Inventing the future through money: images of monetization in nineteenth century American patents

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Weber's Protestants teach us something we sort of already know: money conjures the imagination of the future and the moral fallibilities of the present (Weber 2002). A coin saved today is a compulsion paused—but it is, too, a thoughtful contribution to a greater project, whether a special purchase by a thrifty child at Toys R' US on a rainy weekend or a one-way ticket to spiritual salvation. Money is a promise, an expectation, a possibility, a deferred potential present. Money is, in this very specific sense, a future in your pocket.

In this chapter, I want to think of the temporal orientation of money not through money itself but through the devices and paraphernalia associated to its keeping, use, and making. That money is thoroughly technological is obviously clear to the contemporary reader. Salaries are often paid in electrons and magnetization, read and modified through circuits and processors, represented on plastic, paper, and metal. Money *is* technology, not only in its substance but also in its essence, enframing our modern experiences through distinct (though by no means single) forms of valuation (Zelizer 1997).

Here, though, I am not so much concerned with money-as-a-technology (a topic that has an extensive literature, see Maurer 2015, Coeckelbergh 2015) as with the technologies that money fostered in the nineteenth century. If a technology, money requires supports, infrastructures of monetization that stabilize its use and circulation. As with the digital payment systems and global transaction networks that animate electronic money in the early twenty first century (Bariz-Lazo et al 2014, Stearns 2007), nineteenth century money existed in relation to a growing network of objects, designs, and things that collectively distilled what monies meant and what was expected from them for the future.

These machines were vivid expressions of the understandings, anxieties and promises associated to money and its place in societies where capitalism and monetization were rapidly expanding across everyday life. And as such, they are the objects of this brief excursion.

In considering how technologies referenced the meanings of money, I will furthermore focus on *imagined* rather than actual things. With this, I want to doubly stress the promissory character of money, firstly through how it signals a particular future-orientation, but secondly in how it elicits designs about the future, promises of how promises will be produced and handled. So while an essay on the technologies of money, I am rather more specific. Instead of actually-existing things, I look into the checkered history of patents about money in order to see how this double promise—one of technology, one of money—speaks of the meanings of monies, societies, and their conjoined paths.

Patents and their (un)realized futures

As central features of the modern intellectual property regime, patents represent both the bounties of innovation and the countless failures of invention. Originally introduced in the late middle ages and early renaissance as monopolies granted by monarchs to inventors over the fruits of their invention, patents became central instruments for the legal protection of property in the 17th and 18th centuries. When the control over intellectual products became important in the nascent capitalist economies of modern Europe, patents rose into undisputed terrains for defining and contesting ownership over designs that could, in theory, be profitably exploited by entrepreneurial minds.

This is not to say that all patents materialize into innovations. Cliometricians may use the frequency of patenting as a measure of innovation (Streb 2016), of the creative powers of industry and entrepreneurialism. Yet much evidence exists that patents more often than not fail to reach the point of application (in the field of biotechnology, for example, the consulting firm Ernst & Young estimates that less than 10% of the patents reach the market;). In some

cases, patents merely serve the purpose of claiming a potentially useful innovation to deter possible competitors (Heller and Eisenberg 1998); in most other cases, they are clearly fancies of the imagination (a nineteenth century patent for spectacles for chickens, meant to protect them from aggressive pecking from other chickens, stands as a notable example).

Independently of whether patents result or not in a material contribution to the world, they clearly index the dreams and preoccupations of their makers. For example, in the United States of America, where the patent system is almost as old as the nation itself, patentability is couched in terms of practical utility: in addition to not being merely hypothetical, a patent must solve a problem of some sort, introducing a “useful process, machine, article of manufacture, or composition of matter, or any new and useful improvement thereof (USPTO 2017)” into possible circulation. Establishing utility is predicated on creating a clear distinction between problems and non-problems, things that preoccupy the inventor with things that do not. Effectively, in order to be patentable, a design must demonstrate some form of improvement, a rationale, a logic, a contribution; it requires shifting the state-of-art through a proposed solution.

