

Patents of Persuasion

Tempo-Metrics and the Shaping of Knowledge about Knowledge

▼ **SPECIAL ISSUE ARTICLE** in *Entangled Temporalities*

▼ **ABSTRACT** The “Million Milestone” chart found on the website of The United States Patent and Trademark Office (USPTO) is a timeline of the eleven million patents that the office has granted since 1836: a visual depiction of patenting as acceleration and speed. With the chart as the backdrop, the narrative focus of this essay is on the third marker on the timeline, patent 3 million, granted to Kenneth R. Eldredge for “Automatic Reading System” on September 12, 1961. Two overlapping lines of inquiry are pursued. First, looking *behind* the chart in order to locate the history of patent three million as it happened, which is in conjunction with the 125th anniversary of the 1836 Patent Act, the moment when the “Million Milestone” begins. Second, looking *at* the chart to unpack how “Automatic Reading System” became part of an evidentiary chain that in 2023 seeks to convince us that accumulation and quantification stand as proof of technological progress. The overall objective of this essay is to show how the patent system synchronizes time and numbers in order to create knowledge about itself as a system, introducing the term *tempo-metrics* in order to account for the specific intersection of calculation and commemoration where such self-fashioning gains specific momentum.

▼ **KEYWORDS** USPTO; quantification; commemoration; temporality; acceleration; patents

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BREPOLS

Nobody could accuse Kenneth R Eldredge of not being a patient man. On May 6, 1955, he filed a patent for an “Automatic Reading System,” with the U.S. Patent Office. And then he waited. He waited as Rosa Parks refused to get up from her seat on that Montgomery, Alabama bus; as Sputnik went into orbit for three weeks and put the Soviet Union forever first in space; and as John F. Kennedy swore the Presidential oath and became the United States’ first Catholic Commander-in-Chief. The world went about its business. Eldredge kept on waiting. And when the wait was finally over and he and the General Electric Company Computer Department received their patent on September 12, 1961, it was for an innovation the Patent Office judged useful, non-obvious, and most importantly, *new*. It had taken six years to establish that his “electronic device for reading at extremely high speeds” was worthy of protection ending on September 12, 1978.¹

Besides the noticeable delay, on which more is to follow, Eldredge’s experience was no different than that of most other patentees. But for one thing. “Automatic Reading System” [henceforth ARS] was destined to become patent 3 million, a centerpiece of the 125th anniversary of the 1836 Patent Act, celebrated in the week of October 15, 1961, as “The American Patent System Week.” Seven days were allocated by President John F. Kennedy to hail three achievements of the 1836 Act: the reinstatement of the pre-examination of patents, abandoned in 1793; the establishment of the United States Patent Office as a “separate and distinct bureau” tasked with that examination, and the granting of patent 3 million. Becoming the individual focal point in what was essentially the celebration of a revamped bureaucracy had nothing to do with luck. ARS was *chosen*, cherry-picked as the latest addition to what the Patent Office in 1961 referred to as the “staggering statistics which points up to the wisdom of a law which provided for the methodical examination and filing of patent applications.”²

In 2023, these staggering statistics make up the “Million Milestones” infographic on the website of The United States Patent and Trademark Office (USPTO), beginning with patent 1 in 1836 and ending in 2021 with patent 11 million [Fig. 1]. With a milestone marking a significant stage or event in the development of something, what does “Million Milestones” depict? Not the stages of technological innovation over almost two centuries, as there is no hint of any empirical data or information by which to substantiate such an account. Certainly not the event of patent 3 million, which appears only as an abbreviation: 1961:3M. No, as an indicator drawing on the logic of quantification, the reduction of complexity, visibility, and relevance, what the graph seeks to persuade us of is that the history of patents is best depicted as lines and dots setting out accumulation and acceleration, a momentum that

¹ The Development of a Symbol Reader, 1. NARA, RG 241/284/4/S47.

² Celebration of the American Patent Incentive System. Fact sheet, August 1961. NARA, RG 241/284/4/S47.

Milestones in U.S. patenting

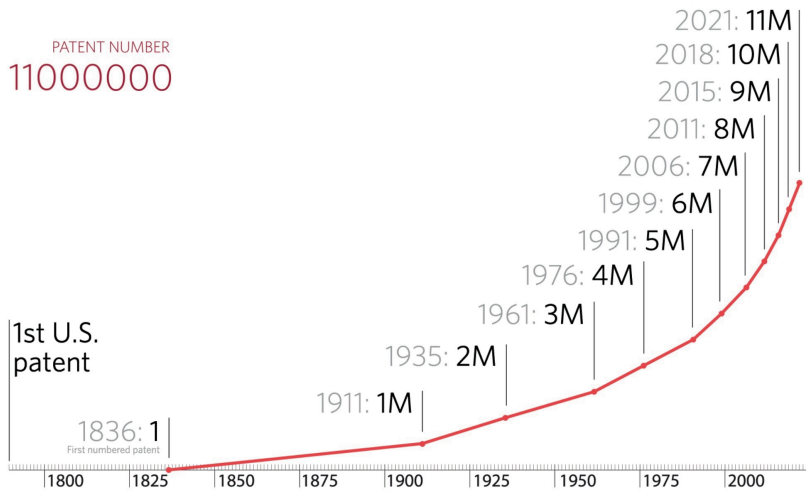


Figure 1. “Million Milestones” infographic on the USPTO website: <https://www.uspto.gov/patents/milestones>.

is its own self-referential universe.³ Click on the website link, a red line starts to climb, and a number counter begins to run. Fast. “Million Milestones” is an example of what Aleida Assman calls a soft caesura, a mechanism which structures the stream of time and makes it rhythmic.⁴

While much is known about patents and technological knowledge from the early modern era to industrialization, we know next to nothing about the strategies by which one of the most influential of contemporary institutions mobilizes support for its own authority. In other words, the question of how the patent system creates knowledge about itself largely remains uncharted territory. By tracing patent 3 million as a constituent of these “staggering statistics,” statistics that would later be transposed into the particular visual form of the USPTO’s “Million Milestones,” it is the objective of this essay to help fill that void. This will be done first by looking *behind* the infographic in order to locate the history of Eldredge’s invention as it happened, which is at the intersection of calculation and celebration made possible via the 125th anniversary and “The American Patent System Week,” and second, by looking *at* the chart to unpack how ARS became part of an evidentiary chain that seeks to convince us that the law has become even wiser thanks

³ Bartl, Papilloud and Terracher-Lipinski, “Governing by Numbers,” 9.

