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Research article

Tacit Knowledge and Secrecy in the Patent Office

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Abstract

The patent system can be seen as an institutional mechanism designed to align the interests of inventors and the State regarding inventions and innovation. Individual inventors seek to protect their technological rights to maximise profits and establish monopoly power, while society aims to promote the sharing of this knowledge to prevent it from remaining an industrial secret. Accessible information not only reduces efforts' duplication but also encourages further innovation. Therefore, patents are intended to serve as a bridging tool between industrial secrecy and the socially beneficial sharing of knowledge that drives scientific and technological progress. However, the issue is more complex, as much of the knowledge contained in patent documents incorporates implicit features. Often, critical types of information necessary for the commercialisation or industrial application of patented inventions cannot be effectively conveyed through the structure of a patent document, nor can they be easily articulated as clear propositions or narratives. This challenge is compounded by the fact that inventions are not directly replicated or tested at patent offices; their evaluation relies solely on submitted documentation and, at best, drawings. As a result, it can be argued that some level of secrecy is an inherent aspect of the patent system. The degree of this secrecy can vary depending on the technological nature of innovations across different sectors and over time. We argue that there is an urgent need for more efficient patent evaluation systems that can better address these informational challenges.

Keywords: Information; Knowledge; Patent documents; Patent offices; Examiners; Trade secrecy

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Научная статья

Неявное знание и конфиденциальность в патентном ведомстве

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Аннотация

Патентную систему можно рассматривать как институциональный механизм, предназначенный для согласования интересов изобретателей и государства в области изобретений и инноваций. Индивидуальные изобретатели стремятся защитить свои технологические права для максимизации прибыли и установления монопольной власти, в то время как общество заинтересовано в содействии распространению этого знания, чтобы предотвратить его сохранение в качестве промышленного секрета. Доступность информации не только снижает дублирование усилий, но и стимулирует дальнейшие инновации. Таким образом, патенты призваны служить связующим инструментом между промышленной тайной и социально полезным обменом знаниями, который движет научно-техническим прогрессом. Однако проблема является более сложной, так как значительная часть знаний, содержащихся в патентных документах, включает неявные (имплицитные) характеристики. Зачастую критически важные типы информации, необходимые для коммерциализации или промышленного применения запатентованных изобретений, не могут быть эффективно переданы посредством структуры патентного документа, равно как и с легкостью сформулированы в виде четких положений или описаний. Эта проблема усугубляется тем фактом, что изобретения не воспроизводятся и не тестируются непосредственно в патентных ведомствах; их оценка основывается исключительно на представленной документации и, в лучшем случае, чертежах. В результате можно утверждать, что определенный уровень конфиденциальности является неотъемлемым аспектом патентной системы. Степень этой конфиденциальности может варьироваться в зависимости от технологической природы инноваций в различных секторах и с течением времени. Мы утверждаем, что существует настоятельная необходимость в более эффективных системах патентной экспертизы, способных лучше решать эти информационные проблемы.

Ключевые слова: Информация; Знание; Патентные документы; Патентные ведомства; Эксперты; Режим коммерческой тайны

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INTRODUCTION

Economists, historians, and social scientists have demonstrated that, although the core principles behind patent systems remain somewhat idealised – such as fostering technological innovation and encouraging the disclosure of technologies – they differ in their practical application, in how they are codified by different societies, and in how each patent system develops over time. This variation is rooted in several fundamental tensions among various stakeholders, as discussed in studies by Heller and Eisenberg (1998), Boldrin and Levine (2008), and Galasso and Schankerman (2015). How these tensions are resolved will greatly influence the future direction of each patent system.

The main debate among these concerns the justification and beneficiaries of the exclusivity of the protected invention, rather than the technological and commercial information within the documents, that is, the question of whether or not it is appropriate to disclose the inventions. The most central issue lies in viewing the patent as a right to commercial exploitation, rather than simply as a document (Ashtor, 2022; Figueroa and Lemus, 2023; Freilich, 2017). What we want to emphasize is the existence of informational tensions that could be a source of conflict. This would simply arise in this dichotomy between the drafting of patents in the form of documents and their commercial exploitation.

