the patent law according to the Belgian law of 1854. See 'Verslag van de Eerste Openbare Vergadering Der Vereeniging Voor Volksvljijt', *De Volksvljijt: Tijdschrift voor Nijverheid, Landbouw, Handel en Scheepvaart* 1 (1854) xlviii, 528-545. See also M.S.C. Bakker, 'Samuel Sarphati (1813-1866)', in: H.W. Lintsen et al. (eds), *Geschiedenis van de techniek in Nederland. De wording van een moderne samenleving 1800-1890*, VI Techniek en samenleving (Zutphen 1995), https://www.dbnl.org/tekst/linto11gesco6_01/linto11gesco6_01_0002.php.

131 Bleekrode also wrote several articles with a positive attitude towards patents, such as Samuel Abraham Bleekrode, 'Overzicht van de vorderingen der verschillende takken van nijverheid, of verslag van de technologische wetenschappen gedurende 1843 en 1844', *Tijdschrift ter Bevordering van Nijverheid* 9:3 (1845) 339-395; Samuel Abraham Bleekrode, 'Nalezing op het iets over de Nederlandsche Octrooiwet des heeren mr J. Heemskerk az', *De Volksvljijt: Tijdschrift voor Nijverheid, Landbouw, Handel en Scheepvaart* 2 (1855) iii, 43-51. For a biography of Bleekrode and his exploits, see also M.S.C. Bakker,

owned patents themselves when they pleaded for reform rather than abolition,¹³² and they were either deceased or no longer active in national politics when the abolition was decided upon.

Thus, the debate's participants revealed a profound ignorance of the Dutch patent system's current and particularly historical functioning – predictable, considering that the Netherlands had never codified the patenting practice and had rarely used it. In the explanatory memorandum that accompanied the bill, the state complained of foreign patentees abusing the patent system to hinder Dutch domestic industry,¹³³ even though it was the Netherlands that had opened the law to foreigners and abolished the free patents that stimulated domestic patenting. That Belgium had managed to turn the same law into a thriving patent system was lost on the participants in the Dutch debate.

Conclusion

This article is the first full, side-by-side reconstruction of the patent systems of the Netherlands and Belgium from their shared beginnings in 1817 to the 1854 Belgian reform and the 1869 Dutch abolition. Through an in-depth comparative study of the available archives and contemporary source material, I have shown (1) how the law in practice diverged sharply from the law on paper, creating a variety of informal bureaucratic operating practices; and (2) how these informal practices radically diverged between the two countries following Belgium's independence, including the fact that in the Netherlands they stayed informal while in Belgium these practices became more formalized and transparent by becoming codified in royal decrees and patenting manuals.

'Salomon Abraham Bleekrode (1814-1862)', in: Lintsen et al. (eds), *Geschiedenis van de techniek in Nederland*. https://www.dbnl.org/tekst/linto11gesco6_01/linto11gesco6_01_0003.php.

132 Regout obtained a patent in 1846 for glass pipes in stone for water and gas transport, and protected various imported technologies via patents in 1850 and 1852. He also had bought a patent for glass production from a Brussels company in 1857. Sarphati obtained a patent in 1847 for processes to derive fertilizer from human waste. Bleekrode obtained a patent in 1850 for the production of paint using zinc. For more detail on the patent registers, see Doorman, *Het Nederlandsch octrooiwezen*.

133 Handelingen Tweede Kamer, 1868-1869, 78, no. 3: Memorie van Toelichting.

In so doing, this article works to correct the existing literature on the Dutch patent system. I have shown that the system was heavily discretionary yet not arbitrary, since it created and then followed a relatively consistent set of rules of operation. Unlike what the Dutch thought at the time of abolition, it was not an inherently malfunctioning law; in Belgium, increasingly intense patenting activity occurred under the same law. Instead, it was the Dutch themselves that made the law dysfunctional by means of governmental neglect that was not corrected by the relatively few patentees that still made use of the system.

The relevance of this exercise goes further than an improved understanding of the patent laws of the Netherlands and Belgium. It underlines the importance of an in-depth reconstruction of institutions, since they can differ significantly from the stipulations of the law and reveal gradual institutional change that can help explain seemingly sudden institutional transformations.

With regard to the literature on the role of patent institutions in economic history, this article presents an institutional longitudinal analysis of two new case studies, as well as a mutual comparison. This approach could provide a valuable basis for further research into the relationship between patents, industrialization, and innovation. The present study could indicate that patent systems were as much a product of the Industrial Revolution as a catalyst for it, developing in tandem in a vicious or virtuous circle. Future in-depth studies of the economic use of patents in both countries, based on the institutional development examined here, will yield more definite conclusions.

About the author

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