⁴ Assman, *Is Time?*, 96.

to eleven million patents and counting. If the main objective of presenting numbers is to mark and commensurate, patent 3 million does both. Particular and anonymized at the same time, ARS has its own history, but is also part of commensuration, where different entities—such as eleven inventions or eleven million milestones—help shape a “shared cognitive system,” where accumulation and speed act as proof of progress.⁵

As the editors state in their introduction to this special issue, “wherever knowledge is at issue, there are temporal entanglements at play.”⁶ In this particular case, these entanglements are not only of time—spanning from the limit on patent protection to repertoires of remembrance created in centennials—but also significantly of numbers, working their magic across single and multiple digits, turning accumulation and statistics into potent, measurable indicators of improvement. Inspired by studies on the sociology of quantification, I refer to the process by which time and numbers are combined into a distinct rhythm depicted on an infographic such as “Million Milestones,” as *tempo-metrics*, a powerful tool whereby the patent system creates and maintains the kind of authority and power that gets “built into institutions, circulates and creates enduring structures that shape and constrain cognition and behavior.”⁷

I

Kenneth R. Eldredge received patent 3 million from the hands of David L. Ladd, newly appointed 38th Commissioner of Patents, on September 12, 1961. We know that the day in question was a Tuesday. We know the ceremony took place at noon sharp at the Department of Commerce in Washington D.C. And we know this because since 1848, patents had always been issued at noon on Tuesdays. So, it was a very ordinary day and an exceptional one at the same time. Ordinary in the sense that when the six-year wait transitioned into the “right to exclude others from making, using or selling the said invention throughout the United States,” the process looked the same for anyone whose invention made it past the Patent Office’s pre-examining gatekeepers. Including numbers 2,999,241 through 3,000,008, a batch of 768 other patents issued on the same date.⁸ It was exceptional because the Tuesday announcement was not generally preceded, as it was on September 12, by a 11.30 a.m. press conference.

⁵ Espeland and Stevens, “A Sociology,” 408.

⁶ Hsiung, Lenel and Meister, “Introduction.”

⁷ Espeland and Stevens, “A Sociology,” 419. For other useful overviews, see Diaz-Bone and Didier, “Sociology of Quantification,” Desrosières, “L’histoire,” and Mennicken and Espeland, “What’s New with Numbers?”

⁸ Patent Office Grants 3,000,000 patent. Press release, United States Department of Commerce, September 12, 1961. NARA, RG 241/284/4/S47.



Figure 2. Kenneth R. Eldredge and the ARS (National Archives). NARA; RG 241; Entry A1 1020 Records of the Patent and Trademark Office; Commissioner's Subject Files 1925–1966; Files of the Office of the Commissioner, 1925–1966; Box 284; File Sp. 47, “3 Millionth Patent.”

So, that day when all eyes were on Eldredge and his invention, what were people looking at? General Electric simply described ARS as an “electronic device for ‘reading’ numbers,” the brain of the company’s document handlers which had been in use in banks across America for several years, using Magnetic Ink Character Recognition techniques (MICR). In a photo [Fig. 2] included with the promotional material produced for patent 3 million, we see Eldredge leaning in over his reader, which was compared in size to a

watermelon.⁹ In his hand is the kind of document that the machine was designed to read: a standard bank cheque printed with another invention of General Electric's, the E-13B font. These two inventions, the company stressed, combined to make a "tremendous technological stride in helping commerce and industry cut through their vast paperwork barrier." Rapid processing now went through all the steps of reading, sorting, computing, and printing bank statements in as little as a 32-millionth of a second.¹⁰

Given that speed was the benchmark value of the time, it is somewhat ironic that ARS had been in limbo for *six* years. If patent 3 million was intended to prove the worth and efficiency of pre-examination, it failed miserably. While issued on September 12, 1961, Eldredge had *filed* his patent with the Patent Office on May 6, 1955.

It was all there, in black-and-white on the specification [**Fig. 3**]. The most ardent defender of the examining system had to accept that it took time to issue robust patents. But *six years*? The wait was a direct result of the one non-negotiable feature of the pre-examination system, examiners' novelty search for "any evidence that your invention is already known." The European Patent Office's (EPO) current definition of "prior art," reveals the enormity of the category. "A prehistoric cave painting can be prior art. A piece of technology that is centuries old can be prior art. A previously described idea that cannot possibly work can be prior art. **Anything** can be prior art."¹¹ "Prior art" not only involves different materialities (cave painting, piece of technology, idea), but a seemingly infinite layer of time (prehistoric, centuries old, previously described) is part of the vertiginous mix of what must be consulted to prove novelty.

The annual turnaround of the largely faceless cadre of patent examiners searching this black hole of the before was close to twenty percent. The Patent Office leaked valuable knowledge like a sieve. Immediately following the award ceremony, Ladd told *The Los Angeles Times* that his agency had no air conditioning, that it was cramped for space, with examiners working without their own proper desks or telephones; he found it indefensible that examiners making decisions worth thousands, potentially millions of dollars, were treated as unimportant clerks.¹² In Patent Office terminology "disposals," designated the total number of patents either accepted or rejected, the statistics of which appeared in every annual report. But with a balance nearly always in the red, what accumulated over time was a constant backlog, one that did not signal institutional longevity and cumulative progress but dangerous disorganization and, worst case scenario, a complete loss of faith in the law.

⁹ "Watermelon," *Ibid.* and "3 millionth."

¹⁰ Press release, General Electric, September 12, 1961, 1, 5. NARA, RG 241/284/4/S47.

¹¹ "What is Prior Art?"

¹² Cowan, "After Six," 79.