Informational tensions are an increasingly established subject of study, and more is known about them. From the perspective of the holder, the rationale for patents typically involves seeking profit and gaining a competitive advantage, but if necessary, this profit seeking is achieved and maximised through secrecy. This is because the commercial and technological information contained in the patent “can make a competitor's second-generation invention and patent more powerful” (Sáiz and Amengual, 2018, p. 975), so, as the saying goes, the closer the patent is to a trade secret, the better for the patentee. This seems to be one of the most preferred positions for patent holders (as shown in detail by Scotchmer and Green 1990)¹: having an ideal situation where the patent offers both the benefits of trade secrecy and patent exclusivity.

The aim of this paper is to evaluate the debate surrounding some of these informational tensions, particularly disclosure and secrecy. We will do this by reviewing relevant literature, reconsidering some concepts commonly used in the discussion, and proposing what we call the “paradox of novelty,” which is crucial for understanding these informational tensions. Our main argument is that many information problems – such as lack of visibility in that information – actually occur at the patent office.

The rest of the paper is organised as follows: the following section highlights the epistemic gaps that often exist between the information presented in patent applications and the actual knowledge required for commercial purposes found in the final patent documents. The third section examines the role of patent office examiners and their

¹ However, this does not imply that there is no response from the State; in fact, there is a move to “raise” trade secret (see Denicoló and Franzoni, 2003), meaning to make it “patent” or clear.



expertise in bridging these epistemic gaps to achieve the social objectives of the patent system. In the fourth section, we analyse how patent trolls can undermine the social goals of the patent system. Finally, in the last section, we present concluding remarks and propose potential avenues for further research on this topic.

INFORMATION AND KNOWLEDGE

Some scholars have examined these tensions by analysing patent documents as a linguistic object (Myers, 1995). They appear to confirm that many applicants attempt to combine at least two major strategies (coinciding with the situation described above) in their choice of language (cf. Arinas, 2012):

covering as much intellectual property as possible without impacting the ownership of other inventions.

and providing the minimum information about the invention that the patent office “tolerates”, trusting that once granted, there will be no complaints from other inventors.

These two strategies are, as we have mentioned, undoubtedly motivated by business and economic incentives. However, there are also epistemic and informational limits.

It is observed that some individuals fail to assert sufficient ownership due to ignorance or fear, while others claim too much ownership driven by ambition or ignorance. Vague language can partly help address these issues, a point also recognised by some scholars studying patent language (Myers, 1996, p. 6).

This inquiry demonstrates how issues with access to information and lack of visibility of that information occur at the patent office, rather than as the result of strategic or malicious actions by inventors or lawyers. In this context, we consider the shift from the linguistic challenge of patent documents to the informational problem that arises from aggregating millions of these documents, supporting José Bellido's idea that “it is important to question not only how patents became documents, but also how they became information” (Bellido, 2023, p. 429).

We make this argument without precluding the fact that entrepreneurs, inventors, and lawyers often attempt, before reaching the office and the examiner, to draft their applications in a vague, imprecise, or opaque manner (whether deliberately or due to epistemic constraints).² Bronwyn Hall and Dietmar Harhoff have noted something interesting in this area: the “benefits of [patent disclosure] may be limited by careful

² But not only inventors and their lawyers. Patent offices and state bureaucrats have once again collaborated in transferring a certain opacity from these motley patent documents to their statistical and computerized visualization throughout the patent system, sometimes emphasizing sheer quantity over the true service of these patents to further innovation and the progress of science. As Eva Hemmungs Wirtén (2023) explains regarding the celebrations in 1961 for the granting of 3 million patents by the United States Patent and Trademark Office (USPTO), “to control the narrative of a situation where patents are increasingly distanced from a public which is allegedly the recipient of the enabling information these documents are supposed to contain, he (David L. Ladd, 38th Commissioner of Patents of the U.S.) needs to remember, reframe, and retell the history of the system by reducing it to numbers, periods, symbols and statistics” (p. 234).



drafting of the patent”, as they highlight, but also because “essential (tacit) know-how” (Hall & Harhoff, 2012, p. 4) often does not appear. The advantage of disclosure faces another tension, which is not only economic or strategic in nature but also epistemic and informational. From an epistemic perspective, secrecy or lack of information is closely linked to types of knowledge that, while vital for commercialising or industrially applying patented inventions, cannot be effectively expressed in a patent document, nor even as propositions or narratives. This kind of knowledge is referred to in philosophical literature as “tacit knowledge” (Polanyi, 1958). It can be transmitted through example, experience, or practical application of the process or product, usually representing the aspect reserved for economic negotiation and technological transfer.

