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A Directory of Cartographic Inventors: Clever People who were Awarded a US Patent for a Map-related Device or Method

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A Directory of Cartographic Inventors

**Clever People Awarded a US Patent
for a Map-Related Device or Method**

**Mark Monmonier
Adrienne Lee Atterberry
Kayla Fermin
Gabrielle E. Marzolf
Madeleine Hamlin**

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Cartographic Inventors

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With additional data from
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Cover art from Walter G. Gingery, “Map Projection,” US Patent 2,352,380, filed 27 November 1942, and issued 27 June 1944.

*Dedicated to Waldo R. Tobler, whose innovative scholarship on map
projections and spatial transformations set a high standard for creativity
and cleverness.*

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Introduction

As its title and subtitle imply, this book is a collection of short biographies of people awarded United States patents for inventions intended to improve map use or map making. I say “intended” because, as with most patented innovations, their clever ideas seldom made it to store shelves, magazine ads, or mail order catalogs—a fate shared with most improvements proposed in cartography’s scientific-technical journals.

This collection is a spinoff of a project focused on inventions rather than inventors. The project’s principal product was my book *Patents and Cartographic Inventions: A New Perspective for Map History*, published in 2017 by Palgrave Macmillan. As its chapter titles confirm, the emphasis was on genres of innovation like route-following devices and map folding, rather than on their inventors, whose diverse life stories could too readily distract from a narrative focused on technological trends, clever ideas, and wider impacts. Indeed, one of the inventors profiled here, John Byron Plato, might well become the subject of an entirely separate book, and several other inventors with biographical sketches in this collection no doubt warrant careful study. Moreover, Irving Fisher (a prominent economist who developed an interest in map projection late in life) and R. Buckminster Fuller (a well-known designer accorded minor mention in the “other” section) are already the subjects of book-length biographies resulting from contributions far broader than their map-related patents.

Patents was a fun book to write, particularly after I chose to sidestep the complications of digital technology, patent trolls, and preemptive patenting by multinational corporations leery of litigious competitors—that’s another book for another author. I particularly appreciated the opportunity to publish in the series Palgrave Studies in the History of Science and Technology, and to emphatically encourage other map historians to look beyond our traditional preoccupation with maps as artifacts and

mapping as a political process. My association with the History of Cartography Project, for which I served as editor of volume 6: *Cartography in the Twentieth Century*, convinced me that “A New Perspective” in the subtitle is not an exaggeration. Indeed, patents constitute only five of the volume’s 5,115 references (a mere 0.1 percent) and account for only three of the forty-one paragraphs in the entry “Intellectual Property,” which includes eighty-four instances of the word *copyright* but only eighteen of *patent*.

There’s an explanation for this apparent disconnect. Early in my research, I recognized that the patents system and traditional scientific-technical journals as they relate to the mapping sciences and cartographic scholarship are *parallel literatures* that provide distinctly different cadres of innovators with systematic vetting and dissemination of their writings as well as an opportunity to claim ownership in print of an arguably original product or proposition. Although a lawyer might think of the patent as merely a property right, patents are also publications, referred to by author and title, formatted as paginated documents with unique identifying numbers and official issue dates, and summarized in the *Official Gazette of the United States Patent Office*, which is as much a periodical as *Science*, *Nature*, or *Cartographic Perspectives*. Though the bureaucratic apparatus for vetting a patent is different from a scientific journal’s reliance on editors and peer reviewers, a published patent must survive the scrutiny of a mildly obsessive patent examiner eager to deny claims that are poorly worded, preempted by an earlier patent, or simply not patentable. Non-obviousness is a key requirement, and quality assurance is helped along by patent attorneys, whose roles include ghost writer and relentless advocate.

Inspired by the concept of parallel universes, the notion of parallel literatures reflects the mutual unawareness of inventors who seek patents and academics who write journal articles. In the cartographic realm, they rarely cite each other’s work largely because of the inventor’s greater emphasis on physical objects

that aid map use and could be manufactured in contrast to the cartographic scholar's concern with representations that are typically graphic or mathematical. There's some overlap, of course, most notably in the realm of map projections, which are occasionally yet rarely patented. Although some developers of map projections apparently hoped to benefit from licensing fees, most (I believe) saw the patent as another way to get their name in print in association with a clever idea.