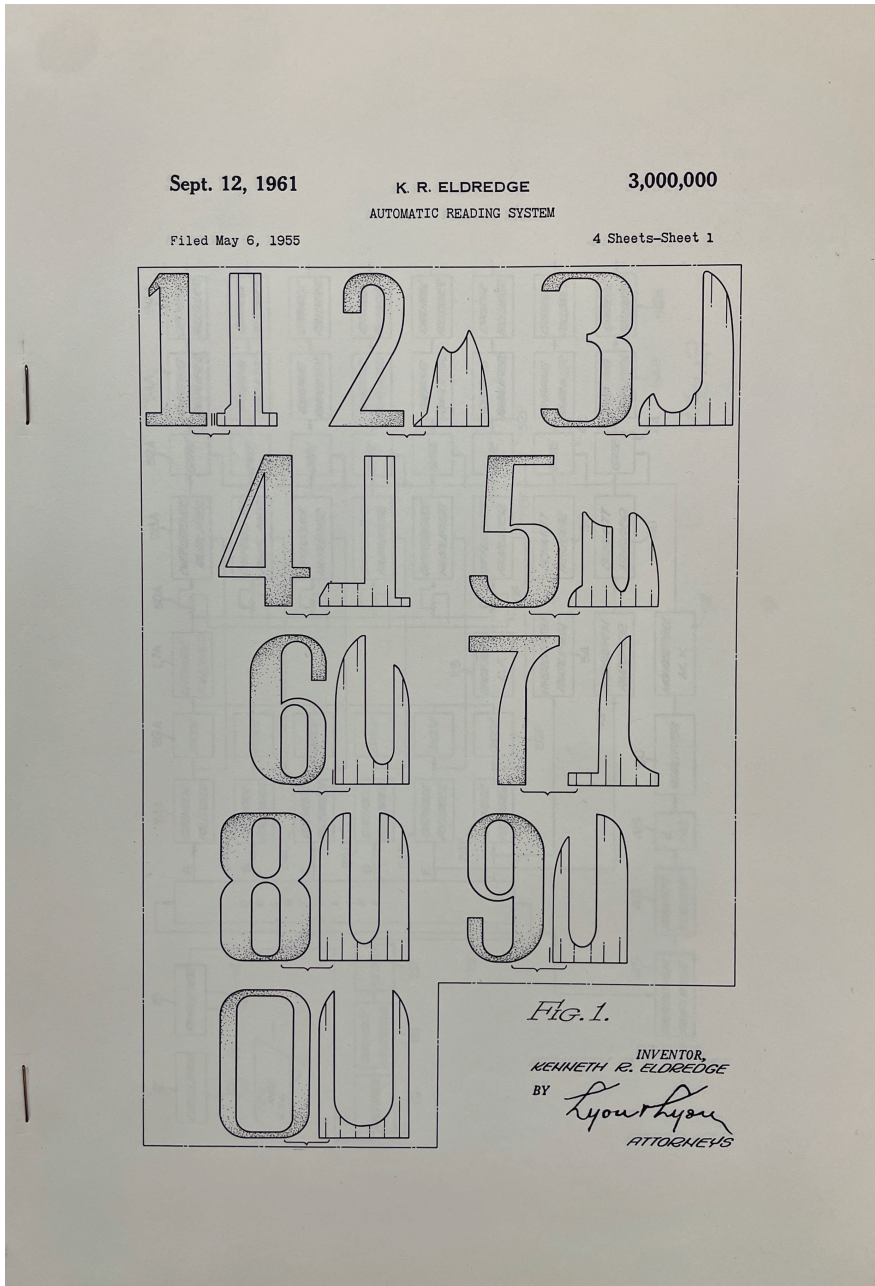


Figure 3. Patent 3,000,000 showing date of filing and issuance (National Archives). NARA; RG 241; Entry A1 1020 Records of the Patent and Trademark Office; Commissioner's Subject Files 1925-1966; Files of the Office of the Commissioner, 1925-1966; Box 284; File Sp. 47, "3 Millionth Patent."

These institutional challenges may perhaps account for some, but not all of the reasons for ARS' protracted journey through pre-examination. Another clue comes from the Charleston newspaper *News and Courier*, which on November 16, 1961, introduced Julian W. Dority, the local son who had "questioned certain technical aspects" of the historical patent. ARS pre-examination history makes for a case file of almost 300 pages, one that runs via a final rejection on February 10, 1960, to an appeal process that ends with granting the patent in March 1961. "Dr. Eldredge's attorneys finally agreed to change their application to meet Mr. Dority's requirements," was the *News and Courier's* way of turning the Charlestonian into judge *and* jury, a rather uncommon role for a profession that tended to work behind the scenes, not in front of them.¹³ Being questioned on "certain technical aspects," is a euphemism for the occasionally contentious correspondence between patent examiners and Eldredge's legal counsel. Detailed exchanges and disagreements on the claims go back and forth; claims are redrafted, deleted, modified, and then finally, rejected. Not until the whole thing ends up at the Board of Appeals in the Winter of 1961 does there seem to be a break in the stalemate. Eldredge's counsel writes, "It is now believed that the disagreement heretofore as to the allowability of the claims presented has been largely one concerned with the terminology employed for defining the invention and for distinguishing over the prior art."¹⁴ It had taken six years, an untold number of revisions and several examiners to agree on the novelty of Eldredge's invention. Julian W. Dority's somewhat unusual claim to fame was that he was the last person in a pre-examination process that in this case had slowed down a system which was all about promoting itself as fast, efficient and forward-looking.

II

Plans to include patent 3 million as an integral part of the "American Patent System Week," had been in the making since the previous year but stalled awaiting the incoming new President and new Commissioner. By June 1961 it was clear that the approximate date of issuance would fall slightly off mark for it to align perfectly with the October 1961 celebrations: a month too soon.¹⁵ This mishap did not deter the new Commissioner from his plans to broaden the celebrations to include the general public, "trade associations, chambers of commerce, house organs and news media, such as radio and television."¹⁶ Ladd wanted to make the most of patent 3 million, and he set his sights

¹³ "3 millionth."

¹⁴ Case file Patent 3,000,000, p. 291. NARA, RG 241, Patent Case Files, 1836–1978.