While individualizing as most forms of property are, patents are necessarily tied to a larger infrastructure of knowledge-making. In establishing ‘novelty’ with respect to a ‘state-of-art’, for example, patents create linkages and comparisons, provenances of authors, claims, and previous inventions that generate the boundaries of patentability. That patents are associated to individuals rather than the larger contexts from which they derive is, in many ways, a legal artifact. As anthropologist Marilyn Strathern alerts, patents truncate the social networks where problems are constituted, claims contested, and knowledge developed (2001). This form of intellectual property “points simultaneously to an item or technique made available to knowledge, authorizing its use and circulation, and to the knowledge, on which claims are made, which has made it into an item or technique (Strathern 2001: 20)”. As such, patent records are not simply disentangled indicators of punctuated innovation trajectories but rather telescopes into possibly existing futures

shared by collectives through their knowledges past and present. This is how I interpret patents in this chapter: not as signaling moments of invention by individuals, but rather as nodes that condense how the possibly existing futures of money were imagined across societies.

For the purpose of this chapter, I constrain my analysis to American patents from circa 1860 to 1915. The rationale for this is threefold. The first motive is historical. Patents in the United States were arguably closer to the construction of a national entrepreneurial project than their equivalents elsewhere. The modern patent system might have originated in Europe (as in England, where Henry VI notionally issued the first patent in 1449, although the practice was formalized in the Statute of Monopolies of 1624), but it was generally costly (patent fees for England in 1860 were approximately four times the annual per capita income). In England, the hierarchies of class drove the logic of invention. This was certainly not obvious in the United States, where the protection of intellectual property was enshrined in the Constitution and the powers it conferred on Congress to “promote the Progress of Science and the useful Arts by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries”. If anything, the American patent system was designed around slightly less steep entry standards than its European equivalents: whereas in 1860 filing fees in Europe averaged about \$400 US dollars per patent, the costs in the United States were significantly lower at \$30. The patent system in America was, as Zorina Khan (2005) writes, carefully calibrated to promote social and economic welfare, and entangled with the imagery of invention, merit and democracy of the young nation.

A second reason is monetary. Much of the early monetary history of the United States was marked by the political debacle of currency in relation to bimetallism: from the Colonial and Continental Currencies of the eighteenth century to the bills issued by free state banks in the 1830s, the forms of general purpose monies available to the American public were multiple and underpinned by their convertibility into gold or silver. Triggered by the constraints and pressures of the Civil War, however, the United States

government issued a new monetary standard in 1861, initially by transforming \$50,000,000 of debt into Treasury notes, convertible on demand, and that became legal tender and underpinned the notes of national chartered banks. These so-called *greenbacks* signaled an important transformation in the politics of money and currency: the consolidation, perhaps, of a particular and slightly more contemporarily capitalist way of thinking about the economy in relation to state and society. Unlike bullionists, greenbackers located value not in the convertibility of a note into gold but, rather, in “exchangeability as a basis for confidence” (Carruthers and Babb 1996). The value of currency emanated from the institutional status of government; money was “a creature of law”, rather than an intrinsic value derived from scarcity and nature. For my analysis, this matters critically since the period that I cover is defined by the issuance of the United States Note and the simultaneous use of the gold coin. Bullionist concerns about the status of money didn’t disappear with the adoption of the greenback—the metaphors animating bitcoin today serve as striking indicators of the continuity of these concerns. In the imaginations of inventors from the period we should thus expect to find both a concern for institutions as well as references to the intrinsic value of the rare. Monetarist history also informs the endpoint of this period: 1915 marks the creation of the Federal Reserve System that has defined the makeup of currency ever since.

