

EXCLUSIVE MODEL OR NON-EXCLUSIVE MODEL : THE INFLUENCE OF INTELLECTUAL PROPERTY RIGHTS ON THE EMERGENCE OF THE FILM INDUSTRY

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I. THE PATENT SYSTEM AND PROSPECT THEORY

Traditionally, the patent system has provoked unease and scepticism among economists, an attitude neatly summed up by Machlup in his 1958 Report to the US Congress: "*No economist, on the basis of present knowledge, could possibly state with certainty that the patent system, as it now operates, confers a net benefit or a net loss upon society. (...) "...If we did not have a patent system, it would be irresponsible, on the basis of our present knowledge of its economic consequences, to recommend instituting one. But since we have had a patent system for a long time, it would be irresponsible, on the basis of our present knowledge, to recommend abolishing it. This last statement refers to a country such as the United States of America - not to a small country and not a predominantly non-industrial country, where a different weight of argument might well suggest another conclusion"* (Machlup, 1958¹). Today, the patent institution, whose very existence was contested during the nineteenth century, is often justified in terms of incentive, but the right of exclusivity granted to the patent-holder raises problems in the sphere of competition policy, because the possible social benefits represented by incentive and the disclosure of production processes must be balanced against the social cost of the temporary monopoly. The institution of patenting therefore needs to be monitored and the scope and duration of patents granted should be limited.

The new approach to patents as "property rights"

At the end of the 1960s, however, the traditional analysis was challenged by the "Law and Economics" school of the University of Chicago, which defined patents as "intellectual

1 See also Plant (1934), Machlup and Penrose (1950), Mazzoleni and Nelson (1998).

property rights” by defining these rights (copyright, patents, trade-marks, protection of trade secrets, etc.) as conditions of economic efficiency. According to the Chicago school, these different legal measures are all responses to one and the same problem: “market failures”. By protecting a certain number of assets (information, knowledge, techniques, etc.), intellectual property rights give rise to a “market of rights”. This makes possible the re-allocation of information, knowledge and techniques and the payment of their producers. In a context of free trade and sufficiently low transaction costs, this in turn leads to a better allocation of resources and better organisation of innovative activity, a situation that cannot, according to this theory, be achieved under a system of collective or semi-collective property (public domain and other forms of commons). The strengthening and expansion of patent protection is therefore seen as a praiseworthy policy. The attribution to private agents of an exclusive right to use a given technique (or knowledge) is no longer seen as a possible obstacle to competition (or to research), but, on the contrary, as a necessary condition for the good functioning of this economy of information and innovation.

A prime example of this change in perspective is Kitch’s proposal (1977) that patents should be considered, no longer simply as mechanisms to ensure the return on capital invested in innovative activity (reward theory), but also (and mainly) as a system ensuring the efficient allocation of resources for the exploration of a whole field of research: “*a significant, if not the predominant, function of the American patent system as it has operated in fact*”². What matters is the protection of the prospect, in other words “*a particular opportunity to develop a known technological possibility*”.

Kitch draws an analogy between inventive activity and the activity of prospecting for minerals (gold, silver, petrol etc.). According to Kitch, the general characteristics of the patents system and the mining claims system are very similar: they are limited in space and time, they both have a clear rule of priority (the first to make the discovery or to register the claim), the validity of the patent or claim is independent of any commercial value, and there are rights of exclusivity for all exploration and exploitation within the limits of the “prospect”. Protection then enables the efficient organisation of prospecting without wasting resources, an observation that Kitch then extends without any further reasoning to the activity of research and development. Without clearly-established, exclusive property rights, there would still be prospecting (or R&D), but this would be conducted in the most complete disorder, with competing investments and a lack of coordination, resulting in a very poor allocation of resources. For Kitch, the incentive function of patents, on which reward theory

2 Kitch, 1977, p. 267. See also Kitch (1980 and 1986) and Grady and Alexander (1992).

focuses, is only of secondary importance; inventive activity (including development) could exist without patents; their main function is rather to enable the optimal organisation of innovative activities.

From this perspective, increasing the width and depth of patents (in the sense of Van Dick, 1994) is a good policy. Claims should be able to cover a wide area rather than a single point, a field of research not entirely explored (the prospect) rather than well-defined, specific technical procedures. Kitch argues that granting a broad-scope patent to the original inventor during the first stages of research leads to better exploration of the prospect. As the patent-holder enjoys an exclusive right of exploitation covering the whole field of research, all those who wish to innovate from the original invention or derive economic benefits from the development of something based on this prospect must necessarily negotiate with him or her to obtain a licence. The patent-holder is consequently a necessary (and organising) link for all those working in this new technological field, and this has the effect of facilitating the transfer of information (and rights) and avoiding the useless duplication of efforts (as in “patent race” models).

In this way, prospect theory bypasses the traditional trade-off between “incentive” (positive effect) and “monopoly”, i.e. restrictions in the use that others can make of the technology (negative effect), by transforming the latter into a positive effect, arguing that the creation and strengthening of a right of exclusivity are necessary for the creation of the market, which is assumed to achieve a more efficient allocation of resources. Thus, Kitch criticises the principle of compulsory licenses and antitrust measures in general in the field of patents, because these actions tend to weaken the principle of exclusivity and the protection of prospects. *"Much of the antitrust law designed to confine the operation of the patent system to its "proper sphere" has been implicitly based upon the reward theory and may have affected the ability of the system to perform the prospect function. Consequently, the pre-antitrust, nineteenth-century patent system was probably more of a prospect system than the twentieth-century system has been"* (Kitch, 1977, p. 267). Besides, according to Kitch, the danger of monopoly has been greatly overestimated (Kitch, 1986).

Exclusive control or decentralisation

Here, for the purposes of analysis, we need to distinguish between three economies, each with its own specific production, exchanges (market or non-market) and circulation of a certain number of products, which differ from one economy to another. These three economies are: (1) “the economy of knowledge and techniques”, (2) “the economy of

industries” and (3) “the economy of rights”. The first economy includes all the activities of production, reproduction, diffusion, exchange and sharing, and transformation of knowledge and techniques. This is where inventions arise. The second economy (that of industries) exploits, at least to a certain extent, the production of the first, by making use of techniques, both patented and unpatented. The third economy is organised around the rights associated with the patents granted by the Patent Office. This production is followed by exchanges, with possible disputes, and a whole set of specialised agents operate here: Patent Office examiners, lawyers, judges, etc. This trade, which only concerns a legal right of use, either for further research or for commercial purposes, must not be confused with the direct exchange of knowledge and techniques, which falls exclusively within the domain of the first economy³.

In the traditional economic approach to patents, a direct link is established between the first and second economies (sometimes with feedback loops), often making a distinction, in the economy of knowledge, between two domains: the domain of scientific research and the domain of technology, the only area in which one can possibly (and temporarily) privatise a discovery or an invention. This approach leaves the third economy on the sidelines, only troubling about its existence to the extent that certain patents cause problems for the competitive form of industries, as illustrated in figure 1.