Consider the case of pharmaceutical formulations. A patent for a biologic drug, such as a monoclonal antibody, might specify the amino acid sequence and potentially claim binding to specific protein residues. However, the patent cannot fully convey the tacit manufacturing knowledge essential for production or distribution: the precise cell culture conditions, the required purification techniques, the methods for preventing aggregation, or the critical ratios between stabilising excipients that prevent particle formation. A competitor reading the patent could understand what was invented but might take years to learn how to manufacture it reliably – knowledge that remains partly tacit despite the disclosure. The competitor would spend years researching those limits, aspects not directly relevant to the patent protection (which essentially seeks novelty) but ultimately vital to the manufacturing process.

The pharmaceutical industry exemplifies these epistemic constraints particularly well. We will explore this further in the upcoming sections, especially when we introduce the “novelty paradox.”

What can be confidently stated for the moment is that, considering these reasons, it is impossible to understand secrecy without taking into account the epistemic constraints and, above all, the economic interests of entrepreneurs, inventors, and innovators. Here, it would be appropriate to clarify and emphasise another final distinction, which relates to patents and property in general. As Joseph Gortych notes:

Unlike real property such as real estate, which is tangible and can be surveyed complete with stakes in the ground, intellectual property is intangible. Trying to define the metes and bounds of intangible property is very difficult using words alone. As the American commonsense philosopher Josh Billing (2014) once said, ‘There’s a great power in words, if you don’t hitch too many of them together’” (p. 93; italics ours).

Generally, we believe that the patent system, as a historical and institutional framework, fundamentally addresses these tensions. This is why every invention granted a patent should, at least in principle, have a certain degree of novelty, and all patented inventions are required to disclose a minimum level of technological and commercial information.



SECRECY AND THE ROLE OF EXAMINERS

Secrecy has another significant aspect that must be addressed, particularly regarding the role and responsibilities of examiners within the patent system. The element of secrecy in the work of examiners shows that many processes at the Patent Office occur behind closed doors (see Acosta, 2023). In this context, we will focus on secrecy as a feature of the examiner's role and how it influences what examiners are able and willing to disclose.

Some scholars, such as Dev Gangjee, have examined how courts and administrative bodies define the boundaries of trademark ownership, concentrating on how they make the interaction between manufacturers and consumers more tangible (Howe and Griffiths, 2013). The analysis of patents and examiners, however, has its own unique features, distinct from those of trademarks or copyright, because its core focuses on the intention to show (or, in the case of the examiner, to uncover) the novelty of an invention, device, or technology. Nonetheless, the drafting aimed at demonstrating this novelty, as is well known, is filled with secrets.

Following the example of pharmaceutical formulations, we understand that while chemical structures can be described precisely, the exact conditions required to obtain specific polymorphic forms often depend on tacit procedural knowledge. For example, the patent disputes over paroxetine methanesulfonate involved crystalline forms where the 'know-how' of crystallisation – temperature ramping rates, seeding protocols, solvent ratios – was as valuable as the disclosed structure itself (Dunitz and Bernstein, 1995).

Similarly, in biotechnology, patent documents for CRISPR gene-editing systems can describe guide RNA sequences and target sites, yet the optimisation of delivery methods, off-target effect minimisation, and cell-specific protocols remain largely tacit, learned through extensive laboratory practice (Liu et al., 2017).

The gap between what patents disclose and what practitioners need to know is particularly acute in these fields. And we could provide far more examples of tacit knowledge as well as concealment on the part of patent applicants and inventors. However, examples of secrecy and tacit knowledge would not even end here, since we must also examine the examiner's countervailing interests and the epistemic and informational limitations inherent to this other side of the patent bargain, the one of the patent office and the State.