A third consideration is eminently practical. Patents exist in the United States since 1791 but are mostly unavailable before 1836, when a fire destroyed the records of the United States Patent Office. Like most historical records, patents are tied to their physical qualities as legal instrumentalia, and in the case of the United States, are curtailed by the eventfulness of history itself. That the corpus informing this paper was segmented in this way should not affect the quality of the results, though: the loss of early American patents (though important in historical terms) does not overlap with the critical inflection points of the intertwined institutional history of money and patents in the United States.

The patents that I examine in the following pages are bounded by these three constraints. Nevertheless, they address how people at the time, caught between the claims of bullionists and greenbackers, imagined how money ought to be measured, handled, stored and produced. These patents were part of the infrastructures of money that nineteenth century inventors dreamt in their minds and perhaps built in their shops—and that, as truncated elements in a larger network, spoke of the anxieties, desires, hopes and afflictions that American societies had about the nature and future of money itself. Patents and money were linked by dreams, and by examining the former we can understand the world that societies built around the latter.

The dimensions of money in nineteenth century American patents

What do patents say of money? Throughout the corpus, money emerges as a clear rationale for innovation. Whether a hog-killing bed that sought to reduce the “great deal of money” lost with previous methods of slaughter (US712579A), or the method for forming beaches that reduced the “vast sums of money [...] expended in dredging along coast-lines” (US715557A), pecuniary concerns are notable argumentative elements in establishing the novelty of inventions. I am not so much interested in these but in identifying the broad themes that structured the content of shared imaginaries about money. The first is necessarily about currency itself, that is, about the stability of money as an object of exchange.

Dreams of ontology

Money is decidedly an abstraction (Ingham 2013), yet money-stuff grounds its everyday experience. The obduracy of money matters tremendously, even in the space of digital electronic payments systems. Think of credit cards. A recent trend among American banking institutions has been the production of premium credit cards that are tactilely distinguishable from their competition. In 2016, for example, the American bank JP Morgan Chase & Co. issued a new, premium, high-fee credit card. Unlike other cards offered by the bank its competitors and that used plastic as the substrate for the chips and magnetic tapes, Chase opted for an undisclosed alloy. The “card’s metal composition”, wrote a popular Internet

resource, is “clearly part of the appeal. Only a handful of other credit cards are metal, including the American Express Centurion Card, commonly known as the AmEx ‘black card,’ which is typically available only to millionaires, billionaires and celebrities.” Technically identical to the average plastic (digital bytes do not discriminate their substrate), Chase’s premium card was materially unique.

Of course, other forms of currency are not free from the constraints of the physical. Exchanged on average about 110 times per year (or about every three days), a one-dollar bill is prone to the forces and frictions of the wallet, purse, cash register, bundle, and forgotten drawer (SWIFT and Leibbrandt 2009). The stuff of money matters with such a hectic existence. A telling report from the US’s National Research Council on the future of banknotes notes the importance of substrate, form, color and tactile qualities (NRC 1993). This was not merely a matter of printing and design but, as the council noted, of harnessing the most advanced technologies available to the Treasury: “microelectronics, nanotechnology, molecular electronics, materials, photonics, and magnetics should not only be followed but also encouraged by supporting technical work that is focused on deriving very sophisticated but inexpensive, reliable, accurate, inconspicuous devices to assist visually disabled people in recognizing, denominating, and perhaps authenticating U.S. banknotes” (NCR 1993).

It is not entirely surprising that some of the patents in the collection were aimed at guaranteeing the authenticity of currency. They were, so to speak, devices of ontology that sought to discriminate between true and false money: some patents were dreamt as devices that would allow testing the authenticity of money. This practice, so common today in the tills of small vendors where large denomination bills are confirmed under ultraviolet lamps, was particularly important in the nineteenth century. Greenbacks provided some guarantee of stability, for example, but the sphere of currency was invariably occupied by a panoply of notes produced by the National banks. Earlier in the country’s history, guaranteeing the authenticity of a bill was a matter of political concern.