This collection of biographical sketches has a backstory that seems worth sharing. Every four years faculty members at Syracuse University (SU), where I teach, can apply for a one-semester research leave, which significantly expedites research and writing. Applicants are strongly advised to seek "external support" from a funding agency like the National Science Foundation (NSF) or the National Endowment for the Humanities. But because the NSF is not particularly interested in buying people's time, at least not in "soft science" fields like geography, it's important to pitch a project that includes support for graduate students, which aligns with the NSF's mission of training future investigators. Although writing a book is a largely solitary effort, I thought I might have a fundable project if I asked for a twenty-hour-per-week graduate assistant to work on a biographical directory of *inventors* and also provide information relevant to the book I was writing about *inventions*. And because the NSF is concerned that federal funds have a wider impact than a single scholar's endeavor, successful proposals typically include a strategy for sharing research results in a form more helpful than an uncoordinated data dump. To enhance my case, I proposed that, in addition to eventually turning over my files (electronic and otherwise) to the university archives, I would prepare and circulate to libraries "a directory of cartographic inventors" useful to researchers who might want to pick up one of the project's threads. While this promise might not have been decisive, it probably helped because I got both the grant and a one-semester research leave.

Though the details of what followed are probably best left unsaid, I worked not only with one graduate assistant for a one-year period, as planned, but sporadically with multiple assistants—three were graduate students and two were undergraduates—over a two-year period. During the first of these two years I finished my book manuscript, and wrote one biographical sketch to serve as a model. During the second year, I supervised multiple assistants who were assigned specific inventors, in small batches, from a master list of fifty-five inventors who might be worth profiling. The NSF accepted my annual report for Year One, in which I promised that the directory would contain “vignettes of at least twenty-five inventors.” Although this book’s vignettes for thirty-one inventors and single-paragraph summaries for twenty-four more meet that goal, this part of the project was less fulfilling than originally hoped.

What I’ve learned is that online research into the lives of persons no longer living is complicated by the faint biographical footprints of people who left no diaries, no business records, and no correspondence files. (By contrast, my book on their inventions and involvement with the patents system benefited from US Patent Office case files in the National Archives.) Although my assistants and I might have enriched this ancillary project with genealogical discoveries touted to tell someone who he or she “is,” I rarely saw much relevance to following a subject back further than his or her own parents. Moreover, traditional online tools, epitomized by Ancestry Library Edition (our library’s largely complete version of Ancestry.com), can be minefields of inaccuracies or inconsistencies made difficult by subjects with surnames like Jones or Smith, neighbors or relatives who misinformed census takers or directory canvassers about a person’s age, education, or employment, OCR (optical character recognition) software unable to concede uncertainty, and human transcribers challenged by a census taker’s idiosyncratic approach to cursive writing. As much as possible,

we tried to triangulate, wary that tombstones and bronze burial plaques occasionally misreport a person's birth year. But because published patents always included the inventor's place of residence, it was almost always possible to sort out which of several people with the same name was the real inventor.

The biographical sketches in this directory vary in length and depth. Subjects like Irving Fisher, whose multiple biographers include his son, Irving Norton Fisher, left impressive biographical footprints. Others, like August Merk-Wirz, seem to have largely slipped through the historical sieve of censuses, directories, and daily newspapers as orchestrated by Ancestry and various databases and search engines. Data collection was very much an arms-length process, relying upon the electronic capture and conversion of official or otherwise promising records or lists using Google Patents, Ancestry Library Edition, periodicals databases, and run-of-the-mill search engines as well as promising websites at, for instance, a university where a person might have studied. My promising but marginally productive efforts to learn more about John Byron Plato suggest that a mildly obsessive effort to drill down—the kind of detective work that many academics (me included) enjoy—might turn up a much fuller picture than the short vignettes herein might imply.

Each biographical sketch follows an image from the subject's most significant map-related patent (usually his or her only map-related patent) and perhaps an additional image at the end, if needed, to start the next entry on a right-hand page. Each biographical sketch ends with a short list of official sources, city directories, and other references. City directories are listed only by city and year; although multiple firms have published directories for many cities, rarely did two firms publish them for the same year. When the US Census is listed as a source, the reference is to the manuscript census schedules as scanned and provided by Ancestry Library Edition. To follow up on references to the Census and other official sources at the

end of each vignette, you will need access to Ancestry, or something similar, to exploit the deliberately concise pointers to the federal census or city directories. If you think a follow-up is worthwhile, you'll manage.