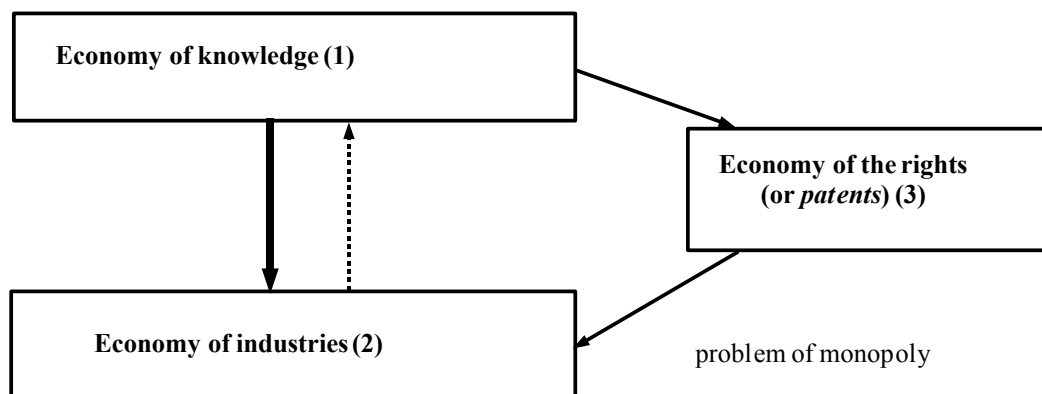


Figure 1: The traditional approach to patents

Prospect theory turns this view upside-down, by subjecting all activity of research and innovation to the consent of the rights-holders, so placing the economy and market of rights in a dominant position (figure 2), a situation which, according to Kitch, should greatly

³ The right is neither the knowledge nor the possession of the knowledge. Acquiring a licence of use and truly mastering the invention are often two very different things (see the examples given by Vaughan, 1956, p. 218 et seq.).

improve the allocation of resources and the efficiency of research.

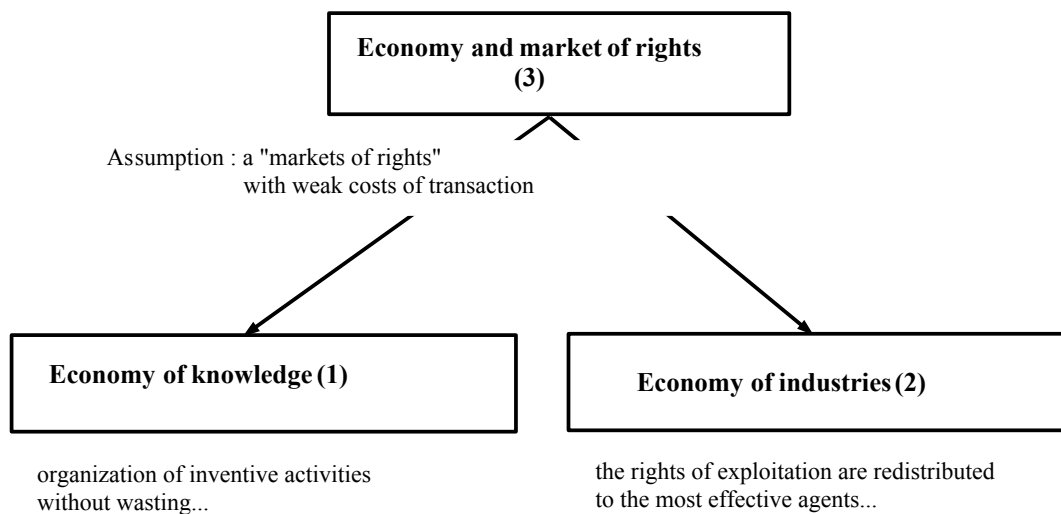


Figure 2: "Intellectual Property Rights" and prospect theory

Such a principle of centralisation appears to be contrary to the institutions and rules that have always governed scientific research, and even, to a great extent, the most ordinary technological change: the principles of open science or collective invention (Allen, 1983). Competition between dispersed, independent researchers, working in parallel on the same problems with, inevitably, a certain duplication of efforts and investments, is generally considered to be the most favourable mode of organisation for the activity of inventive or scientific research; in our time, this point has been echoed by several authors (Merges and Nelson, 1990; Mazzoleni and Nelson, 1998; Eisenberg and Heller, 1998; Bessen and Maskin, 1999).

Furthermore, the possession of exclusive rights over an invention (or, even more so, a field of research) also signifies the possession of rights over all the economic, industrial and commercial activities derived from that invention. This means that what is at issue is no longer simply the relation between patents and advances in technological knowledge, but the relation between patents and the wider functioning of business. For in certain cases, extending protection to cover whole fields of research, as prospect theory proposes, means giving the title-holder control over a portion of the activities of an industry. This is particularly true for new industries, which depend for their development on a certain number of specific techniques.

This is the point we wish to illustrate with the help of a historical comparison, exploring the emergence of the film industry (up until 1907-1908), in France and in the

United States, where claims and conflicts over rights (patents) played a significant role, unlike in France. This context provides us with the opportunity to conduct a systematic comparative historical analysis of considerable interest. Admittedly, we cannot hope to establish general laws on the basis of a single historical example. But we can challenge (and invalidate) certain assertions that are presented as general laws by the economists (and jurists) who support the new approach to patents as intellectual property rights. We can demonstrate the fragility of the hypotheses underpinning their approach and highlight some neglected aspects of the real economic world, something which can only be achieved through the empirical study of specific industrial situations.

So in the second section, we shall retrace the beginnings of the film industry and the patents war that broke out in the United States, before returning to main issue, that of the relations between institutions – the system of property rights and patents – on the one hand and the development of industries on the other. From one country to another, from one period in history to another, the same principle of the legal protection of “inventions” can take very different forms. The definition of what is protected varies according to the legislation, jurisprudence, procedures and practices in force. In the third section, we shall therefore examine this point in more detail, the American system at the time of Edison actually being quite similar to the system recommended by prospect theory.

II. THE BEGINNINGS OF THE FILM INDUSTRY AND THE AMERICAN PATENTS WAR

The Lumière brothers organised the first paying, public film screening in Paris on 28 December 1895. They thus invented the concrete commercial form on which the whole future film industry would be built (Filman, 1997). True, for more than a year, people in both Europe and the United States had already been able to view short films in the Kinetoscopes of the Edison company, but these coin-operated machines with eye-pieces could hardly rival with theatre screenings. The success of the cinematograph revealed a new market, which rapidly determined the importance and economic value of the different technologies.

Access to technologies and the emergence of the industry

To enter this new activity, you had to get blank film and possess a camera for the shooting and production of films, or obtain copies of films produced by others and a projector for the screenings. Some of these elements represented real problems, mainly because of their novelty (as the technological system had only just been invented), or because of the legal existence of an exclusive right of exploitation, when these mechanisms were covered by

patents.