However, we believe that the work undertaken by the examiners in their offices and the methods they employ to perform this detection with sufficient expertise are just as, if not more, concealed in secrecy. This is achieved without overly relying on the applicant's euphemisms (or, conversely, on their lack of claims).

And this secrecy is not necessarily a deliberate concealment by the examiner, but rather a characteristic of an activity like theirs, which is not transparent, not open to the public, and, in some cases, not even accessible to researchers. The mediation between this activity and the secrecy inherent in the applications themselves creates a paradox, a



fascinating challenge for their work. Here we call it the “paradox of novelty.” This paradox involves the following contradictory situation regarding the detection of novelty: if, on the one hand, examiners accurately understand an invention they are evaluating, then there is a likelihood that it is already part of the state of the art, and therefore not novel. But, if, on the other hand, examiners cannot understand all the details or mechanisms of the invention, the likelihood that it is original is higher, but their ability to discern the veracity or the industrial application is obviously reduced.

These challenges may be compounded by the fact that such inventions are not physically replicated or reproduced at the patent office, but are simply assessed from documents and, at best, from drawings. As Hyo Yoon Kang (2015) rightly points out, “patent law evaluates the inventiveness of the object of property right, without necessarily engaging in exercises of scientific verification” (p. 31). Moreover, this situation appears especially notable in certain fields, such as chemistry or pharmacy, due to the highly intangible nature of the invention (as suggested by Gupta et al., 2010).

Having explained this, a possible, perhaps the most pessimistic, consequence is to see patent examiners as fundamentally unable to recognise the novelty of inventions and, therefore, to understand many – if not all – aspects of the analysed artefacts or technologies. Their role would be entirely administrative or bureaucratic, rather than technical.

Like any good paradox, the difficult question of how they accurately detect novelty, and by extension, the nature of the work carried out by examiners, cannot be completely solved. However, we believe that if patent examiners did not require knowledge at all (perhaps only knowledge of the administrative procedures, but not of the technical content), then patent systems and the innovation they protect would be entirely flawed. The existence of patents would be a miracle. We would not be able to explain how, although broadly imperfect, patent systems remain attractive to many inventors, buyers, companies, and others.

Also, if that were the case, then the specialisation of examiners would not matter, and it would be the same for an examiner to assess a chemistry invention or a mechanical engineering invention... And, although this has been the case in the past, we know it is not currently happening anywhere. There is, in fact, a growing trend towards specialisation within Offices (see Whalen, 2018).

This is why we should recognise an epistemic component in the expertise of examiners. However, if we look closely, this “novelty paradox” also assumes the ability to read patent documents, to detect which parts claimed as novel are actually innovative and which are vague or overly broad.

We find it very challenging to articulate the process of acquiring this skill, but we can rely on what the historian Kara Swanson (2020) once said: “The best source of expertise for patent examiners is not formal credentials, but practical, mechanical experience” (p. 31; italics ours). Among other things, this also involves resting on professional conventions. For example, their guidelines usually operate alongside even



less explicit conventions, such as internal communications or inter-office approval meetings. Many of these semi-codified methods of evaluating problems, combined with their prior credentials and experience (many as scientists), enable them to screen, analyse, and assess technologies independently, and potentially circulate the resulting knowledge. However, that knowledge is always, like all human-generated knowledge, influenced by their experience and competence, their particular ways of seeing and knowing, and it is not an entirely objective or neutral representation: they are subject to biases, lack of objectivity, moral concerns, or prejudices of all kinds.

In conclusion, regarding the concept of the social contract of patents, the balance rests on a deceptively simple premise: that linguistic disclosure benefits the public. Inventors describe their innovations, society gains access to this knowledge, and future practitioners build upon it. However, this mediation between language and technological practice is profoundly imperfect and unequal. Patents, in a sense, require a linguistic compromise: they must be precise enough to define property rights, yet broad enough to safeguard commercial value. This, in turn, creates systematic gaps between what is disclosed and what must be practised.

To address one final aspect concerning the informational nature of the patent, particularly the novelty requirement, we will continue linking it to secrecy through the notion of the “junk patent”.