I gratefully acknowledge the financial support of the National Science Foundation and its Geography and Spatial Sciences (GSS) and Science, Technology, and Society (STS) programs, and the moral support of Christina Leigh Dietz of the Maxwell School; Caroline McMullen of SU's Office of Sponsored Programs; and Margie Johnson in the Geography Department. Maddie Hamlin and Eileen Allen copyedited the vignettes, and Eileen produced the index and proofread the entire manuscript. Joe Stoll in Geography and Tammy Hnat-Comstock in the Maxwell School's information technology unit provided valuable advice on software and graphics.

Mark Monmonier
DeWitt, New York

G. D. Abbot,

Globe.

No. 80,391.

Patented Aug. 11, 1868.

Witnesses *Edmund Doughty* *Edmund D. Abbot*
Geo. W. Johnson *Inventor*

Abbot, Gorham Dummer (1807–1874)

Gorham Dummer Abbot was born in Brunswick, Maine, on 3 September 1807 to second cousins Jacob (1776–1847) and Betsey Abbot (1773–1846). He grew up in the nearby town of Hallowell, Maine, where his father worked as a merchant and land trustee, overseeing the land of two families who had settled in Maine (Little, Burrage, and Stubbs 1909). He had four brothers (Williams 2000). Abbot attended private schools throughout his early life before graduating from Bowdoin College, in his hometown, with undergraduate and graduate degrees in 1826 and 1829, respectively (Monroe 1907). In 1829, he took a teaching job in Castine, Maine, where he simultaneously enrolled at Andover Theological Seminary. He later became associate principal of Amherst Academy and finished his theology studies while serving in this capacity. He graduated from Andover in 1831 and shortly thereafter, took a vacation in the American South with the goal of restoring his failing health, the nature of which is unclear. This trip heightened his concern for public education in the United States (“Abbot, Gorham Dummer” 1909).

When he returned to New England, Abbot assisted his brother Jacob Abbot (1803–1879), who ran the Mount Vernon School for Young Ladies in Boston. At the school, he met teacher Rebecca Luscomb Leach (1807–1876), whom he married on 11 February 1834 in Natick, Massachusetts (Abbot Memorial Committee 1902). In 1837 he became the pastor of a Presbyterian church in New Rochelle, New York, where he stayed until 1841. While serving as pastor, Abbot launched a project to provide fifty thousand public schools throughout the country with textbooks, libraries, and teaching journals (“Abbot, Gorham Dummer” 1909). He also conducted research on effective pedagogies and teaching materials for use in schools in the United States and Europe. In 1836, these efforts culminated in the establishment of the Society for the Diffusion of Useful

Knowledge. He served as director of the society from 1836 to 1843 and assisted with the publication of textbooks and educational journals used by school libraries (Monroe 1907).

Abbot's interest in education persisted throughout his life. In 1843, he moved to New York City to help his brothers Jacob and Charles E. Abbot (1811–1880) found the New Seminary for Young Ladies, where he served as principal from 1843 to 1871. This school would take on various names, including the Spingler Institute and eventually the Abbot Collegiate Institute. Initially, this school offered primary and secondary education to girls of affluent and influential New York families (Williams 2000; “Abbot, Gorham Dummer” 1909). His students received an education in mental and moral philosophy, music, chemistry, modern languages, physiology, and literature. The institute emphasized Christian religious training and boasted a staff of experienced teachers as well as a gallery of numerous valuable paintings (Abbot Memorial Committee 1902). Between 1845 and 1861, the school educated more than 1,300 women from twenty-eight states, the District of Columbia, Canada, the West Indies, and Switzerland. Abbot intended to develop his institute into a college for young women that offered training beyond the secondary level, but disruption at the onset of the Civil War thwarted his plan (“Abbot, Gorham Dummer” 1909).