The Lumière brothers, as industrialists and inventors of a three-in-one movie camera, projector and printer, mastered all these elements. They were also, as Eastman in the United States, producer of blank film. Free to develop a complete commercial strategy, they chose a system of exclusive exploitation, refusing to sell their camera to anyone else. But this choice did not seem to slow down the boom in the industry in France or the rest of Europe. In fact, the success of the cinematograph triggered feverish research into cameras and projection techniques. To achieve intermittent movement of the film, the Lumière brothers had used an eccentric mechanism borrowed from a sewing machine, but other systems were possible. So, during 1896, more than 120 patents were registered in France, about thirty in Great Britain and a few less in Germany (Sadoul, 1948). Numerous more or less effective drive systems were proposed: sprockets, Maltese crosses, floating cams, etc. Perfectly usable movie cameras and projectors quickly became available, and their production completed that of still cameras.

Certain manufacturers and sellers of machines (William Paul in England, Léon Gaumont and Charles Pathé in France) then started to produce films as a means of selling their projectors. As early as 1896, George Méliès, a modest impresario (and artist), bought a projector from William Paul and transformed it into a movie camera to shoot and sell his own films (Mannoni, 2002). In this way, the new industry became organised around the sale of cameras and films to exhibitors, who were, at the time, mainly travelling showmen. Indeed, screenings in funfairs expanded rapidly, predominating from 1900 on, in France (Deslandes and Richard, 1968). Producers sold their copies by the metre, a system which persisted until 1907, when Charles Pathé – soon imitated by Gaumont and the other film producers – decided to rent out copies rather than sell them. Thus, the manufacture of movie cameras, the production of films and their screening were very quickly divided into separate activities in France. Competition existed at every level. Some firms specialised; others, on the contrary, gradually integrated several of these activities. But the existence of patents actually had very little influence on the progress in technologies and the development of the industry along purely commercial and competitive lines.

The situation was to be very different in the United States, dominated by the personality and claims of Thomas Edison, who asserted the right of first inventor over the whole motion picture industry. Already well-known for his inventions in the fields of electricity and communications (telegraph, etc.), and for his phonograph, Edison was essentially a

“businessman's inventor” (Musser, 1990)⁴. Possessing a large personal fortune and a big laboratory in Menlo Park (New Jersey), he had his researchers work on every possibly useful device that came into his head; he was also well-practised in the use of patents and broad claims. In 1891, the Menlo Park laboratory developed a prototype movie camera (the Kinetograph, for shooting) and a viewer with an eye-piece (the Kinetoscope). Most of the work was carried out by William Dickson, one of Edison’s researchers (Hendricks, 1961)⁵. In August of the same year, several patent applications were submitted to the US Patent and Trademark Office. This signalled the beginning of a laborious process of review and rejection by the Patent Office examiners, to which Edison’s lawyers, Dyer and Seely, replied with successive counter-proposals and re-formulations, the aim, of course, being to incorporate the broadest possible claims into the patents⁶.

In 1893, the Patent Office granted Edison a first patent (#493,426) covering the viewer (the Kinetoscope) and in 1897 – six years after the first application – a second (#589,168) covering the camera (the Kinetograph). It is interesting to note that Edison made no patent applications outside the US; according to Edison himself, this “omission” was intended to save money - an argument which has left historians rather perplexed (Sadoul, 1948; Hendricks, 1961; Musser, 1990). It is more likely that Edison knew very well that his broad-scope claims would be contested, and above all difficult to sustain, abroad, where similar work had already been carried out, particularly by Etienne Marey. The rejection of a patent application in Europe would, of course, have weakened his position in the United States itself.

Kinetoscopes were launched on the market in 1894; the viewers, showing continuous loops of film, were sold to exhibitors and the films were supplied by the Edison company. The camera used an intermittent mechanism (the Maltese cross). It was neither marketed nor exhibited, and nobody, apart from the inventors, really knew how it worked. However, the commercial choice of exploitation using coin-operated machines left to one side the technical

4 No other inventor has approached the number of patents issued to Thomas Edison, singly or jointly : 1093 granted by U. S. Patent Office (389 for Electric Light & Power, 195 for Phonograph, but only 9 for the Motion Pictures).

5 Dickson, the “real” inventor according to Hendricks (1961), broke with Edison in about 1895. He then worked on the development of the projector (Eidoloscope) and camera of the Latham brothers, before participating even more actively in the technological development of the American Mutoscope & Biograph Company.

6 For a detailed analysis of the process of negotiation and the legal and administrative construction of the “invention”, see Hendricks (1961, p. 130 ff), Musser (1990, p. 238-239) and Greenleaf (1961). Edison’s claims were of very broad scope, covering shooting, recording on film, and all the methods of exhibition he could imagine, including those that he would have been incapable of implementing at the time (projection, for example); some of these claims had already been registered in other patents, in France, Great Britain or the United States itself.

problem of projection. Edison, who had not funded any research in this area, had no mastery of the technology and possessed no projectors. He was therefore incapable of meeting the demands of those who wished to project Kinetoscope films onto a screen. Consequently, both in the United States and elsewhere, others set out to develop a system of projection. These included the Latham brothers, who, in about 1895, possessed a continuous projector, and Jenkins and Armat, who invented a machine with an intermittent mechanism, patented on 28 August 1895. The discovery of this latter invention by Edison's agents, Raff & Gammon, resulted in Edison obtaining the exploitation rights to the Armat-Jenkins patent. Immediately presented as the latest invention of the "wizard of Menlo Park", the "genius" Edison, the machine was renamed, and marketing of Edison's Vitascope began in 1896. But in the same year, the Lumière brothers' cinematograph arrived in New York, where it was also possible to see screenings using the Latham brothers' Eidoloscope, the Kineoptikon (from England), or the Biograph of the American Mutoscope & Biograph Company (Deslandes and Richard, 1968).

The American "patents war" (1897-1908)

In 1897, the situation of the future film industry in the United States appeared to be quite similar to the one in Europe. There were numerous cameras and projectors using the Edison 35mm format and perforations; these machines were either imported from Europe (above all from Great Britain) or produced in the United States itself. Nor was it difficult to get hold of finished films, and screenings multiplied fast (Musser, 1990). So the industry could have developed along the same lines as in Europe, with commercial competition between different film producers and different machines, global growth in production driven by exhibition, and patents playing no more than a secondary role. But on 31 August 1897, Edison obtained a broad patent on movie cameras and filming (#589,168). In December, his lawyers launched a series of lawsuits against a number of exhibitors, film producers and camera manufacturers, heralding a period of legal conflicts and uncertainty that was to last ten years. Retreating before the cost and complexity of the legal proceedings, most exhibitors and producers either disappeared or gave in, accepting the conditions laid down by Edison: ending the production of certain cameras, handing over films and paying royalties. Others preferred exile (Lubin, for example), withdrawing temporarily to Great Britain. Yet others were protected by distance, as Edison's lawyers were reluctant to pursue cases outside New York. In this way, within the space of a few months, Edison greatly strengthened his commercial position, intimidating most of the producers of 35mm films and equipment in the region of New York. On 13 May 1898, he embarked on a second wave of lawsuits, notably

attacking the American Mutoscope & Biograph Company, a large, wealthy firm which used its own technology and its own format (70mm)⁷. This company refused to yield, and its lawyers put up fierce, prolonged resistance, of which we shall now briefly describe the most important episodes.