When Congress issues the Continental Currency, for example, a strategy of Britain was to produce high quality fakes that would devalue the country’s

newfangled money supply. In the late nineteenth century this was no longer the case, though fakes—both of coins and notes—remained an important problem.

One set of patents tackled this ontological question through substrate (much in the same way as the National Research Council above). The question of money's value could be resolved by printing and minting it on particularly 'virtuous' materials. For coins, the solution was obvious. As most of the coinage at the time was based on gold and nickel, telling fake from true was a matter of distinguishing between different alloys. Through physics, the weight and dimensions of a particular coin could be used to corroborate its authenticity. As a patent from 1900 noted, "Genuine coins usually differ perceptibly in weight from those which are spurious or counterfeit, the specific gravity of the metal of which coins are composed being different from the specific gravity of pieces of base metal of corresponding diameter and thickness" (US688839A). A rather contrived apparatus could thus be fashioned to automatically discriminate genuine from counterfeit coins.

Notes were slightly more complicated. Some patents consisted of methods or devices meant to facilitate determining the genuineness of bank notes. One device introduced by Isabella Cohen in 1909 involved a rather simple set up where a note was easily placed under a powerful magnifying glass for inspection. This and other devices, however, delegated much of the work of telling things apart to the relatively untrained eye of their operators. Other patents tackled this problem by investing in the production of notes. A host of technologies at the time relate to printing and engraving techniques specifically engineered with bank notes in mind; yet others refer to issues of design that would make the production of counterfeits difficult. A patent by an English inventor filed in 1911 the United States, for example, involved

a lined ground-work (which may be subsequently overprinted in any suitable manner) having upon it letters, figures, or devices of a distinguishing character which are of the same tint as the ground-work, but produced in lines at angles to the lines thereof, so that such distinctive letters or the like are almost invisible in connection with the groundwork,

and absolutely invisible when overprinted, and in the use in conjunction with a surface so printed of a lined screen or surface, the lines or marks upon which bear such relation to the lining or marking of the ground-work, that when the said screen is in juxtaposition to the printed surfaces, the said distinguishing marks will be rendered visible notwithstanding the overprinting (US1002600A).

An earlier patent from 1895 similarly considered using a geometric pattern to prevent forgeries (USD248090). Others focused on substrate: as a patent from 1910 shows, methods for producing specialized paper with added “small sheets of paper or of fibrous materials cut out in various shapes” (US964014A) in sufficient quantity and with enough consistency were also solutions to the problem of money’s stability.

Dreams of saving

The corpus also reveals a number of patents for “toy money-boxes”. Money containers, coin hoarders, and other devices for storing currency are certainly ancient inventions. Archeological evidence shows that storing monies in containers is as old as money itself. These humble devices are nevertheless important indicators of broader patterns in society. Storing can take many forms, and patterns of storage-use are revealing for what they say about the relation of the stored good to conceptions about its cultural meanings and value. By studying the medieval moneyboxes stored in cesspits in Edam, Holland, Zuijderduijn and van Oosten (2015) show patterns of savings that indicate the rise of Protestantism and its particular philosophy of money and accumulation as well as the widespread introduction of mandatory insurance schemes for craft guilds. Saving money might have been an apt strategy under the Roman church, but the practice lost some credence as Holland transitions into forms of social organization that, associated to a Protestant logic, and collectivized risks.

By focusing on saving practices, Zuijderduijn and Oosten (2015) highlight the disciplining character of moneyboxes: these technologies were meant to elicit particular forms of behavior and dispositions towards the use (and withdrawal) of money, punctuated by moral concerns about responsibility,