¹⁵ The 300,000th Patent. Basic Outline of Plans of the 125th Anniversary Celebration, October 18–20 and 23–25, 1961. NARA, RG 241/284/6/S47.

¹⁶ Basic Outline of Plans of the 125th Anniversary Celebration, October 18–20 and 23–25, 1961, 5. NARA, RG 241/284/6/S47.

high. Too high. Earlier that summer, when he reached out to the Secretary of Commerce, asking his immediate superior if he might be able to persuade Vice President Lyndon B. Johnson to do the honors on September 12, Ladd signs off with something smelling of desperation: "Please help." From the paper trail following Ladd's request, a handwritten comment on his memorandum shows that it fell on deaf ears. "Unnecessary," seemed to be the general feeling from the Secretary of Commerce in approaching the Vice President.¹⁷

In order to enlist public enthusiasm for his *fêting* system, the new Commissioner understood that he needed a face—a person, even a corporation—to make it all a bit more, well, relatable. By making the institutional and individual work together, a cohesive narrative of the patent system as a guarantee for continued technological and national progress appeared. The paraphernalia of promotional material produced to that effect included filming the presentation rehearsals; the production of one hundred one-minute film clips mailed to all field offices and other organizations such as Bar Associations and Patent Law Associations; advance kits and show cards intended for bank windows across the country; newspaper coverage and a CBS radio presentation.¹⁸ Surely, Ladd also appreciated *The New York Times* comparing the event to the "crowning of Miss America."¹⁹

Eldredge's own statement during the press conference is no rhetorical masterpiece. Very brief, laconic even, it does contain a reference of the kind that Geoff Bowker refers to as memory practice, allowing "useful/interesting descriptions of the past to be carried forward into the future."²⁰ The reference in question is to the two millionth patent, granted on April 30, 1935, to Joseph Ledwinka, for his "Vehicle Wheel Construction." Perhaps it was on his own suggestion, perhaps on that of the media-savvy Ladd, but bringing the trajectory of the system in line with that of his own personal career, which had started thirty years previously at Oregon State College, Eldredge placed himself as a link in a much longer chain that stretched both back and forward in time.²¹ Patent 3 million was more than a number attached to a reader of numbers. It was a portal between the past and the future, a placeholder for all previously issued patents and a promise that millions more would follow in the future. There is no "Million Milestone" chart that day, no red line on which 1961:3M appears, but there is the expectancy that there will be, that this is the ultimate goal towards which both men are moving. Indeed, they had done so at least since the 1936 Centennial, when the organizers used the number 10 million on a fictitious patent, the "primary and outstanding object"

17 Ladd to Hodges, 22 August 1961. NARA, RG 241/284/4/S47.

18 Ladd to Hodges, 8 September 1961. NARA, RG 241/284/4/S47.

19 "Scientist Receives," 65.

20 Bowker, *Memory Practices*, 7.

21 Remarks by Eldredge, September 12, 1961. NARA, RG 241/284/4/S47.



Figure 4. The “fictitious” patent 10,000,000 patent from the 1936 Centennial (National Archives). NARA; RG 241, Records of the Patent and Trademark Office; Entry A1 1020. Commissioner’s Subject Files, 1925–1966; Files of the Office of the Commissioner, 1925–1966; F. Sp. 47 (2 of 2), “One Hundredth Anniversary of the Present Patent System (1936).”