In addition to his work as an educator, Abbot also expressed an interest in useful inventions. In 1868, he received a patent for an “Inflatable” globe that was a far cry from a one-piece geographical balloon (Abbot 1868; Monmonier 2017, 192). This patent required printing the globe “in lune-like sections . . . on any material combining flexibility with strength and durability” and then sewing or cementing the pieces together. Although the material used to construct the globe could include parchment or closely woven fabric, he recommended using cotton, linen, or silk. Abbot's inspiration for this project may have been an inflatable globe that he saw in the Great Exhibition at the Crystal Palace in Hyde Park, London, in 1851. He visited

Europe repeatedly to familiarize himself with better methods of teaching, and in 1851 he served as a juror at the World's Fair in London (Abbot Memorial Committee 1902). There is no indication that his globe was ever manufactured in significant numbers.

Due to the failing health of both himself and his wife, Abbot stepped down as principal in 1871. The Abbot Collegiate Institute campus was taken over by the Reed School, a boarding and day school for girls founded by Mrs. Caroline G. Reed (Mrs. Sylvanus Reed, 1885–1886). Abbot retired with his wife to the village of South Natick, a few miles outside Boston, where they lived in a house belonging to his wife's family. He had received an honorary doctorate (LLD) prior to 1869 from an unspecified institution, and while at Natick he continued his scholarly endeavors, publishing several books and pamphlets (Abbot Memorial Committee 1902). He focused his scholarly work on history and interpretation of the Bible; however, he also wrote on commerce and politics in the United States, Mexico, and Central America ("Abbot, Gorham Dummer" 1909). His publications include *Memoir of Nathan W. Dickerman* (1831), *Death of the Righteous* (1845), and *Mexico and the United States: Their Mutual Relations and Common Interests* (1869). In addition, the founders of two prominent women's colleges—Matthew Vassar and Henry Fowle Durant—sought Abbot's advice, particularly his ideas about women's education and appropriate curricula. For a brief period, he also ministered to the Eliot Congregational Church in South Natick (Abbot Memorial Committee 1902).

Abbot died on Monday, 3 August 1874, following a severe stroke (Abbot Memorial Committee 1902). His funeral took place two days later in a village church where he had ministered, and his brother John delivered a touching eulogy. The following day, his body was laid to rest in Green-Wood Cemetery next to his only daughter, Elizabeth Rebecca Abbot (1840–1850), who had died in childhood (Abbot Memorial Committee 1902).

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MEETING AT MRS. HOPKINS'S HOME TO ADVANCE THE PROJECT—THE INTERESTING CAREER OF GORHAM D. ABBOT.

A number of the alumnae of a school that was given up nearly thirty-five years ago—the Spingler, afterward known as the Spingler and Abbot Institute—met yesterday afternoon at the home of Mrs. Moses Hopkins, No. 1 East Fifty-sixth-st., to boom the effort that is being made to establish a scholarship at Vassar in memory of the work done for the higher education of women by Gorham D. and Rebecca S. Abbot, who were at the head of the old institute for a series of years. The Hopkins house was decorated with flowers, and many were the remembrances of the institute exchanged by the alumnae in social conversation before the business of the day was begun.

Mrs. Melville E. Mead, of Norwalk, Conn., occupied the chair at the request of Mrs. Hopkins, the president, who had to give most of her attention to her duties as hostess. Letters of regret were read from several of the alumnae, Mrs. Fenn, of

G. W. Bacon.
Blocks for Printing Maps.
N^o 57056. Patented Aug. 7, 1866

Fig. 1

Fig. 2

Witnesses:

Henry R. Clark
H. R. Young

Inventor:

George Washington Bacon
By David A. Burr
att'y

Bacon, George Washington (1830/31–1922)

George Washington Bacon was born in Lockport, New York, in either 1830 or 1831—the exact date is uncertain—to James Bacon and Sarah Anne of London. His father worked as a bookseller. He had a younger brother, Benjamin. Little is known about Bacon’s early life (David Smith 2004).

Bacon started a London-based business in 1860 with Francis Apperson. The firm published biographies of US presidents and political guides to the United States, and he acted as sole British agent for the American map publisher J. H. Colton (David Smith 2004). Bacon’s firm became the market leader after the Topographical Department of the War Office closed its map store in 1866 and the government appointed him to serve as an agent for Ordnance Survey publications (David Smith 1993). As a result of his position within London’s map trade, Bacon was elected a fellow of the Royal Geographical Society in 1866.