uncertainty, and rights. The inventions that we see in nineteenth-century American patents are not different in this respect. These ‘toy’ moneyboxes had the concrete objective of fomenting specific disciplines of money keeping among users who happened to be particularly young. They involved pedagogies of thrift, ways of behaving around currency deemed to be morally adequate. Consider one of the simplest patents in the dataset, filed in 1875 by Robert Kane of Cambridgeport, Massachusetts. “The nature of my invention”, wrote the Kane, “consists of a hollow obelisk provided with a slot in one side [figure 1] and is designed to serve as a savings or money bank for children. It is constructed, preferably, of tin. The base or pedestal is struck up, and the sides are separate pieces, molded as shown, with two of the four parts somewhat wider, for the purpose of making a lap-joint at the corners, as represented. The parts are then united with solder” (USD9231S). This simple object was not for adults but for children, one among a panoply of devices and institutions meant to develop habits of saving among a younger generation of Americans. Concerns with thrift were common in (patently moralized) discussions about money at the time (Zook 1920). Many often connected to specific educational projects. Writing in the *Annals of the American Academy of Political and Social Science* in 1920, the economist Alvin Johnson stressed thrift as a “public service and a private virtue” acquired through practice. “Most men who have learned to practice (sic) thrift have been little influenced by theory and exhortation. They have been much influenced by envioning conditions that make saving and investment as easy and natural as spending” (Johnson 1920, 233-234). Kane’s little tin savings box was just one way of producing habits by materializing of some of these conditions.

The imagination of moneyboxes as instruments for creating habits of the purse is perhaps clearer in another patent. A filing from 1877 by John Hall, also of Massachusetts, was as much a device to store money as one to invest trust in savings institutions. Moneyboxes are unavoidably small in scale. While not necessarily individualistic (after all, several members in a household or community can use the same moneybox for some collective purpose), they are ill designed for larger forms of accumulation. A piggy bank is simply not a bank. An

economy of savings requires much more than mattresses and hollow clay figures—it needs banks whose deposits that are circulated and multiplied rather than stored. In the late nineteenth century trusting in banks was a fraught investment. Banking crises were common at the time—in the panics of 1857 and 1873, several hundred banks failed, without insurance covering the deposits of their customers—and so confidence in their survival was meek. Hall’s invention deposited both money and trust. His improvement the design for a toy moneybox was decorated as a miniature bank, topped with “mechanical figure representing a cashier, adjusted to receive and deposit the money in the bank, forming a toy for the amusement of children and a safe deposit for small coins” (USRE7614E) (figure 2).

Following a similar, though slightly less decorative logic, a design from 1899 a mechanical depository by Morris Mengis of New York sought to facilitate a culture of savings. His invention was

chiefly designed for use in coöperation with savings banks to receive the smaller deposits as made by children or others preparatory to their deposition in the bank and passing to the credit of the depositor upon the books of the institution, although, as will be obvious, the improved device may be employed in coöperation with charities and other institutions to receive contributions or payments which may be made thereto, the object of the invention being to provide or produce a simple, reliable, and convenient mechanical depository for the above-named purposes which in addition to receiving the money that may be deposited shall automatically return to the depositor a receipt for or other acknowledgment of the exact amount contributed, paid, or deposited (US631024A).

Mengis’ device was part of a larger family of money-counting technologies that meant to facilitate accumulation, particularly of coins. What matters from these technologies, though, is what they reflected about nascent moralized visions of money and money keeping. Mengis, like Hall, Kane, and a host of other patent assignees, understood the distributed accumulation of money as conforming to a larger pattern of institutional behavior. Savings were habituated, trained into;

they were channeled, from the toy moneyboxes of children, to the automated devices of receiving and tallying that banks made available; and from these, they fed the vaults of a organizations that banked on trust. These devices, however humble, represented fragments of a growing infrastructure of everyday monetary circulation. They were the gateways, connectors, and tubes upon which the economy of the future was imagined to flourish.

The larger objective of these technologies of saving was also visible in their iconography. National currencies are key to the construction of national identities—just like internal markets were tied to political projects to create the boundaries of an exchange economy within the confines of the modern state, the designs of national currencies were meant to buttress specific symbols of idealized nations (Helleiner 1998, Polanyi 1956). This symbolic quality was also relevant to the technologies of money. Although primarily utilitarian, patents were often charged with the imagery of the nation. In the years surrounding the first Centennial of the American revolution, for example, patents reflected patriotic themes: Kane’s moneybox was inscribed with the legend “Centennial Bank 1776-1876”, and a 1875 patent by Candide Croteau involved “a toy moneybank, having the form and appearance of the tower of Independence Hall, Philadelphia” (USD8655). These little devices made the national economy as much as the symbols printed and mint on currency.