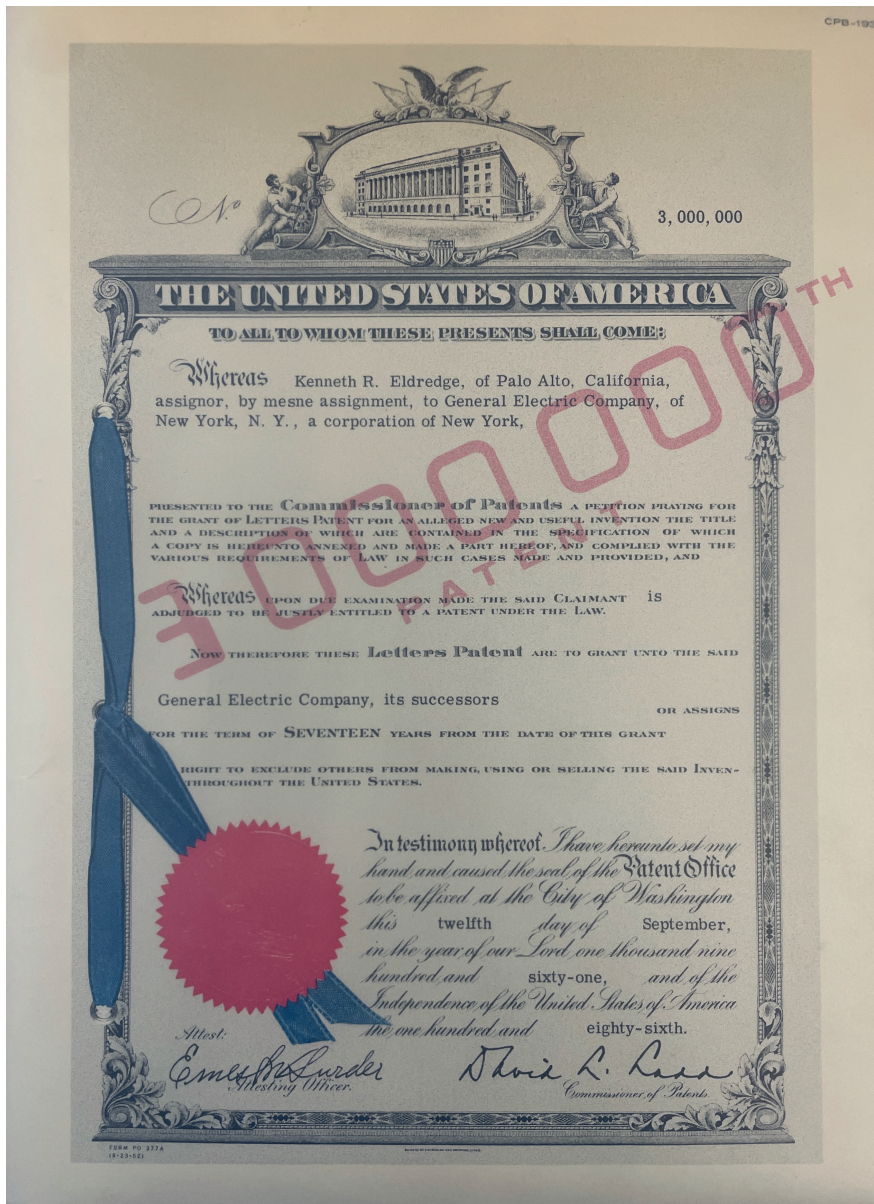


Figure 5. Cover of the promotional folder for patent 3,000,000 (National Archives; NARA; RG 241; Entry A1 1020 Records of the Patent and Trademark Office; Commissioner's Subject Files 1925–1966; Files of the Office of the Commissioner, 1925–1966; Box 284; File Sp. 47, “3 Millionth Patent.”

celebrated at a unique “patented dinner,” on November 23, 1936.²² Eight digits is not just a possibility, it is a promise. [Fig. 4].

Patent 3 million is unique and completely replaceable at the same time, simultaneously of the present and already with one foot in the grave. Time has already passed ARS by when Eldredge and Ladd pose for the cameras. The clock was ticking towards patent 4 million. The patent system anticipates the infographic, constructs it as an idea. Yet doing so depends not only on accumulation, not only on the certainty that there will be another million in the future, but it also depends on making a connection with the past. These connections took, as we have seen, different guises, one of which was even established in the mix of old and new placed on the cover of the promotional folder produced for the occasion [Fig. 5] The old of the red seal and blue ribbon, the neo-classicist building set in an ornate frame. The new, represented by the less subtle and hard-to-miss “3,000,000th Patent,” stamped across the cover in red E-13B type font.

III

The Patent Office began searching for the 3,000,000th patent in the summer of 1961. On July 11, 1961, Manuel C. Rosa, Director of the Patenting Examining Operation, sent a memorandum to Ladd accounting for the work so far. To qualify for selection, it was decided that the invention had to meet three main criteria: it should be practical, have public appeal, and be moderate in size. Responses from Patent Office examiners had been unsatisfactory. With the deadline for selection fast approaching, only eleven proposals were on the table. While Rosa expressed some disappointment over the modest number, he and a group of Supervisory Examiners proceeded to draw up a shortlist of four. ARS topped the list, followed by another invention also relating to character recognition, assigned to Bell Telephone Laboratories. Next, there was a Pullman Company application, and finally, a “tunnel diode,” assigned to Westinghouse Electric Corporation.

When it came to the issue of practicality, ARS had a proven track-record from the kind of document handling Bank of America described as having “assumed mountainous proportions during the war years.”²³ When it came to public appeal, bank cheques and the potential improvement in the accuracy of bank statements via automation was understandable to most. And as for size, this had nothing to do with the invention itself. What mattered to the Patent Office was the length of the *specification*. Thirty pages of specification and four sheets of drawings was a substantial factor in favor of ARS, and very

²² More on the banquet, see *Centennial Celebration*.

²³ Background information on Bank of America’s use of Electronic Equipment, 5. NARA, RG 241/284/4/S47.

different from the twenty-five sheets of drawings and eighty-three pages of specifications of the Pullman invention that militated, as Rosa put it, “against its selection from the standpoint of cost to the Office in producing soft copies.”²⁴ Once Eldredge’s invention was revealed as the official choice for patent 3 million, Pullman’s legal counsel reached out directly to Ladd, asking for reassurance that “it was quantity, not quality” that had worked against them.²⁵

At the time of the centennial celebrations in 1936, transaction of these specification “soft copies” was described as a “big ten-cent store,” with the Patent Office selling 7,000,000 of them annually at a price of 25 cents per patent.²⁶ Since 1871, this had been a revenue stream for the Patent Office which could be substantially curtailed if increasingly lengthy specifications caused reproduction costs to skyrocket. Density, however, is not only a problem; that *The Story of the United States Patent Office* (1972) or *The Story of the U.S. Patent and Trademark Office* (1988) would mark out time in anniversaries and Commissioner tenures is unsurprising, given that these are standard building blocks of institutional histories. But as these official accounts add specifications to the list of milestones, for instance Amos E. Joel, Jr.’s 354 sheet drawings, 266 pages specification, and 620 pages setting out the 243 claims of his 1960 “Accounting System,” we begin to see how the expanding pages, sheets and claims that cause such administrative burden at one end of the system are also being used to create a sense of wonderment or awe at the other end, adding to the patent system’s arsenal of arguments corroborating the story of an enumerable patent system as the guarantee for improvement.²⁷

ARS was ideally suited as patent 3 million not only because it ticked all the official boxes. More importantly, ARS was living proof that a solution existed to what during the 1950s became known as the “Patent Office Problem.” This was, with only minor variations, the same problem of too much information and too little time to process it shared by the entire post-WW II U.S. research and development sector. “The National Science Foundation has a special interest in the Patent Office problem,” NSF Director Alan Waterman said during the 1961 celebrations, “because it represents in microcosm the whole scientific information problem for which the National Science Foundation has direct and continuing concern.”²⁸ Institutions of basic research, such as the NSF, corporations such as General Electric, and federal government in the guise of the Patent Office, were all trying to stem the information flow threatening to engulf them, but they were also allies in the “technological race” the 38th Commissioner was now supposed to win. The race included rockets, missiles and being first to put a man on the moon, but just as much

²⁴ Rosa to Ladd, July 11, 1961, 3. NARA, RG 241/284/4/S47.

²⁵ Robert C. Brown to Ladd, 27 October 1961. RG 241/284/F/S47.

²⁶ “Present U.S.,” 4.

²⁷ *The Story of the U.S. Patent and Trademark Office*, 30.

²⁸ *Celebration of*, 60.

beating the Soviet Union in finding ways to control information. This too was a competition in which the arch enemy had an advantage. Formed in 1952, the All-Union Institute of Scientific Information (VINITI) was described as an “an attempt to tackle the problem of storage and retrieval on a coordinated basis.”²⁹ VINITI was as significant a threat as Sputnik to the U.S. because it was capable of something the celebrating nation so far had failed to achieve: *coordination*.