Bacon’s firm went bankrupt in 1867, and its stock of publications and a large number of plates were auctioned off (David Smith 1993). In 1868, Bacon opened the Strand Map Establishment at 337 Strand in London. In addition to publishing maps, he also invented exercise equipment, such as his “Gymnastics Apparatus,” and published a series of books on health-related topics. His new business was in the same location as mapmaker William Tweedie and the National Temperance League. Through a connection with the Temperance League, he produced “Bacon’s New Map of London,” which served as the foundation for what became the league’s map of the “Modern Plague of London.” Bacon’s firm focused on publishing British material and sold maps and atlases along with sewing machines and other household items (David Smith 2004).

On 4 December 1869, George Bacon married Ruth Stanley (b. 1846 or 1847) at the Metropolitan Tabernacle in Newington

in London (David Smith 2004). They had two daughters and one son.

As he advanced in his career, Bacon experienced more professional success. In 1893, his firm's position at the top of the market was further solidified when it acquired the "copyrights, good will, &tc." portion of a map business founded by James Wyld (David Smith 1993; David Smith 2004). This purchase helped solidify his firm's specialization in cartography.

Bacon was a prolific map publisher. His oeuvre included thematic town maps, maps that documented military action from around the world, and comic cartographic interpretations of military and political events. He also published cycling, excursion, and touring maps. In addition to publishing travel maps, he created school worksheets and materials that covered several subjects, including geography. An example of a map intended as a teaching tool is "The Atlantic Telegraph," which he published in 1865. A chart with maps, text, and diagrams that cover the history of telegraphy (Trey Smith 2016), it not only describes how telegraphy began with fire and trumpets and evolved to include Morse code but also has pictures of cables throughout to highlight the role of copper wires, magnets, and insulators in electronic telegraphy. The chart shows the route of the trans-Atlantic telegraph cable, explains how it came into existence, and describes the synergistic relationship between scientific ideas and engineering solutions.

Bacon's reputation was undermined by his propensity to cut costs wherever possible. He accomplished this in part by hiring recent graduates from the London Board School who produced the best map drawings as trainees in his firm (David Smith 1993). He also capitalized on Victorians' obsession with health and fitness by selling space on the covers of his touring maps to advertisers of health food and drink, sports clothing and equipment, and medicine. Another tactic he used to cut costs was printing maps from old plates and presenting them as up-to-date (David Smith 2004).

Bacon did a great service by keeping maps affordable and available to the general public. For example, he noticed that an increase in tourism in London toward the end of the nineteenth century had created an increased demand for pocket atlases (David Smith 1993). He responded to this demand with the *Pocket Atlas of London* in 1894, the *Portable Atlas of London and Suburbs* in 1899, and a variety of individual guide maps, for example, “Bacon’s Pocket Atlas of London and Suburbs,” a colored, thirty-two-sheet map that covers the area from Alexandria Palace to Crystal Palace (Murray 1873). The scale of the map is four inches to the mile and it includes an index. The competitiveness of the map business in the early twentieth century pushed Bacon to try out innovative forms of presentation as well as political maps of the United States and Canada.

In 1912, George Bacon filed a patent application for the “Map, Chart, and Geographical Diagram,” a modified cylindrical whole-world map projection (Monmonier 2017, 162). Less than a year later, he received a patent for a map with meridians that were evenly spaced straight lines between 70°S and 70°N (Bacon 1913). In polar regions, by contrast, the meridians curve gently inward to a point at the North Pole, making his map an alternative to the Mercator projection, on which scale increases enormously toward the poles.

Bacon’s acquaintance with the American patents system began a half century earlier, when he patented his “Blocks for Printing Maps” (Bacon 1866), which provided a simpler and less expensive way of printing maps, and his “Gymnastics Apparatus” (Bacon 1867), a portable device that enabled its users to perform a variety of gymnastics activities within a limited space. In 1868, he received a further patent for an updated design of the apparatus. Although Bacon stepped down that same year as managing director of the Royal Geographical Society, he retained the position of director until his death. He died on 21 January 1922 at his home in Woodlawn, Beacon Hill,

Hindhead, Surrey (David Smith 2004). His wife, Ruth, predeceased him, but one daughter, Alice Stanley Bacon, survived to become the sole executor of his estate.

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LONDON: D. NO 11, 270, Strand.

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(No Model.)

H. B. DE BEAUMONT.
MAP.

No. 400,642.