JUNK PATENTS AND SOCIAL COSTS

In addition to the epistemic difficulties underpinning the novelty paradox, some scholars have observed that many of the various problems discussed earlier stem from different inefficiencies. One consequence of patent offices granting patents that do not meet the requirements for patentability, or that simply fail to provide a clear description of the invention, is the emergence of “junk patents”.³

Although many of these shortcomings may occur during the patent examination process, they often involve counterparts in the private sector. A significant portion of applicants for “junk patents” are not ordinary inventors, who may submit inventions of poor quality or suffer from the inefficiency of the office in handling their legitimate claims. There has been an aggressive intrusion into the patent system by agents known as “patent trolls”, who are applicants for some of these junk patents. Essentially, patent trolls

³ It would be useful to cite two of these patents. The first is that of the stick patent. In 2002 the USPTO granted a patent to an “apparatus for use as a toy by an animal, for example a dog, to either fetch carry or chew, includes a main section with at least one protrusion extending therefrom that resembles a branch in appearance. The toy is formed of any of several materials such as rubber, plastic or wood, including wood composites, and is solid” (Ross, 2002). The second example is even more surprising. The Spanish Patent and Trademark Office granted in 1999 (under the protection of a repealed law, prior to substantive examination) a patent to a “procedure for obtaining *paella*” (Sánchez Navarro, 1999). Fortunately, after the fulfilment of the 20 years of validity of the patent in 2019 we can enjoy this tasty dish without fear of being criminally charged.



aim to flood the system with junk patents, which do not necessarily address any specific technical problem, in order to hinder progress in research by inundating it with prior art and threatening potential infringers with litigation.

Low-quality patents with questionable patentability advantage trolls because they create uncertainty about the scope of protection, making it more difficult for the company against which the patent is asserted to determine if they are genuinely infringing third-party rights (often, these types of patents even remain under unknown ownership).

In the U.S., for example, since patents enjoy a presumption of validity, companies targeted by trolls often face high costs defending against infringement lawsuits or initiating invalidation proceedings (Cohen, et al., 2019). Additionally, inventions are kept secret during the initial stage of the patent registration process, so companies implementing the relevant technology are sometimes not even aware that a troll is holding a patent.

Scholars agree the U.S. system is well suited to the aggressive strategies of patent trolls and the subsequent issuance of junk patents (Mayergoyz, 2009). As a result, the differences between patent systems emerge once again. These features of the US include higher defence costs, which may persuade defendants to settle for a substantial amount, higher damages awards, and the presence of appeals that can threaten to shut down the production of entire product lines across the country (Bessen et al., 2011). Therefore, if an appeal is successful, a previously lucrative product can quickly lose its value, and the manufacturer's revenue stream can cease almost immediately.

Additionally, when litigating against trolls, especially in the U.S., it has been shown that the litigation burdens fall more heavily on the producer than on the non-practising entity (Boscheck, 2016), because the producer typically must disclose more documents and information, particularly regarding the manufacturing and marketing process, resulting in higher discovery costs, whereas a non-practising plaintiff has less information to disclose. Furthermore, in the U.S. as well, trolls have low operating costs and do not need to anticipate legal fees to file a lawsuit, as U.S. law allows for “contingency” fee agreements, meaning that lawyers are only paid if they win the case (La Belle, 2015). Producers, on the other hand, cannot benefit from contingency fees and must use their own resources to defend themselves, redirecting funds that would have gone to production to these costly legal proceedings.

These so-called “patent trolls” are ready to exploit various weaknesses in the system, including certain dysfunctions in the patent system's dynamics, operating even beyond the weakened formal and legal boundaries, thereby enabling opportunistic behaviour.

Fortunately, in Europe the situation differs. Some argue that the "loser pays" rule in European jurisdictions helps discourage frivolous lawsuits and, in general, litigation in Europe is more complex. Patent holders must sue potential infringers in several European countries to seek damages, which are comparatively lower, and any resulting injunction is limited to the designated states.



Bonadio and Contardi (2021) conclude that, rather than encouraging innovation, patent trolls create uncertainty in the invention and innovation process by taking legal action against those trying to produce goods and technology.

It is therefore not surprising that this may pose a theoretical challenge for an inquiry into the role and values of patent examiners and offices. However, we can see that it seems to involve an empirical and political challenge, and a philosophical thesis about the role of patent offices, patent examiners, and about epistemic and moral values within the framework of the social contract does not claim, and cannot claim, to solve it.