Dreams of containment

Inventions for accumulation were important features of the iconosphere of nineteenth century money-use. But just as accumulation was a recurrent theme, so was money’s mobility. We often speak of money through metaphors of liquids and flows—we think of movements of capital, of monies running from bank to purse, between consumers and producers, or across nations and governments. The idea of leakage is invariably linked to this metaphor. Like a poorly conserved Philip’s hydraulic model of the economy, a system of monetary transfers can be beset by holes, poor connections, and sites of loss—whether physical, as in the case of systems used to move money and currency across space, or social, as in corruption and theft that move monies in unexpected ways.

One family of inventions corresponded to money-counting technologies. For instance, starting with the first patent in 1879 by James Ritty of Ohio, novel designs of cash registers were filed frequently throughout the late 19th and early 20th centuries. These technically sophisticated apparatuses integrated sorting, storage, and reporting functions through a combination of levers, gears, bells, and springs (e.g. US817725A, US678218A, and US754961A). Related to these devices, patents also reveal a growth of designs meant to automatically organize currency according to its denomination. Thus, in 1900, Sanford Boyd patented a coin assorting, delivering and recording apparatus that for

handling money, and has for one of its objects to provide a simple, inexpensive, and highly-reliable apparatus for expeditiously assorting and delivering coins of various denominations and other money, and one which is calculated to record the reception of each coin or other piece of money and the discharge thereof, so as to enable the proprietor of a place of business to ascertain at the close of each business day or other desired period the amount of money placed in and the amount removed from the apparatus (US655544A, figure 3).

A similar patent from 1902 for a checking apparatus “afforded [restaurant owners the] opportunity of readily inspecting the amount of [payments collected by waiters] before it is deposited in the receptacle therefor, which shall permit of the proprietor or manager readily ascertaining, at any time the total amount paid in by the waiter or other employee and which shall be cheap and simple in construction and not liable to get out of order” (US715122A). Containing money implied much more than storage in moneyboxes: it required accounting for its movement and change through time.

A notable characteristic of the patent corpus is the presence of inventions that sought to avoid leakages in the transmission of money. One set of patents clearly shows a concern to limit the interactions between humans and currency so as to avoid the temptation of customers to short-change the business or of workers to skim the cash register in the detriment of the owners. For example, although they were not monetary technologies, streetcars were designed with

money in mind. A patent from 1861 by John Stephenson of New York shows this well. The improvement in his design of a streetcar was partly based on the introduction of a device that allowed the conductor to collect the fare of the passengers without having to handle coinage or move (Figure 4; USRE6059E). Stephenson's patent gave the driver some opportunities to illicitly retrieve money from the fare-box, but this was a problem soon solved by other patents that introduced slightly more hermetic designs that made withdrawals cumbersome if not impossible. Also in 1861, Horace Tupper and John Slawson filed a patent for a fare box that, in addition to facilitating counting the coins deposited by travellers in a more efficient and less error-prone fashion, was designed with a money drawer flanked by "a couple of guard-slides [...]" so as to prevent felonious abstraction of the fare" (USRE6689E). This was also the logic behind other, similar patents, including a 1901 system through which "money-bags may be effectually closed and sealed to retain the contents thereof against unauthorized opening" (US688671A), a pressure-activated electronic burglar for "for any kind of closed spaces, such as apartments, money-chests, and the like" (US657672A), and a traveler's "treasure belt" designed for "Carrying Money, Diamonds, or other Valuables" (US297268A).