On 15 July 1901, the first victory went to Edison, when Judge J. Wheeler decided that Biograph had appropriated the very substance of the invention covered by the Edison patent. With its very survival under threat, Biograph obtained a postponement and appealed against the decision. On 14 March 1902, the Court of Appeal under Judge William J. Wallace overturned the decision, considering that the claims contained in the patent were too broad to correspond to the inventions actually created by Edison, who was therefore nonsuited, and his patent judged to be of no value. This represented a major victory for all film producers, and especially for Biograph, who could now freely pursue their activities and even convert to the 35mm format.

But Edison's lawyers, having reformulated their claims, quickly obtained two "patent reissues" from the Patent Office, on 30 September 1902 (#12,037 and #12,038). They immediately launched new lawsuits against Biograph, Selig and Lubin (November 1902), then against Paley, Méliès, Pathé and others (in 1904) and Vitagraph (in 1905). In March 1906, a first court decision restricted the scope of the Edison patents. His lawyers instantly appealed, and a year later, on 5 March 1907, the Court of Appeal published a decision partially invalidating the previous judgement. Two types of camera were at the heart of this dispute: the old Biograph camera, with its almost obsolete drive mechanism, and the Warwick, an English camera widely used in the profession. The judges declared that this camera, being a "fair equivalent" of the mechanism patented by Edison, was illegal, together with all the other cameras in use except the Biograph, with its totally different mechanism. However, the verdict did not really resolve the situation; the patents of both parties were recognised as being valid. In addition, the legal dispute continued on patents related to the projection.

This impasse led – after a few more vicissitudes – to the formation of a cartel, the Motion Picture Patents Company (MPPC). In fact, Edison's lawyers had immediately

7 The American Mutoscope & Biograph Company possessed an original technological system (Casler patents), with a viewer (the Mutoscope) which worked on the principle of flip cards mounted on a rotating drum and gave a better quality picture than the Kinetoscopes. The machine was sturdy, easier to use and cheaper to maintain. Camera and projector used a wider film format than Edison (70mm compared with 35mm) and friction feed, the perforations only being made at the moment of exposure. Production of the 70mm format was more expensive, but the quality of the screenings and films of the Biograph Company, together with its financial solidity, soon made it into Edison's main American rival.

launched new lawsuits; exhausted by all these legal disputes, the main American producers – Vitagraph (the leading American film producer), Kalem, Lubin, Selig, Essanay, together with Pathé and Méliès, became licensees of Edison. And so Edison, who actually had little presence on the commercial front, succeeded in imposing his control over almost the whole industry. Only Biograph and G. Kleine remained outside (Bowser, 1990). Biograph strengthened its position by signing an agreement with Armat and buying the rights of the Latham patent (towards the end of 1908), thus complicating the legal disputes over projection. The Latham patent, for example, involved a way of inserting the film into the camera that prevented the jerky movements of the camera from tearing the film during filming or screening. This “Latham loop” had become general practice, indispensable for films more than 100 feet long.

In short, Edison could sue Biograph and Biograph could sue Edison⁸. It was this threat of paralysis which finally led to the formation of the Motion Picture Patents Company (MPPC). Officially founded on 1 January 1909, this company took over all the patents of Edison, Biograph, the Armat Company and Vitagraph, and adopted the practical ambition of reorganising (under license) all film industry activities, setting up the collection of fees at all levels, the royalties then being paid to Edison and Biograph (on a 50/50 basis)⁹. A new era began for the industry, setting this patents cartel against the new “independent” producers rising up out of the circles of distribution and exhibition. Court actions and legal harassment were taken up again with renewed vigour, but the MPPC could not stem the rapid growth in independents for long. In June 1910, the latter were already distributing 21 reels a week, compared with 30 for MPPC licensees. And so, in 1912, when the American government took legal action against the MPPC under anti-trust law (resulting in an official conviction in 1915), the MPPC had already largely lost the commercial battle.

Contrasting developments on either side of the Atlantic

In 1908, when the patents war ended, the American film industry found itself in a paradoxical situation. In terms of spectators and sales of copies, the American market was already the biggest in the world, but film production was under-developed and incapable of satisfying the demand from exhibitors. In 1907, for example, only one third of the films

8 On this point, see Eileen Bowser (1990). The legal validity of the Latham patent was contested, but the courts only invalidated the famous “Latham loop” much later (in 1912). So, in 1907, the Biograph representative could legally threaten all film screenings, just as Edison could threaten almost all filming.

9 The MPPC granted licenses to producers, distributors and exhibitors, imposing, for example, a fee of \$2 per week for the simple use of a projector. Distribution was gradually grouped together into one company, the General Film Company (1910). The MPPC signed an exclusive supply agreement with Eastman Kodak, to prevent “independents” from obtaining blank film; the only other solution being to resort to imports (Lumière company). Consequently, Eastman incorporated into its prices the royalty paid to the MPPC.

screened in the United States had been made there; the others came from Europe, chiefly from France, with the Pathé Frères company alone accounting for one third of the market (Musser, 1990).

This situation was all the more paradoxical as, from 1905 on, specialised theatres, dedicated to the continuous screening of films, had started to spring up in all the big cities. These nickelodeons, so named in reference to the price of admission – a nickel or 5 cents – were a new form of exploitation, very profitable, which quickly became dominant. The proliferation in nickelodeons led to the United States possessing an unparalleled number of movie theatres: about 7000 permanent cinemas (including 350 in New York) compared with 400 in France (50 in Paris), where the “travelling fair” form of screening was still dominant (Mitry, 1967)¹⁰. This resulted in a profound transformation in the economy of the American film industry. For cinemas to stay open on an almost permanent basis, they had to change their playbills regularly, which meant an increased demand for new films and the appearance of rental systems.

However, from the age of Kinetoscopes up until 1907, the production of films in America had always lived under the threat of Edison’s legal actions. There were more than 200 lawsuits in district courts and more than 300 in courts of appeal (Sadoul, 1948). The cost of all these lawsuits considerably handicapped production. Even more determinant, the constant uncertainty about the legal conditions of production discouraged investment. Often incapable of continuous production, companies remained small and disorganised, and the American production of original films was therefore largely inferior - in quantity and quality – to what it could (and should) have been, given the scale of the demand for copies on the part of the exhibitors.