As it turned out, the Patent Office would be front and center in reclaiming leadership of such organizational ability. The main reason for shouldering this pivotal role was the complexity and importance of the novelty search, which, by virtue of requirements “more stringent than those of the majority of other types of literature searches,” had become The Ultimate Search.³⁰ Pre-examination was the cornerstone of a forward-looking patent system. If it failed to function, if it buckled under and even collapsed under paper-pressure, the validity of patents could not be secured. The solidity of the search could never be compromised. A sloppy search risked ending up in litigation, causing perilous patenting from inadequate survey and assessment of prior art. With those kinds of risks on the horizon it is no wonder that Watson Davis, Founder of the American Documentation Institute (ADI) and a central figure in U.S. information history, during the 1961 celebrations presciently noted, “In a sense, you people are sort of running interference for the other people [...]”³¹ “You people,” being the patent system in general and the Patent Office specifically, with “the other people” being the science community, universities, corporations, anybody basically whose work depended on processing information and knowledge. And more and more did.

It is important to stress, however, that the problems outlined so far were not unique to the United States. In fact, the final event of the “American Patent System Week” was *The International Patent Office Workshop on Information Retrieval*, hosted by the U.S. Patent Office and the Patent Office Society and sponsored with 15,000 dollars from the NSF. Patent Office staff from nine pre-examining nations had been invited to “consider means of achieving cooperative efforts in attacking and solving mutual problems of information retrieval.”³² Indicative of just how pressing and widespread the information problem had become at this time, was the admission from the host nation that this was “not a problem which the United States alone can solve.”³³ In order to figure out a solution to the “Patent Office Problem,” however, a sleight of hand was required. The foundational territoriality principle of patents, the fact that they were national law, had to be downplayed in favor of amplifying and augmenting *information* as a common concern. And this is exactly what

29 Chamberlin, “An International,” 1525.

30 Marden, *HAYSTAQ*, 2.

31 *Celebration of*, 123.

32 Horace B. Fay in *Celebration of*, 81.

33 Robert Watson, 37th Commissioner of Patents, in *Celebration of*, 85.

Horace B. Fay, Assistant Commissioner of Patents, did when he proposed that whereas patent laws were “superficially different” from each other, “the problems raised by the requirements for making a search of the prior art are remarkably similar.”³⁴

These are some of the reasons why, at the time of the 125th jubilee, the Patent Office found itself assigned the role of probe, whereby heat-seeking a solution to the problem of the microcosm—remember Waterman’s comparative scale—would automatically apply also to the “whole.” As Craig Robertson has observed, the efficiency that everybody sought in order to master this brave new information world rested on the “belief that breaking something down into smaller pieces made it easier to apprehend, understand and control; to create something small was to guarantee certainty.”³⁵ The increasing complexity of claims drove the complexity of the patent system into a veritable prototype of an expanding information infrastructure, so that any solution that could search and retrieve prior art in a better and more efficient manner, would be advanced and sophisticated enough to perform the same type of operation elsewhere.

“Running interference,” to use Davis’ words, had one particular objective: mechanization. Already in 1946, classification examiner Norman Ball wrote in *The Journal of the Patent Office Society* that “substituting machines for examiners in doing the work of the Office,” had been a favorite subject for “idle chatter during Patent Office conversations,” for many years.³⁶ Ball would later join Vannevar Bush and Alan T. Waterman as a member on the 1954 *Advisory Committee on Applications of Machines to Patent Office Operations*, whose work resulted in a number of suggestions, including establishing an R&D department inside the Patent Office specifically tasked with mechanization. In the absence of consensus on the meaning of the word, most put their trust in what they believed mechanization was destined to achieve: the end of an ever-growing mountain of paperwork. Hand and eye were done with. A machine-based information processing system was needed. And “costing out new systems as developed by comparing the efficiency of manual searching and machine searching,” was a mandate the Patent Office was willing to shoulder, at least if David Ladd was to be believed.³⁷

The practical implementation and pre-history of ARS may have been limited to the bank sector, but patent 3 million promised to do more. For the Patent Office it promised the kind of processing power for search and retrieval that would, perhaps even in the near future, enable the Mr. Doritys of the Patent Office to reduce the backlog, to steer their system back on track, to surface alive from under the paperwork. But speed does not only refer to new

34 *Celebration of*, 81.

35 Robertson, *The Filing Cabinet*, 17.

36 Ball, “Mechanization,” 384.

37 *Celebration of*, 82.

machines but to the agility of the system itself. “Because of the urgency of industry and inventors and other people that are interested in patents,” Watson Davis elaborated, “perhaps you can get at some of these problems a little faster than some of the quieter, perhaps even more basic fields of science and technology.”³⁸ Again this “you,” the collective invested in the patent system that could act faster, get things done, so that the duplication of work that had “more than half of the effort of the scientific and technological personnel of the world” spent repeating what had already been done, would be a thing of the past.³⁹ Forget Francis Holton’s “Vehicle Tire,” that in 1911 became patent 1 million. Forget Joseph Ledwiska’s “Vehicle Wheel Construction,” or patent 2 million, from 1935. Forget the tires and wheels of old. ARS foreshadowed an R&D sector of the future which would be twice as effective in half the time. It is worth remembering, as Hansun Hsiung shows in his contribution to this special issue, that similar concerns about efficiency and duplication had also been central to traditional research university libraries.⁴⁰ To sum up: the rationale behind the Patent Office’s decision to choose ARS as Patent 3 million was not only its capacity to read numbers and to do so at an unparalleled speed, but that it belonged to a new generation of machines that were capable of remembering. “Data-handling,” Vannevar Bush stressed, was not just a “card-shuffling affair,” but “can have a memory, so that the experience of one search will become available to other searchers.”⁴¹

IV

So far, the narrative has mainly revolved around patent 3 million at its moment of anniversary glory, consisting of temporal entanglements ranging from the constantly mounting backlog of prior art, Eldredge’s six-year wait for seventeen years of patent protection, the anticipation of processing power that would optimize the search and retrieval process, the ability of a system identifying itself as THE preeminent detector of new to speed up so that new could be found faster, and the elimination of replication all knowledge workers were needlessly caught up with. All these concerns constitute the backdrop against which Robert B. Larson, President of the American Patent Law Association, looks back at the future of the patent system, celebrating the 125th anniversary of the 1836 law by speaking of “its illustrious past, its present status as a vital stimulant to the economic growth and development of our country, with a look to its even more effective future.”⁴² The significance of ARS at this juncture lies precisely in its power to secure this “more effective future,” steamrolling the

³⁸ *Celebration of*, 123.