Some inventions were more overtly related to metaphors of leakage. One is salient: the pneumatic tube, invented in England in the 1830s and used in the London Stock Exchange as early as 1856. A patent from 1901 by Maurice Anderson of Chicago, Illinois, provides an example. Contributing to existing designs of pneumatic tubes, Anderson's invention was aimed at

such systems as are used in stores for facilitating the handling of money and the like. In such systems, for example, a series of tubes run to a central station, generally the cashiers desk, from different parts of the store, and one person or cashier attends to a series of these tubes, removing the money from the cash-boxes and returning the proper change, due. Experience has shown that the cashier often inserts the wrong cash-box in the wrong return-tube, so that it may be returned to a point entirely different from that from which it was received. This causes confusion and delay and often loss of money to the proprietors of the

store. One of the objects of my present invention is to insure the proper return of the cash-boxes to the points from which they were received, and thus avoid all these difficulties.

Anderson's invention (figure 5;), like others based on the original design of the pneumatic tube, demonstrates how patents imagined the infrastructures of money and society in the nineteenth century. Pneumatic tubes were not used only to move money between cashiers and the back office; they could as easily distribute notes, memorandums, and objects of small weights within and across buildings. Pneumatic tubes were infrastructural, making money and information comparable. They foregrounded an economy that was right around the corner, where control over the flows of data, over the organization of files and the design of information, was as important as the production of objects for consumption.

Money, everywhere

Of course, part of this comparability had to do with the growing availability and use of currency in American life. By the end of the century, currency was widely in circulation, facilitating the multiplication of uses and applications of devices that somehow interfaced with money. This is clear in the patents analyzed for this chapter. In addition to devices meant to guarantee the value, accumulation, and mobilization of money, the collection is populated numerous examples of coin-operated valves, knobs, tellers, and objects that monetized very specific actions. In 1900, for example, the English inventor Frederick John Beaumont patented a coin operated lavatory lock in the United States (US656082A). Earlier in 1899, Charles Burton of New Haven, Connecticut, filed a design for a prepayment mechanism for gas meters (US647803A). And, in the same year, Adolph Linick of Chicago patented a coin-controlled medical battery (US641309).

Cultures of money, for the future

The past is incredibly modern and the records of the United States Patents Office confirm this historical intuition. Money was prolific, inspiring trays, boxes,

printing mechanisms, gadgets and a host of devices that—though rarely materialized—transpired a public fascination with coins, bank notes, and other forms of currency.

Yet the collection also shows that, just like money was everywhere, so were its meanings, multiplying across inventors and their imaginations. Money was far from being a single, stable entity. For some, even the bullionists who saw in coins of silver and gold true value, money could stand as exercises in nation building. Such were the moneyboxes that, through patriotic imagery and crystalized pedagogy, sought to build trust in private institutions (banks) that were meant to play a greater role in the public sphere. For others, money was a problem of design and stabilization—its worth was not problematized by greenbacks and its claims upon the state but by reproducibility, by the relative ease with which someone could counterfeit a bill and with it disturb the true value of currency. For these inventors, design rather than chemistry was the solution, highlighting in intricate ways the symbolic primacy of the state and its chartered National banks in facilitating the flow of money. And for some more, money was a problem of hydraulics, of containment and leaks. For these entrepreneurs, the problem was building a society around money, whether through streetcar architectures that facilitated fare collection or boxes that made theft particularly difficult, or through tubes and devices that mobilized physical currency across space.

It is interesting, then, that no-one really challenged the inevitability of money. Monetization was not something that was only happening in the homes and streets of the country, but as much in the minds of the makers of things for the future. This proclivity towards monetization was notable in specific devices that made the world commensurate to currency. Consider devices that sought to transform work tasks into discrete bits of quantifiable labor time. Like Thompson's clocks, these devices materialized the disciplines of capitalist work. One such device, filed in 1900 by Franklin Gilson, the presented

an apparatus for determining the wage cost of work done in factories and other industrial establishments where it is desirable or necessary to

ascertain the cost of time spent by each operative on a certain job or piece of work. In-such establishments operatives of different degrees of skill are employed for various kinds of work, and the wages paid thereto vary accordingly, so that it has hitherto been necessary in figuring the cost of a certain piece of work to determine the length of time spent by each operative thereon and then to calculate the wage cost according to the value of each operatives time. This has required a large clerical force in factories or workshops of any considerable size and has added greatly to the cost of production (US689301A).