So the archives and statistical data available for the period clearly show that the whole industry lived at the rhythm of lawsuits and the successive decisions of the courts¹¹. As a consequence, the initial boom was soon dampened, and the production of films stagnated and even fell until 1902, despite the sustained demand. Edison’s first patent (#589,168) having been invalidated, production grew strongly in 1902 and 1903, to fall once again when legal actions were launched for the new patent reissue #12,037 (Jones, 2001).

The shortfall between supply and demand was filled either by imports or by the duping of rival films. For it was possible to create a negative (duplicate) from an original copy, and

¹⁰ Eileen Bowser (1990) provides analogous figures for the United States: 8000 cinemas dedicated to films in 1908 and, in May 1909, 6000 MPPC-licensed cinemas for 2000 independent cinemas.

¹¹ See, for example, Musser (1983), for a detailed analysis of the hazards of production and exploitation in the New York region between 1897 and 1901.

then to make as many copies as desired from this duplicate, at the cost of a certain loss of quality. This practice, made possible by the absence of copyright on films¹², was current and even massive in the United States, but almost unknown in France, where the protection of films by copyright ("droit d'auteur") was nevertheless hardly any better established. To give an example, the film "Le voyage dans la lune", made by George Méliès in 1902, enjoyed considerable success throughout the United States, and yet the producer only sold a grand total of three copies (Malthète and Mannoni, 2002). This was a direct consequence of the patents war. Duping was a quick and cheap way of supplying the market¹³. And during the most intense periods of legal conflict (around 1901-1902), some producers, such as Lubin, completely abandoned all original production to specialise in the pirating of foreign films, either French (Méliès, Gaumont, Pathé) or English.

In France, on the contrary, the production of films largely surpassed the needs of the domestic market, to the degree that the whole industry became heavily dependent on exports: in October 1909, for example, 5 copies produced in France were destined for the national market, 40 for Europe and 150 for the American market (Bowser, 1990). Here, there were no significant lawsuits over patents, no court cases to paralyse production, and no attempt to monopolise or control all or part of the activity of the film industry by means of rights. The context remained competitive and the rivalry was essentially commercial. In 1898, the Lumière brothers abandoned the production of films, with the exception of the production of blank film. Inventor of numerous special effects, George Méliès specialised in the production of fiction, making ever longer films. His company (Star Film) reached its zenith in 1903-1904. Léon Gaumont and Charles Pathé followed a different model, by steadily integrating different segments of the film sector, except for exploitation (at least, not until 1908). Thus, in less than ten years, Charles Pathé was able to move from the sale of phonographs to the production of movie cameras and projectors, and then, from 1900 on, to the production of films in collaboration with Zecca. With the help of external capital, he increased his production capacities (studio, factory for printing positives, camera manufacture, etc.) and pursued a policy of systematic expansion (Kermabon, 1994). Thus, in 1907, the Pathé

12 Films did not come into the sphere of copyright until 1912 (Baudel, 1990). Before, a film could only be protected as a series of photographs, still by still. The legal actions which succeeded each other after 1902 (Edison vs. Lubin, etc.) had contradictory results until jurisprudence (and the law) clearly integrated film into the sphere of copyright (Wallace, 1998, and Musser, 1990, especially p. 331).

13 The importance of duping in the United States was not only due to the absence of copyright protection for films, as Wallace is rather to quick to assert (1998), so much as one among several weapons used in the patents war, and a consequence of the American crisis in production and the absence of French producers on the spot. Thus, Charles Pathé's riposte after 1904 was mainly commercial: setting up in the United States and selling copies directly at the same time as their release in France.

company was capable of producing a new film every day, and this prosperous firm operated on a world-wide scale (which, moreover, made its presence indispensable at the foundation of the MPPC).

III. "BREVETS D'INVENTION", PATENTS AND ECONOMY OF RIGHTS

Now we shall move on to investigate the causes behind this wide difference in development between the United States and France, and the reason why the growth of the American film industry was hampered by legal conflicts, while nothing of the sort occurred in Europe. No doubt, part of the explanation resides in differing definitions of the patent system and in the related functioning of the economy of rights. Another factor that we must take into consideration is the importance, in the case of France, of knowledge and technologies clearly belonging to the public domain. These are the two issues we shall now examine in turn.

"Brevets d'invention" and the importance of the public domain

In France, at this time, the "brevet d'invention" (patent) was essentially defined as a monopoly of exploitation, a temporary monopoly over an application, subject to its novelty. The invention – which could be a product, a means or a new application of existing means – had to have “an industrial character” (Mainié, 1896; Roubier, 1927). The law of 1844 is particularly clear and restrictive on this point. It excludes “*any patent concerning theoretical or purely scientific principles, methods, systems, discoveries and conceptions*”, for the danger, as Roubier observes in his commentary on the law, is precisely that of “*prohibiting others from discovering (and exploiting) other applications*”. Only the application described in the patent is protected, and all patents of principle are invalid before the law.

The title ("brevet d'invention") was granted on simple request and without preliminary examination, a system that had been established during the French revolution (1791), in opposition to the previous system of "privilèges" and letters patent granted by the former royal administration (Hilaire-Perez, 1991). At the time, simply registration without the possibility of refusal by the administration was judged to be "*the most liberal*" system: "*the administration does not judge the merit of inventions*" (Becquey, 1817). Thus, the attribution of (possible) value to the title was left to the market, in the case of exploitation, or to the courts, which passed judgement directly on the fundamental value in the case of dispute¹⁴.

¹⁴ See Casalunga (1904), for the doctrinaire debates of the 19th century. The French legal framework was remarkably stable during the whole of this century. The law of 1844 simply described and specified the principles laid down from 1791 in imitation of the English system, with the rejection of preliminary examination and a temporary duration for the patent, despite the demands by some inventors wishing to

The restrictive definition of the patent in French law and jurisprudence was consistent with the clear distinction, truly instituted in the society of the time, between "Science" and "Industry", between the world of academics on the one hand and the world of businessmen on the other. The two spheres were considered different and complementary, each with its own rules and institutions, and this split structured the economy of knowledge. The role of academics was research and the production of principles or ideas, nourishing a form of common property, the public domain¹⁵; a public domain from which inventors and businessmen could draw freely to produce applications "*of an industrial nature*", privatised by means of a "brevet d'invention". The respective roles were therefore clearly defined, and the institution of patents only played a marginal role in the economy of knowledge, the final objective of the title being to regulate competition between industrialists, within a rationale of "*fair competition*". And this is the system that presided over the emergence of the film industry in France, where a large proportion of the techniques necessary to this activity already belonged to the public domain.