³⁹ Ladd in *Celebration of*, 83.

⁴⁰ Hsiung, “Complete.”

⁴¹ Bush, “Some Proposals,” 45.

⁴² *Celebration of*, 9.

system towards more *million* patents. Craig Lasher, head of GE's short-lived Computer Department, had something similar in mind when he spoke about the company's partnership with Eldredge at the September 12, 1961, press conference: "History will someday record this invention as the beginning of an information-handling revolution," he noted, "a revolution comparable in scope and effect to the industrial revolution."⁴³

With Lasher's prediction of the future importance of ARS in mind, let us consider how history recorded this "electronic device for reading at extreme speeds" on the "Million Milestones" infographic. 1961:3M is a mere resting point on an exponential curve on its way somewhere else. Arcing almost vertically into the future, this juggernaut trajectory of patent acceleration and accumulation excludes however the most crucial component of a timeline: an ending.⁴⁴ Which is the whole point, of course. However, as the curve threatens to fold onto itself, to collapse from its own weight, the end may in fact be the numerical "apocalypse" some forecast when the patent count reaches nine-digits. Measured in patent examiner activity and with the current pace retained, this would be the alarming future when the USPTO would employ a staff of 530 million examiners, surpassing the entire Washington D.C., population more than 750 times over.⁴⁵

Tempo-metrics combines time and numbers into a rhythm that seeks to produce "effects of evidence."⁴⁶ Evidence of acceleration and accumulation, effects of trust; in numbers, not people. ARS is completely redundant on both counts. The "Million Milestones" infographic does not require anything of the backstory of patent 3 million and what we have learned from it about its time, the role of inventions, the institution of the Patent Office and the historical context of the system it represents. Instead, it constructs a Potemkin façade of eleven million patents that insist on being taken at face value. From mythical single digits to the scaled-up metrics, statistics, and indicators, "numbers often help constitute the things they measure by directing attention, persuading, and creating new categories for apprehending the world."⁴⁷ So persuasive is the tempo-metrics of "Million Milestones," that it diverts our attention away from considering the specifics of patent 3 million as a complex amalgamation of interests, and bypasses the messy background of the accumulated 11 million. There is no dearth of scholarly (and popular) writing on an overissuing Patent Office, with examiners issuing patents rather than, as was the case with patent 3 million, rejecting them.⁴⁸ In an essay from 2000, published by *The New York Times Magazine*, James Gleick summarized: "The United States is issuing

43 Remarks by Lasher, September 12, 1961. NARA, RG 241/284/4.

44 Yakura, "Charting Time," 956.

45 White, "Apocalypse soon," 63.

46 Demortain, "Les jeux," 955.

47 Espeland and Stevens, "A Sociology," 404.

48 Lemley, "Rational Ignorance," 2. Frakes & Wasserman, "Does the U.S.," 616.

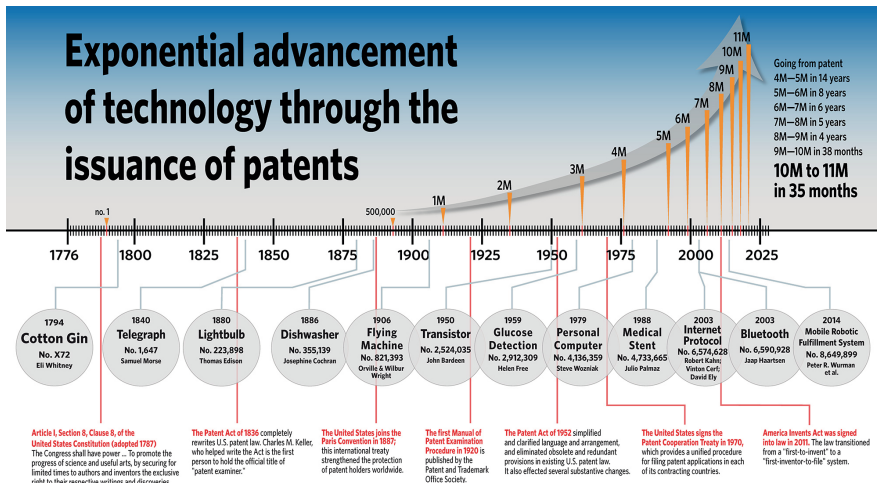


Figure 6. Screenshot of second infographics from the USPTO website: <https://www.uspto.gov/patents/milestones>.

patents at a torrential pace, establishing new records each year, and it is expanding the universe of things that can *be* patented.”⁴⁹

Another representation of this torrential pace comes from a complementary infographic situated below the “Million Milestones,” which, in contrast to the reductionist strategy of the former, displays an abundance of data and information. [Fig. 6]. The basic rationale of the infographic might be to communicate what allegedly is objectively verifiable, but at the same time it draws on “persuasion, engagement and entertainment.”⁵⁰ On the “exponential advancement of technology through the issuance of patents” the USPTO tells us that it is from patent 4 million—coincidentally issued in 1976, the year of the U.S. bicentennial—that the patent cadence really takes off and milestone periods shorten dramatically. Despite the randomness of the information visualized, which includes the more well-known lightbulb, transistor, and Bluetooth, new legislation, even the names of patent examiners, there is no doubt that the main target of this infographic is periodization itself, which, as Evitar Zerabuevel reminds us, is always social.⁵¹ Throw in a bigger font and some bold type and it is hard to miss the USPTO’s point that the milestone metrics have now definitely shifted from years to the thirty-five *months* separating patents 10 million and 11 million. What is more accurately portrayed here is nothing but the “exponential advancement of patents by the issuance of patents,” a familiar circular technique of proving the value of patents by the