This patent distills the logic of capitalism and its drive towards monetization. Like the clocks that animated E.P. Thompson's (1967) discussion of the emergence of capitalism through the re-orientation of work from tasks to clock time, this little device disciplined both capitalist and worker, parceling out time into fractions that needed little calculation to convert into expenses. But this was precisely the imaginary of money in patents: as currency proliferated in the late nineteenth, as it opened doors, from safes and lavatories, to vaults and vending devices, it also transformed the value of time, work, and experience in uncanny and unpredictable ways (cf. Zelizer 1997).

But this is precisely why these patents matter: they show us a past that imagined and created the economic forms of the present. Gilson's clock is not too different in function from current systems that monetize minor tasks (a popular app called TaskRabbit, for example, allows users to hire local handymen and housekeepers for discrete bits of work, monetizing their labor through matching algorithms) or from devices meant to promote some sort of thrifty economy of time among their users (the app RescueTime also serving as an example that allows clients to automatically track their use of work time throughout the day). And in this, the patents reveal capitalism as a product of imagination (Beckert 2016). Certainly, the designs of moneyboxes, vending machines and other sorts of devices were tied to a dense web of innovators, previous patents, and companies seeking to profit from the market. Yet thinking that these networks determined the future would be incorrect. These patents do not show the technology of the past tracing the paths of the societies of the future, simply

because patents are not technologies. They are promises. They are ways of thinking about what could be, rather than what necessarily is. The lessons we learn from them are thus simple: in how people imagined the containment, movement, and use of money, they were imagining the societies to come, the one that they would build through shifted actions and novel institutions (when most of these patents were filed, Silicon Valley was a nowhere near San Jose, California). The forms of capitalism that were to come a century later were imagined much earlier. They were made material, if not through success of innovations, at the very least through the anxieties and aspirations of now long-forgotten inventors.

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AU 291

EX

OR D 9,231

DESIGN.

R. F. KANE.

TOY MONEY BOX.

No. 9,231.

Patented April 18, 1876.

WITNESSES

B. S. Parker

F. F. Raymond

Robert F. Kane,

INVENTOR

H. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

D99-38

AU 291 EX
OR D 8,655

DESIGN.

C. W. CROTEAU.
Toy Money-Bank.

No. 8,655.

Patented Sept. 21, 1875.

*Witnesses,
J. H. Shidmore
W. E. Chaffee*

*C. W. Croteau
By his atty
Howard S. M.*

Patented Aug. 7, 1900.

COIN ASSORTING, DELIVERING, AND RECORDING APPARATUS.

(Application filed Apr. 5, 1900.)

(No Model.)

6 Sheets—Sheet 2.

Witnesses
 C. H. Gaudes
 T. E. Turpin

Inventor:
S. S. Bayd
By James Cheely
Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

**T. CASTOR.
Street-Cars.**

3 Sheets--Sheet 1.

No. 6,059.

Reissued Sept. 22, 1874.

FIG. I.

FIG. IV.

FIG. V.

FIG. VI.

FIG. VII.

WITNESSES:

D. A. Stuart
W. Knight

INVENTOR:

Thos. Castor
per *C. H. Hannay*
attorney

No. 674,373.

Patented May 21, 1901.

M. ANDERSON.
PNEUMATIC DESPATCH SYSTEM.

(Application filed Dec. 5, 1898.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

Fig. 2.

Witnesses:

Frank S. Blanchard
Donald M. Carter.

Inventor:

Maurice Anderson

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