Patented Apr. 2, 1889.

Fig. 1.

Fig. 2.

Witnesses.

Chas. H. Smith
J. H. Hail

Inventor.

Henry Bouthillier de Beaumont,

per Lemuel W. Torrell

de Beaumont, Henry Bouthillier (1819–1898)

Henry Bouthillier de Beaumont (1819–1898) was born 2 June 1819, in Geneva, Switzerland, to Jacob Bouthillier de Beaumont (1783–1870) and Caroline Lullin de Chateauvieux (1787–1870). He had two sisters, Suzanne (1805–1881) and Anna (1815–1906), and a brother, Charles (1811–1887). He studied at the Geneva gymnasium for a bachelor of physical science. At age nineteen, he went to Southern Russia after acquiring a management position at a farm owned by a relative. In 1857, he returned to Geneva to continue agricultural work and invented a plow. He later received Belgian, French, and English patents for “Improvements in Ploughs.”

In March 1858, de Beaumont founded the Geographic Society of Geneva. Intent on making Geneva a center of geography, he devoted his time and money to the organization and served as its honorary president and founder for twenty-seven years until 1885. In 1860, he published the first *Memoirs of the Geographic Society of Geneva*, on agriculture in Kamchatka. In 1866, the periodical was renamed *Le Globe*.

In 1867, while staying with family near the Gulf of Vizcaya, he searched for a neutral meridian for universal time to replace previous divisions of time. Finally, in August 1882, de Beaumont presented a map projection based on a meridian roughly 10° east of Greenwich, to the Association of Swiss Geography, in Geneva. In 1888, he received a US patent for an invention titled “Map,” specifically a map projection with meridians and parallels spaced to lessen distortions of continents and islands, resisting the conceptualization of universal time based on the Greenwich meridian (Monmonier 2017, 160).

De Beaumont participated in several conventions throughout his career, including the International Geographical Congress, convened in 1875 in Paris and in 1881 in Venice. He represented the Association of Swiss Geographical Societies as

a delegate to the International Congress on Scientific Geography, held in 1889 in Paris, and he presented an exhibition at the Paris World Fair (Exposition Universelle) that same year. In 1896, at the Swiss National Exhibition, he received a silver medal for an elementary atlas and chaired the national committee of the Association of Swiss Geographical Societies. In 1898 he was a delegate to the International Geographical Congress, held in Bern, Switzerland.

De Beaumont married Jeanne de Budé on 19 May 1849 in Geneva; they had seven children. He died on 4 February 1898.

References

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Genève, le 5 février 1898.

Madame Henry Bouthillier de Beaumont,

à Genève.

Madame,

C'est avec une profonde et douloureuse émotion que nous apprenons par la lettre que Monsieur Aloïs de Beaumont a bien voulu nous écrire de votre part la perte immense que vous venez de faire en la personne de Monsieur Henry de Beaumont.

Le deuil qui vous frappe si cruellement atteint aussi au cœur la Société de géographie. Permettez-nous, Madame, de vous exprimer en son nom, comme en celui de tous ses membres individuellement notre respectueuse sympathie.

Par son zèle infatigable et son dévouement sans bornes à la science géographique, Monsieur Henry de Beaumont a su

March 24, 1925.

1,531,065

S. E. BOYER

BOOK FOLD MAP

Filed Dec. 27, 1922

2 Sheets-Sheet 1

Fig. 1.

Fig. 2.

Fig. 3.

Inventor

S. E. Boyer

O'Connell & O'Connell

Attorneys

Boyer, Stacy E. (1901–1992)

Stacy E. Boyer was born on 8 December 1901, in Wheatland, Wyoming (between Casper and Cheyenne), to James Benton (1863–1950) and Ida M. (Blankenship) Boyer (1867–1951). The 1910 Census reported him living with his parents, a sister, and three brothers in Gering, Nebraska, where his father managed a lumber yard; Stacy was their second youngest child. At some point, Stacy moved with his family to Casper, Wyoming, where his parents had married in 1889 and where he finished high school. By 1920, his parents were separated or divorced, and his mother was living in Boulder, Colorado, where the 1920 Census found Stacy, now eighteen, living with his mother and younger brother and attending the University of Colorado. The 1920 yearbook, *The Coloradan*, listed him as a freshman and a member of the Class of 1923. For the 1940 Census, he reported having completed three years of college, which is consistent with his returning to Casper around 1922, when the Casper city directory listed him as a “blueprinter” at Wheeler and Worthington, a consulting engineering firm specializing in mapmaking, blueprinting, and photostatic copies. His father, James, appeared in the 1924 edition as president of the Western Blue Print Corporation, where Stacy then worked as secretary-treasurer.