49 Gleick, “Patently Absurd.”

50 Amit-Danhi and Shifman, “Digital,” 3543.

51 Zerubavel, *Time Maps*, 96.

number of patents. Behind the torrential increase is not necessarily a mass of brilliant new inventions, but also detritus, patent junk, all of which is just as hidden from sight as ARS. Yet, numbers continue to hold sway over the imagination; certainly, for the USPTO when they in 2018 announced patent 10 million by describing it as an “extraordinary milestone for the USPTO, the United States,” and, just to put the contribution of the American patent system into proper perspective, “all of humanity.”⁵² GE scientist John Nelson even timed his application of two patents that year so that one of them might claim the 10,000,000 number or the milestones of milestones, the odds of which he estimated at 1-in-3,2000.⁵³

If this tells us something about *how* the infographic’s logic operates, in the concluding part of this essay I want to tease out more about *why* tempo-metrics became such a conduit for the patent system to create knowledge about itself. In order to do so we need to return once again to the 1960s, when “time lag,” as Benoît Godin has observed, was “a key phrase.”⁵⁴ It is during this period, with the Patent Office as the canary in the coalmine, we find the embryo of tempo-metrics as it will later fully form in the “Million Milestone” infographic. The prior art problem was the great equalizer, the jumping-off point for what in the coming decades would lead both to the increased internationalization and increased commodification of patent information, a development closely related to new technologies of scale and formats, such as microfilm.⁵⁵ Together with the arrival of mechanization and specialization on all levels, these developments are essential components in pushing quantitative information into “the dominant form of information relevant for coordination, for evaluation and valuation.”⁵⁶ And as this happens and the labyrinthic patent system becomes ever more labyrinthic, something else is also going on. Parallel to its concerns with finding a solution to the “Patent Office Problem,” the patent system enters into a new rapport with the public, a category with which it has had a long, if sometimes abstracted, relationship.

During Ladd’s brief tenure as Commissioner (1961–1963) there was an increasing activity around what we would today label public relations; an acknowledgement that the public can, indeed must be, on-side with the system if it is to survive at all. Saving pre-examination and its novelty search was crucial because its objective was to “reinforce public and judicial confidence in the patent system.”⁵⁷ Information is therefore not just something that needs to be controlled and managed inside the Patent Office—as in machines solving the prior art problem—but also something that must be controlled and managed in terms of the production of knowledge about the system, on the outside.

52 “The 10 Million Patents.”

53 Guterl, “The Waiting Game.”

54 Godin, “Technological Innovation,” 547.

55 Bellido, “Patents in Miniature.”

56 Diaz-Bone and Didier, 8. On the rise of patentometrics, see Hammarfelt, “Linking Science.”

57 Ladd in *Celebration of*, 82.

The events and marketing around patent 3 million and the 125th anniversary attest to Ladd's understanding that what he needed was to tell "the story of the American Patent System to the general public."⁵⁸ Big Numbers—patent 3 million—and Big Times—the 125-year anniversary—provided him with such a framework. "Incidentally," Ladd wrote to William Ruder at the Department of Commerce, "this public relations work is not fluff. It is resulting in a considerable amount of support for the Patent Office."⁵⁹

Time and numbers are very persuasive tools in creating order in chaos, and they belong in the catalogue of strategies that the Commissioner and the system can draw on when it comes to fronting "the meaning of the patent system for everyone to understand."⁶⁰ Because as patent specifications are becoming complex and longer, as the administrative passage through pre-examination proves unpredictable and protracted, as the expertise needed in every facet of patenting—from drafting specifications to running the giant computers entering the Patent Office—is progressively specialized and compartmentalized, and because all of these concerns add up to a problem that cannot be solved nationally but needs to be addressed internationally; Ladd needs to sell a widening degree of separation to the general public. And 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 needs to remember, reframe, and retell the history of the system by reducing it to numbers, periods, symbols, and statistics.

Tempo-metrics has drawn on a particular calculus of time, numbers and rhythm in order to persuade us that the patent system guarantees continuous forward motion, quickening pace and shorter periods, and in doing so automatically ensures continuous progress. Yet, I have underlined how much the numbers game in the shape of constant accumulation and acceleration is amplified and augmented when synchronized with performative, commemorative practices such as centennials. Celebrations, centennials, the launch in 2000 of April 26 as The World Intellectual Property Day—the first of which was appropriately enough entitled "Creating the Future Today"—the multiple ways by which the patent system remembers itself in order to solidify and justify its existence remains a remarkably underexplored topic in patent history.⁶¹ It is within these repertoires of remembrance that numbers can be translated into a history with pasts, presents and futures. Time and numbers are mutually reinforcing entities that, when finding their way into infographics, provide measurements and indicators, but not only that, they combine into a two-pronged strategy of persuasion by tempo-metrics.

58 Outline of Activities of the Subcommittee on Public Relations. In Basic Outline of Plans of the 125th Anniversary Celebration, October 18–20 and 23–25, 1961. NARA, RG 241/284/6/S47.

59 Ladd to Ruder, 31 August 1961. NARA, RG 241/200/7/S7.

60 Hickman Price Jr., Assistant Secretary of Commerce for Domestic Affairs, *Celebration of*, 18.

61 For an exception, see Strömstedt, *The Patent Office*.

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In his Proclamation No. 3434 designating the week of October 15, 1961, “The American Patent System Week,” President Kennedy does not mention either Kenneth R. Eldredge nor his “electronic device for reading at extremely high speeds.” He does not need to, because for the purposes of the celebration it is irrelevant what the patent is *for*. It is the *number* that counts, not the innovation the number stands for. What matters even more, though, is Kennedy’s confidence that “there will be granted in the year 1961 the three millionth patent since the enactment of this Patent Act.” There is something almost poignant in the fact that ARS, the reading system that the patent system in 1961 chose to honor with the number 3 million, was not only invisible to begin with, but that it paved the way for the infographic on which it would later be counted but at the same time be completely discounted from.

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