Here, we must recall the importance, from 1882 on, of the physiologist Etienne Marey's work on the analysis of movement. His research was financed largely by public subsidies. Unlike Edison, Marey was not a businessman, but an academic and scientist, who registered very few patents and systematically published his results by transmitting them to the Academy of Sciences. Anyone working on the same problems therefore had easy access to these results. Marey recorded movements by means of photography, firstly using plates and then reels. For his experiments, he designed and built a camera which took pictures at regular time intervals (the film chronophotograph), but the drive mechanism for the film was still too imperfect really to produce a film that could recreate movement (by projection or other means). The chronophotograph recorded movement by breaking it down into successive pictures, but these pictures were not perfectly equidistant. So it was not a movie camera¹⁶. Nevertheless, all the elements needed to develop such a camera (and projector)

enhance the value of their titles. See also Galvez-Behar (2005).

15 Here we can cite Renouard, one of the most important French jurists of the 19th century in the domain of copyright and industrial law, and the distinction he made between "material things", destined for the most exclusive and absolute private ownership, and "ideas", which, on the contrary, are – and must remain – "*the indivisible property of the whole human community*" (Renouard, 1860, quoted by Xifaras, 2004, p. 388, our translation). See also Michel Chevalier: "*An idea can belong to an unlimited number of persons; it is indeed the essence of an idea that, once published, it belongs to the entire world...*" (1869, quoted by Machlup and Penrose, 1950).

16 In fact, the reproduction of movement (the synthesis) was not one of Marey's objectives; he believed that only the analysis was worthy of scientific work (Deslandes, 1966, p. 141); his aim was rather to obtain an ever finer deconstruction of movement, with ever shorter intervals, which was of no value for film shows. It was after meeting Marey in Paris in 1889 that Edison drew up his fourth motion picture caveat, giving a decisive new direction to Dickson's research work in Menlo Park, with the first appearance of the principle

were present.

The only problem that remained, and which was also the only really patentable element in French law, was the drive mechanism for the film; everything else (shutter, lighting, etc.) had long since come into the public domain. But this mechanism could be defined technically in very different ways; many almost equivalent applications could therefore be designed and patented, and the patents granted did nothing to prevent others from being produced. The field of research, the prospect, therefore belonged almost entirely to the commons. As Edison had not registered any patents in Europe, his format - 35mm with four perforations – which had come to Great Britain and France with the first Kinetoscopes, also belonged to the public domain. So it quickly and naturally became a common standard in Europe¹⁷. Consequently, technological interconnection, which had been at the heart of the first lawsuits in the United States, hindered neither research nor exploitation in Europe.

In brief, the configuration of property rights on techniques in France included an especially large public domain from the beginning. What is more, no key technical element, control of which would give control over the whole technological system, could be protected by patent. The inclination to patent was undoubtedly just as strong on both sides of the Atlantic. In France as elsewhere, certain inventors and companies systematically patented their inventions, and there was a regular flow of patent applications concerning the film industry. There were also a certain number of disputes between these inventors. However, nobody could seriously claim to have invented (and patented) the principles and key techniques necessary for cinematic activity, in other words everything concerning film, shooting and projection, for all these technologies already belonged largely to the public domain. This created an open and decentralised environment of innovative research, and a structure, at the level of industrial activities, that was inevitably competitive.

American patents and the production of titles

In the United States, at the end of the 19th century, the institution of patents occupied a position quite different to the one it held in France. The protection granted by law was far more wide-ranging, and procedures and practices enabled "inventors" and their lawyers to pursue complex strategies of definition and redefinition of rights that did not exist in the same way on the other side of the Atlantic. There was a real economy of rights, a well-developed system that evolved over time under three major influences: that of the Patent Office and

of perforated film (Hendricks, 1961).

¹⁷ The different systems of perforations did not represent much of an obstacle. Blank film and positive copies could be bought without perforations (and perforated afterwards) or with perforations in the Edison or Lumière format.

Congress, with amendments to laws and procedures, that of the "inventors", and that of jurisprudence, with the decisions of the Supreme Court and other courts.

The scope of the patent could be much wider in the United States than in France, for it was not the specific application described in the body of the patent that mattered most, but all the claims expressed by the inventor in the last part of the patent request. This was what corporate lawyers and courts examined before all else in all cases of counterfeiting, the real measure of the nature and extent of the monopoly granted, the true definition of "the invention" in the economy of rights. In some cases, the claims proved to be particularly broad, including uses or technical systems that did not yet exist, but which, according to the inventor, ensued necessarily from his invention. The doctrine of equivalents strengthened this tendency. First appearing in jurisprudence, before being incorporated into the patents law of 1832, this doctrine defines as equivalent two things that fulfil the same function in a combination, even if the two things differ in form or name, and even if it involves a development subsequent to the invention described in the initial patent. The aim here is to define the "true invention", independently of the particular form described as the application in the body of the patent¹⁸. To be patented, the invention must exist physically, but by virtue of this doctrine, *"an invention has always been understood to lie somewhere between a pure idea and any particular physical embodiment of that idea."* (Dood, 1991). So, in American law and practices of the time – and Kitch was perfectly right on this point – there was indeed an element of protection of the prospect, an aspect completely absent from the French system.

In the American system, unlike the French system, patents were only granted after examination by the U. S. Patent Office of the form, the foundation and the law of the patent. The value of the title was immediately different. It was a legally effective right, whereas the French procedure gave no more than a "conditional right" (Becquey, 1817). Consequently, patents acquired strategic importance for industrialists¹⁹. The power to *"prohibit others from the manufacture, use and sale of the invention during 17 years"* (according to the terms of the

18 This doctrine was originally connected with the practice of reissue, the possibility, long recognised by the U. S. Patent Office, of rewriting a patent supposed to have been badly drafted. In the first half of the 19th century, this practice gave rise to such misuse (the extension of claims to cover profitable domains, reformulating before lawsuits, transforming worthless titles into goldmines, etc.) that Congress changed the law after the War of Secession (patent law of 1870), to supervise and strictly limit patent reissue (Dood, 1991).

19 No American industrialist of the time could be unaware of this situation. Thus Eastman, the creator of the mass market for amateur photography, only invested when he was protected by patents, either registered by himself or bought from others when it appeared that they might interfere with his own activities (Jenkins, 1975).

American law) could cover a whole set of techniques ensuing from one initial invention and a whole set of commercial activities using these techniques. It was therefore possible to imagine monopolising all or part of an industry by means of patents, and Edison was only one of many to do so. And such an undertaking was in no way considered illegal, either by industrialists, by the business lawyers who advised them, or by the courts. The Sherman Act, passed by Congress in 1890, clearly defined conspiracies “*to monopolise any part of the trade or commerce among the several States, or with foreign nations*” as acts of felony. But the principles of antitrust would only really be accepted by the Supreme Court and taken up by the other courts well after 1907. The conviction of the MPPC on these grounds in 1915 represents the first case in which patent law and the extent of the legal monopoly granted were discussed from the perspective of problems of competition policy²⁰.