Moreover, as we have already noted, this issue is especially common in the U.S (particularly in sectors that are not even patentable in Europe, such as software).

A final study worth mentioning is that of Lisa Oullette (2012), who has produced one of the most extensive works on the effects and impacts of disclosure made by patents. Her research highlights several key points. First, she conducts a literature review on the subject and concludes that there are differences between the two “utilitarian” arguments. One argues that patents provide incentives that, among other things, prevent competitors from appropriating innovations and reward inventors. We can recognise this argument as part of the reward theory, following Machlup and Penrose (1950). The other argument, which is properly that of the social contract or *quid pro quo*, suggests that patents provide sufficient incentive for “disclosure” to occur (Oullette, 2012, p. 540). Secondly, she examines what arguments serve as criticisms of each position. The author focuses on those affecting the first, as it is the more controversial of the two. At one point, she also considers the second defence, that of the contract, and notes that it can be undermined by the low value of information contained in patent documents. Here, she analyses and develops empirical studies, focusing on surveys and interviews with scientists – particularly nanotechnologists – to determine how much value they attribute to other inventions and whether these serve as precedents for their work. Oullette's conclusion is revealing: “The nanotechnology patent literature is extensive, but most nanotechnology researchers are academics or basic researchers who publish in traditional scientific journals. I find that even for these researchers, patents contain useful, non-duplicative technical information, but my survey data suggest that patents could be even more informative”.⁴

Therefore, we will assume that disclosures through patents and the dissemination of inventions facilitate numerous technological innovations and form a significant part of modern scientific output. We argue that it is the reward theory, rather than the concept of *quid pro quo*, that has been challenged. Furthermore, we recognise that we are not aware of any author who has denied that this disclosure and diffusion act as precedents for certain scientific and technological developments.

⁴ Now, even if Lisa Oullette were wrong and contemporary patent systems were indeed entirely devoid of informational value, this inquiry would still serve at least to draw attention and to point out the best systems to work on, in order to make the social contract of patents a more effective framework.



In summary, secrecy is intrinsic to patents. It manifests in many different forms and means, driven by political, epistemic, informational, and especially economic influences. Nonetheless, this does not necessarily diminish our dedication. We must recognise that while secrecy is related to patents, it should never be confused – almost to the point of merging – with them. Patents and (trade) secrecy are distinct entities. As historian Petra Moser (2013) notes, “secrecy emerged as a key mechanism for protecting intellectual property. The effectiveness of secrecy vis-à-vis patents varies according to the technological characteristics of innovations in different sectors and over time. In industries where secrecy was effective, inventors were less likely to use patents. Advances in scientific analysis, which reduced the effectiveness of secrecy, increased inventors' reliance on patents” (p. 40).

Patents aim to close the gap between industrial secrecy and the socially beneficial sharing of knowledge that drives scientific and technological progress. However, as we demonstrate, the reality is more complex, as much of the information in patent documents possesses implicit qualities. Often, essential details needed for commercialising or industrially applying patented inventions cannot be effectively conveyed through the patent document's format, nor can they be easily expressed as clear statements or narratives. This challenge is exacerbated by the fact that inventions are not physically tested at patent offices; their assessment depends solely on the submitted documentation and, at best, related illustrations. Furthermore, the self-interest of patent applicants, combined with an understanding of the system's weaknesses, can undermine the social goals of the patent system.

Overall, we argue that a certain level of secrecy is an inherent aspect of the patent system, with its degree differing depending on the technological nature of innovations across various sectors and over time. We contend that there is an urgent need for more effective patent evaluation systems that can sufficiently address these informational challenges.

CONCLUDING REMARKS

Does the patent system ultimately disseminate knowledge or merely define property boundaries while concealing essential know-how? The answer varies significantly across technological fields, as we have just discussed. Software and business methods can be largely codified through language; in contrast, pharmaceutical manufacturing and biotechnological techniques require tacit expertise that patents cannot fully capture. Recognising these field-specific limitations is vital for assessing whether the social contract remains viable or needs fundamental recalibration. Our contribution is to emphasise that considering the secrecy associated with the patent office is inevitably necessary for these reflections.