Stacy’s employment was no doubt relevant to his invention: a folding method that combined a pair of interior slits with two accordion folds that collectively divided a map into forty-eight horizontally elongated panels, organized into eight rows and six columns (Monmonier 2017, 115–21). (Fig. 1 in Boyer’s first drawing sheet shows slits J-K and L-M running vertically through rows two through seven of the grid.) The backs of four of the panels were glued to a stiff cover so that a map printed on one side of a single sheet of paper could be bound into a book, each page of which presented two panels joined along a horizontal fold. Because the closed book was only slightly larger than two of the forty-eight panels, the folded map was substantially more compact

than the fully opened sheet. Although each pair of facing pages presented only four panels, the user could navigate to adjoining parts of the map by turning the page or by folding the lower part of the page upward or the upper part of the page downward. In this way, a user could follow a stream or road across the map.

On 27 December 1922, Boyer filed a patent application for an invention titled “Book Fold Map.” A patent examiner skeptical of the invention’s operation not only requested a physical model but also rejected several of the application’s sixteen claims, which were reduced to seven by 24 March 1925, when the patent was granted (Monmonier 2017, 118–19). A search of Google Patents suggests this was Boyer’s only patent.

Although Boyer apparently never developed his invention commercially or licensed his patent, several months before filing, he sought a copyright—another kind of official recognition—for a map that might have triggered his interest in map folding. According to the *Catalog of Copyright Entries* (Library of Congress 1922, 1647), on 1 September 1922, he had published a map titled “Salt Creek and Teapot Oil Fields, Natrona County, Wyoming.” With a one-inch-to-one-mile scale, it measured 27½ inches tall by 16 inches wide, the approximate dimensions of a 15-minute US Geological Survey (USGS) quadrangle map, also published at 1:62,500. A USGS base map probably provided the geometric framework for Boyer’s compilation, which might have been inspired by his interest in oil drilling as well as the revelation in 1922 of a bribery scandal involving Department of the Interior secretary Albert Fall, who had secretly transferred exclusive drilling rights in the Teapot Dome oilfield, near Casper, to the Mammoth Oil Company (Stratton 1998).

Neither map nor patent had a role in the remainder of Boyer’s life. In 1925 he married Mildred McGinley and a few years later, he started his own printing business, S. E. Boyer and Company. In the 1930s, he merged his business with Prairie Publishing Company, which he joined as vice president and secretary. The 1939 Casper city directory listed him as company president and

treasurer and reported a new spouse, Cornelia (maiden name unknown). (The 1940 Census found Mildred living with her parents and daughter and working as county treasurer.) Stacy enlisted in the Army on 9 June 1942, served in the Army Air Corps (predecessor of the US Air Force) until his release on 17 February 1946, and rose to lieutenant colonel in the reserves. In 1946, he married his third wife, Jean Fields. During the Eisenhower administration, he was state director of the Federal Housing Administration (FHA) for Wyoming. Around 1960, he moved to Cleveland, Ohio, where he was employed by the FHA until 1973, when he returned to Casper to work as a housing consultant and property manager. Boyer died on 12 April 1992.

City directories: Casper, WY (1922, 1924, 1925, 1928, 1929, 1934, 1937, 1939, 1941, 1943, 1945, 1960).

Official sources: US Census (1910, 1920, 1930, 1940); Social Security Death Index; US Department of Veterans Affairs BIRLS Death File.

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M. BREMSY.
MECHANICALLY OPERATED ROAD MAP.
APPLICATION FILED SEPT. 8, 1909.

1,064,694. Patented June 10, 1913.

Bremsy, Max (1854–1923)

Max Bremsy was born in 1854 in Ohio, exact date and place unknown. Bremsy's parents, Eugene and Rosa, were German Jewish immigrants who carried the surname Boremsky. They had six children. Around 1867, the family moved to New York City. Max legally changed his surname to Bremsy in 1906. His educational background remains elusive.