Granting of the patent was a complex, highly codified procedure, opposing the examiners of the Patent Office and lawyers specialised in drawing up deeds, researching earlier patents and mastering the procedures. In the field of patents, in fact, two features proved to be particularly important: (1) the very wording of the claims, (2) mastery of the calendar. Before 1895, a good lawyer specialising in patents could obtain a practically endless prolongation of the Patent Office examination process, thus postponing the effective issue date of the patent, the date on which the 17 years of legal protection began. In this way, the duration of protection could be extended, and the final draft of the claims could take into account products, technological developments and markets that had appeared in the meantime. This practice made it possible to produce patents that fully played their role as a means of fee collection. The number of applications in suspense at the Patent Office USPO (in 1894 there were 12,000 more than 2 years old, including 5 more than fifteen years old) led Congress to change the legislation and impose a time-limit on applications, in 1895, after which they would be rejected.

One of the undisputed masters of deliberate, systematic delay was George Selden, a patents lawyer who claimed the combustion engine car as his exclusive invention. His original application dated from 1879, and the Patent Office examination lasted sixteen and a half years; the patent issue only being drafted in 1895 (Greenleaf, 1961). In the meantime, the 19 initial claims had all been rejected and replaced by others. In this way, Selden obtained a right of exclusivity until 1912, and his *de facto* monopoly thus lasted 34 years! As the law

20 See Staiger (1984) and USA vs. MPPC (1914). In the legal argument justifying the dissolution of the MPPC, part of the discussion concerned the limits that should be introduced in patent law, following the Sherman Act, initiating an evolution of American jurisprudence and law that has lasted to our day, and deplored by Kitch.

was changed in 1895, he could not do better; and Edison's lawyers could not obtain exactly the same result. The effective duration of the patent in which Edison claimed the invention of "motion pictures" (#589,168) was only extended by four years (first application in 1891, issue in 1895).

Unlike Edison, Selden was no more than a simple patent-holder who never built a single car. He decided to exercise his rights in 1903, and sued all the car manufacturers of the time for counterfeiting. Some of them admitted defeat, but others, like Henry Ford, an opponent of the patent system, fought back. The Selden patent was finally invalidated by the Court of Appeal in 1911, after eight years of court actions and only one year before the legal expiry of the monopoly²¹. Such conflicts over patents were widespread in the United States at the time. It was common business practice, one weapon among others in the rivalry between firms, a means by which one could sometimes get rid of competitors. George Eastman, for example, proceeded in the same fashion; Selden and Edison were thus no exceptions to the rule.

However, the different protagonists in this form of competition sometimes adopted very different positions. In the motion picture industry, some film producers, like Sigmund Lubin, had no patents, no rights to exercise. Others, on the contrary, possessed nothing else. *"Thomas Edison, Thomas Armat, and Woodville Latham generally sought to have their patents recognized in the broadest possible terms so they could use them to control key parts of the industry. Since the Lathams' Eidoscope and Armat's Vitascope enterprises were commercial failures, their principal recourse was through the courts. Biograph, in contrast, sought not only to have its own patents recognized but to invalidate or restrict those patents that threatened to curtail important parts of its business; only the company's Mutoscope was safe from prior patent claims..."* (Musser, 1990). Competition was fought out not only in the industrial and commercial domain (the production and distribution of films, cameras or projectors, for example). It also found expression in the economy of rights. For the validation of a patent by the courts signified the right of control over part of the industry, and the right of fee collection over certain commercial activities. So the importance of the stakes goes a long way to explaining the scale and duration of the conflicts.

An independent and thriving economy of rights

So, during the period which interests us here, there was a wide difference between the French and American conceptions of the institution of patents. The American system

²¹ Subsequently, judging that the only real winner in such legal disputes was the legal profession, American car manufacturers introduced a mutual agreement for reciprocal licenses covering all their patents, authorising the free use of each other's patented innovations (Greenleaf, 1961, Merges, 1999).

authorised broad claims, in accordance with prospect theory, touching on exploration of the prospect and its industrial and commercial exploitation. In France, on the contrary, the protection afforded by the law could only touch on the application described in the body of the patent, and the production and commercial exploitation of this application. There was nothing to prevent someone else from taking up this same knowledge and using the same principles to develop another, different application. The effective scope of patents in the two legal systems was therefore very different.

The United States possessed a complex, fragmented legal system, a contrast to the unity and centralisation of the French system. Different types of decision, legislative, judicial or administrative, could strengthen or paralyse each other, and to make matters worse these decisions were taken at different levels (at town, county, state or federal level). This lack of uniformity made it impossible to lay down a definition of rights and their exercise in a stable institutional framework (Staiger, 1984). There was, on the contrary, the possibility of much more open and differentiated action than in the French system, action whose rules were fixed by logic specific to the judicial sphere.

To begin with, the initiative belonged to the holder of the real or imagined right. It was he or his lawyer (Dyer rather than Edison), who chose the way he exercised his “rights”, and so which adversary to attack, by what means and following what timetable. If the initial offensive failed to eliminate or subjugate the adversary, if the latter had the financial and legal resources to resist, the result was often a long and chaotic conflict. Both parties would put forward the most legally solid titles and “claims”. Existing or inchoate jurisprudence would be brought into play. Alliances were formed. Other patents were bought. The dispute was extended to other questions, to projectors, for example, when the main lawsuit involved cameras, each particular decision of a court serving to change the direction of the overall development of the war.

At the centre of this stream of skirmishes and battles, however, was the work of the judges who, at their own rhythm, following the arguments put forward (previous patents, the techniques claimed belonging to the public domain, decisions of another court, etc.), re-examine the invention and, through successive judgements, gradually recreate and invalidate the work of the Patent Office²². So, in the first lawsuit (1901), Judge Wheeler, accepting the

22 Thus, we can compare the first replies of the U. S. Patent Office examiners (Hendricks, 1961, p. 130 *et seq.*) and the arguments of the different judgements (Musser, 1990; Wallace, 1998). References can be found to the contributions of Etienne Marey, the direct inspiration of Dickson and Edison for the development of the invention, or to the French patents of Emile Reynaud, Leprince, Ducos du Hauron, etc., precedents that all seem to have been ignored by the Patent Office examiners.

patent granted by the Patent Office as being legally valid, decided in favour of Edison's lawyers. Despite the significant differences between Edison's technique and that used in the Biograph, the two were judged to be "*equivalent in the combination of the first three claims*". But on appeal (1902), Judge Wallace, after a thorough re-examination of the different claims of Edison's patent (#589,168), rejected them one after another, because the main components had been anticipated by earlier patents. The scope of this patent was much too broad, and it should never have been granted: "*the functional limitations which are inserted in the claims do not restrict the patent to the scope of Mr. Edison's real invention*" (Musser, 1990, p. 306). But Dyer was able to continue legal action over the cameras after obtaining two patent reissues from the Patent Office (#12,037 for the camera, #12,038 for the film). Two further successive judgements and three more years were needed to bring this whole affair to an end. The first judgement (Judge Ray, March 1906) confirmed the previous decision. "*It must be conceded that the complainant's invention, if there be one, is very narrow...*"; and the differences between all the cameras in question were sufficiently large for there to have been no copying. On appeal, however (March 1907), Judge Gilbert overturned part of the previous judgement, which he considered to have underestimated the novelty and contribution of Edison: "*the use of sprocket wheels to engage the perforations of the film (...) and the bifurcated fork with studs is the fair equivalent of the wheel with sprockets and the combination shown in the Warwick camera is an infringement of claims 1, 2, and 3 of the reissued patent*" (see Wallace, 1998, p. 13).