To strengthen our arguments, it is crucial to conduct a more detailed investigation into representative patent cases involving tacit knowledge and assess their impact on



subsequent innovation. Additionally, a valuable direction for future research is to explore the links between our arguments and recent advances in information economics and value creation in contexts characterised by incomplete information. We cannot afford to overlook these gaps—or, worse, to assume the patent system has already addressed them. Tackling the unavoidable tensions between language and technology, disclosure and secrecy, individual property and collective knowledge, can help to reimagine patent institutions that are fit for the real complexity of modern innovation.

REFERENCES

- Acosta, B. (2023). Impartiality at the Patent Office. *Public Integrity*, 26(5), 594–605. <https://doi.org/10.1080/10999922.2023.2268810>
- Arinas, I. (2012). How Vague Can Your Patent Be? Vagueness Strategies in U.S. Patents. *HERMES – Journal of Language and Communication in Business*, 48, 55-74. <https://doi.org/10.7146/hjlc.v25i48.97426>
- Ashtor, J., H. (2022). Modeling Patent Clarity. *Research Policy*, 51(2), 104415. <https://doi.org/10.1016/j.respol.2021.104415>
- Bellido, J. (2023). Patents In Miniature: The Effects of Microfilm as an Information Technology, 1938–68. *Technology and Culture*, 64(2), 407–433. <https://doi.org/10.1353/tech.2023.0056>
- Bessen, J., Ford, J., L., & Meurer, M., J. (2011). *The Private and Social Costs of Patent Trolls* [Working Papers 1103]. Boston University School of Law. <http://www.bu.edu/law/faculty/scholarship/workingpapers/2011.html>
- Billing, J. (2014). *Josh Billings, His Sayings*. Literary Licensing, LLC.
- Boldrin, M., & Levine, D., K. (2008). *Against Intellectual Monopoly*. Cambridge University Press.
- Bonadio, E., & Contardi, M. (2021). *Los Troles De Patentes: Una Historia de Exceso de Ejercicios de Derechos de Propiedad Intelectual* [Patent Trolls: A History of Excessive Exercise of Intellectual Property Rights]. *Revista La Propiedad Inmaterial*, 32, 37-70. <https://doi.org/10.18601/16571959.n32.02>
- Boscheck, R. (2016). Patent Trolls: In Search of Efficient Regulatory Standards. *World Competition*, 39(1), 67-84. <https://doi.org/10.54648/WOCO2016005>
- Cohen, L., Gurun, U., G., & Kominers, S., D. (2019). Patent Trolls: Evidence from Targeted Firms. *Management Science*, 65(12), 5461-5486. <https://doi.org/10.1287/mnsc.2018.3147>
- Denicoló, V., & Franzoni, L. A. (2003). The Contract Theory of Patents. *International Review of Law and Economics*, 23 (4), 365-380. <https://doi.org/10.1016/j.irl.2003.07.002>
- Dunitz, J. D., & Bernstein, J. (1995). Disappearing Polymorphs. *Accounts of Chemical Research*, 28(4), 193-200. <https://doi.org/10.1021/ar00052a005>
- Figuroa, N., & Lemus, J. (2023). The Benefit of the Doubt: Patent Examination Under Strategic Obfuscation. *Management Science*, 70(9), 5853-5870. <https://doi.org/10.1287/mnsc.2023.00140>
- Freilich, J. (2017). Patent Clutter. *Iowa Law Review*, 103, 925-983.



- Galasso, A., & Schankerman, M. (2015). Patents and Cumulative Innovation: Causal Evidence from the Courts. *The Quarterly Journal of Economics*, 130(1), 317–369. <https://doi.org/10.1093/qje/qju029>
- Gortych, J.E. (2014). *Consider a Spherical Patent: IP and Patenting in Technology Business*. CRC Press. <https://doi.org/10.1201/b16603>
- Gupta, H., Kumar, S., Roy, S. K., & Gaud, R. S. (2010). Patent protection strategies. *Journal of pharmacy & bioallied sciences*, 2(1), 2–7. <https://doi.org/10.4103/0975-7406.62694>
- Hall, B. H., & Harhoff, D. (2012). Recent Research on the Economics of Patents. *Annual Review of Economics*, Annual Reviews, 4(1), 541-565. <https://doi.org/10.1146/annurev-economics-080511-111008>
- Heller, M., & Eisenberg, R., S. (1998). Can Patents Deter Innovation? The Anticommons in Biomedical Research. *Science*, 280, 698-701. <https://doi.org/10.1126/science.280.5364.698>
- Hemmungs Wirtén, E. (2023). Patents of Persuasion: Tempo-metrics and the Shaping of Knowledge About Knowledge. *Journal for the History of Knowledge*, 4, 215-238. <https://doi.org/10.55283/jhk.12419>
- Howe, H. R. & Griffiths, J. (2013). *Concepts of Property in Intellectual Property Law*. Cambridge University Press.
- Kang, H., Y. (2015) Patent as Credit. When Intellectual Property Becomes Speculative. *Radical Philosophy*, 194, 29-37.
- La Belle, M. (2015). The Local Rules of Patent Procedure. *Arizona State Law Journal*, 47(63). https://arizonastatelawjournal.org/wp-content/uploads/2015/06/La-Belle_Final_Corrected.pdf
- Liu, C., Zhang, L., Liu, H., & Cheng, K. (2017). Delivery Strategies of the CRISPR-Cas9 Gene-editing System for Therapeutic Applications. *Journal of Controlled Release*, 266, 17-26. <https://doi.org/10.1016/j.jconrel.2017.09.012>
- Machlup, F., & Penrose, E. (1950). The Patent Controversy in the Nineteenth Century. *The Journal of Economic History*, 10(1), 1–29. <https://doi.org/10.1017/S0022050700055893>
- Mayergoyz, A. (2009). Lessons from Europe on How to Tame U.S. Patent Trolls. *Cornell International Law Journal*, 42(2), 264.
- Moser, P. (2013). Patents and Innovation: Evidence from Economic History. *Journal of Economic Perspectives*, 27(1), 23–44. <http://dx.doi.org/10.1257/jep.27.1.23>
- Myers, G. (1995). From Discovery to Invention: The Writing and Rewriting of Two Patents. *Social Studies of Science*, 25(1), 57-105.
- Myers, G. (1996). Strategic Vagueness in Academic Writing. In E. Ventola, & A. Maurannen (Eds.), *Academic Writing: Intercultural and Textual Issues* (pp. 3-18). John Benjamins Publishing Company.
- Ouellette, L., L. (2012). Do Patents Disclose Useful Information? *Harvard Journal of Law and Technology*, 25(2), 545-607.
- Polanyi, M. (1958). *Personal Knowledge: Towards a Post-Critical Philosophy* (M. Jo Nye, Ed.). University of Chicago Press.



- Ross, E., L. (2002). *Animal Toy*. (US Patent n: 6,360,693 B1). United States Patent and Trademark Office.
<https://patentimages.storage.googleapis.com/7d/c2/a6/10a1fcd1ee5ca8/US6360693.pdf>
- Sáiz, P., & Amengual, R. (2018). Do Patents Enable Disclosure? Strategic Innovation Management of the Four-Stroke Engine. *Industrial and Corporate Change*, 27(6), 975–997. <https://doi.org/10.1093/icc/dty018>
- Sánchez Navarro, M., D. (1999). *Procedimiento para la obtención de un plato de paella de arroz de gran estabilidad* [Procedure for Obtaining a Highly Stable Rice Paella Dish]. (Patente española n. ES2161177B1). Oficina Española de Patentes y Marcas.
https://www.oepm.es/pdf/ES/0000/000/02/16/11/ES-2161177_B1.pdf
- Scotchmer, S., & Green, (1990). Novelty and Disclosure in Patent Law. *The RAND Journal of Economics*, 21(1), 131-146
- Swanson, K., W. (2020). Making Patents: Patent Administration, 1790–1860. *Case Western Law Review*, 71(2), 777-818.
- Whalen, R. (2018). Boundary spanning innovation and the patent system: Interdisciplinary challenges for a specialized examination system, *Research Policy*, 47(7), 1334-1343. <https://doi.org/10.1016/j.respol.2018.04.017>

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