Let us come back to the two reissues obtained with little difficulty by Dyer and Edison on 30 September 1902. One of them (#12,038) contained two claims relating to the film without (first claim) or with perforations (second claim). Slightly rewritten, it gave rise to a new reissue (#12,192) on 12 January 1904. The claims, identical in these two formulations, are a simple repetition of claims 5 and 6 of the original patent, which had both been rejected by Judge W. J. Wallace in 1901²³. In his summing up, he had declared that: "*the fifth claim of the patent is obviously an attempt by the patentee to obtain a monopoly of the product of the apparatus described in the patent*". This product (the film) had been invented by others, notably Ducos (French patent, middle of the 19th century) and Emile Reynaud (for the perforations). The claims were therefore invalid and "*Edison is not the inventor of the film...*". And this opinion was subsequently endorsed by other judges confronted with these reissues #12,038 (Judge Lacombe, 1907) and #12,192 (Judge Shepard, 1912).

What is important for us to note here is the contradictory play of the institutions, and

²³ These claims on the film were absent from the first patent application of 1891. They sprang up out of nowhere in December 1896 for the final application (see the texts of the different patents at the USPTO (<http://patft.uspto.gov/>), and US vs. MPPC (1914) for a detailed analysis).

the possibility for Dyer to obtain the reaffirmation of a “right” that had been invalidated by the courts. However, the value of the title remained doubtful, although its practical effects were real enough. Dyer (and Edison) therefore avoided using it in any legal actions that might lead to a new rejection. But this patent reissue #12192, together with #12,037 on the camera, represented Edison’s contribution to the MPPC, and this patent on the film (negative) then served as the legal basis for the establishment of the MPPC’s control over the whole distribution and trade in films (positives) in the United States. “*This reissue (#12,192) is the only patent under which a licence is granted in the rental exchange agreements*” (US vs. MPPC, 1914).

A patent gives its holder the right to control the use of his invention by others. But at the time, control of the use (i.e. of the “prospect”) could be extended to non-patented supplies or products by means of a tying arrangement. In a tying arrangement, manufacturers of a patented invention could require that only certain supplies, which were not necessarily patented, be used on that invention²⁴. Thus, all the projectors sold under MPPC license carried a plaque specifying that the apparatus could only be used to project MPPC-licensed films. In March 1915, just before the judgement that was to pronounce its dissolution, the MPPC tried a legal manoeuvre based on then-current patent law. It filed a suit against Universal in March 1915, invoking a law that allowed "tying" arrangements. But the attempt was in vain, for a judge declared this type of notice to be illegal in 1916 (Staiger, 1984).

A crucial assumption of prospect theory, and more generally of theoretical analyses favourable to strong patents, is that of the good functioning of the “market of rights” (Mazzoleni and Nelson, 1998, p. 279). For the exploration and exploitation of prospects to be complete and optimal, the redistribution of rights to use must be possible with sufficiently low transaction costs.

But the functioning of the economy of patents, from their granting through to the exercising of the rights entailed, is so complex and even, sometimes, tortuous that this condition is far from self-evident. The term “market of rights” seems particularly ill-chosen for describing a form of rivalry whose fields of action are almost entirely administrative and legal.

²⁴ This current practice, although challenged, was validated by the courts, and even by the Supreme Court (Henry vs. A. B. Dick Co, 1912). It was only really abolished with the jurisprudential U-turn of the Supreme Court (from 1913) and the passage of the Clayton Act (1914), which formally prohibited it (Staiger, 1984).

IV. CONCLUSION

It would probably not be reasonable to draw a general conclusion from one sole historical example. Nevertheless, even a singular example can be rich in lessons. We have been able to carry out a detailed and systematic comparative analysis – rare in itself –, and highlight a certain number of elements that cast serious doubt on those modern economic theories that argue most strongly in favour of strengthening intellectual property rights. Contrary to what these approaches maintain, strong patents do not achieve efficient functioning, without fits and starts, of the “market of property rights”; indeed, quite the contrary is true. And the term “market” should not delude us: for the whole available supply emanates from one sole patent-holder. It is this person who possesses exclusive rights over the invention, who decides whether or not to grant licenses, whether or not to block his rivals’ research work, whether to favour one firm over another, to sell to the highest bidder or to exploit the invention himself. In short, he has the power to decide whether or not the “market” exists, and *a priori*, nothing can make him share or transfer all or part of his property rights to others (unless there is a compulsory licensing system, of course).

So the exclusivity granted to the first inventor by the Patents Office works against other inventors and industrialists, from the moment that the research leads to industrial and commercial applications. If the patent protects a field of research, then all exploration and exploitation of this field is shut off by a wall that cannot be surmounted without an exchange of rights (licenses). All technical and industrial developments then depend, in principle, on the decisions made by the owner of the “exclusive” property of the domain. As technological knowledge is of a systemic nature, the right of exclusivity over a prospect, or – through certain key techniques – over an industry in the process of formation, can prove to be particularly problematic (Mazzoleni and Nelson, 1998). When successive innovations follow each other rapidly, when the different techniques are interdependent and can only function together, when different elements of research are complementary, a strong system of individual property rights can lead to paralysis or to the absence of efficient coordination.

Furthermore, our historical example appears to show quite clearly that the most crucial factor here is the definition of the institution and its mode of operation, in other words the definition of what can and cannot be privatised (patented), together with the different procedures and practices which, from one country to another and one epoch to another, cause the same principle of intellectual property to differ in its manifestation and in its impact on economic development. When legislation includes a strong dimension of prospect protection and accepts broad claims (as in the United States at the time of Edison and Selden), this

creates the perfect conditions for the emergence and proliferation of inextricable legal disputes. This in turn leads to an excessive increase in transaction costs, the paralysis of the activities of exploration and exploitation of prospects, and an almost inevitable drift towards the monopolisation of the industry. Conversely, when most techniques belong clearly in the public domain and the market for rights remains marginal, the development of the industry in a directly competitive mode proves to be much faster. This observation directly contradicts prospect theory and argues rather in favour of a “patent-free” or “pro-commons” world, or at least a world in which the intellectual property rights system only grants a limited right of exclusivity to patent-holders, and limited importance to the economy of rights, thus leaving the prospects arising out of the initial invention open to others to explore.

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