In 1880, Bremsy's family lived with his younger sister Sarah and her husband Tobias in New York, where Bremsy worked as a tobacco broker. In 1890, he was issued a patent for a cigar design; the patent's term was three-and-a-half years. The March 1890 issue of *Tobacco: A Weekly Illustrated Journal* documented his achievement. In 1892, Bremsy married Lillian (maiden name unknown), who was the daughter of German immigrants. The couple settled in New Rochelle, New York, and had three daughters: Gertrude "Birdie" (b. 1893), Maude (b. 1895), and Eugenie (b. 1900). A fourth child might have died young or been stillborn. By 1910, Bremsy had been promoted to manager in the tobacco factory where he worked and was doing sufficiently well to own a house, albeit with a mortgage.

In 1913, Bremsy was issued patents for a "Clothes-Line Clamp" design and a "Mechanically Operated Road Map." The clamp improved upon current designs by having a cylindrical shape (rather than being flat) and a handle. His road map consisted of a small map that could display up to eight miles of road and landmarks and was advanced automatically by a mechanism connected to the flexible shaft of an automobile's speedometer or odometer (Monmonier 2017, 88–89). Bremsy planned to have his map encased in glass and illuminated artificially for use at night. The map functioned like a modern-day GPS, showing the driver's location and what was coming up. Unlike his earlier tobacco patent, this invention was not related to his employment. A 1914 list of licensed vehicles indicates

that Bremsy owned an automobile, and therefore may have been in need of a long, thin road map on rollers.

The *New Rochelle Pioneer* announced the marriage of Maude Bremsy to Caryl Lawrence Well in 1917, and the marriage of Gertrude Bremsy to Well's brother, Sergeant Robert S. Well, in 1918. The 1918 announcement also mentioned Eugenie's engagement to Matthew Kaplan.

Bremsy died on 23 March 1923, "after a long illness," according to a death notice in the *New York Times*. His obituary in the *Mt. Vernon Daily Argus* called him an "expert accountant" and mentioned his daughters but not his wife, who presumably had predeceased him. Four months later the newspaper reported that his estate had been appraised at \$12,287.07—about \$173,000 in 2016 dollars (www.usinflationcalculator.com).

City directories: New Rochelle, NY (1909, 1910, 1914, 1915, 1919).

Official sources: US Census (1880, 1910); *Official Gazette of the United States Patent Office* (vol. 50, 1890); Laws of the State of New York (130th Session of the Legislature, 1906–1907).

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GM

B. J. S. CAHILL.
GEOGRAPHICAL GLOBE.
APPLICATION FILED FEB. 11, 1913.

1,081,207.

Patented Dec. 9, 1913.

Fig. 1.

Fig. 3.

Fig. 2.

WITNESSES

J. C. Shiedner
H. B. Keating

INVENTOR

B. J. S. Cahill

BY

Francis M. Wright,

ATTORNEY

Cahill, Bernard Joseph Stanislaus (1866–1944)

Bernard Joseph Stanislaus Cahill was born in London, England, on 30 January 1866 to James Alban Cahill (b.~1824) and Eliza Smith Cahill (née Smith, b.~1827). His father was a writer and clerk for the English war office. He had an older brother, Martin J., and a younger sister, Mary A.

From 1879 to 1887, Cahill studied at the Ratcliffe College (University of London) and then at the South Kensington School of Art before immigrating to North America. Cahill moved first to British Columbia, Canada, in 1887, then to San Francisco, California, in 1888. He married twice: to Lida Boardman Hall in 1897 and in 1907, to Laura Georgiana McCune (1882–1958), with whom he had one son, Bernard James Alban Cahill (b.~1911).

Cahill is known primarily for his work as an architect. In 1891, shortly after arriving in the United States, he opened his own practice in Oakland, California. A specialist in mausoleum design and mortuary architecture, he also contributed designs for the UC Berkeley campus and the San Francisco Civic Center as well as commercial structures like the Multnomah Hotel in Portland, Oregon. Known as an early leader in the city planning movement, he served as editor of *Art and Architecture* and *American Builders Review* and published papers of his own on planning and urban design. The 1913 edition of *Who's Who on the Pacific Coast* credits him with introducing the phrase “Civic Center” (Harper 1913).

In addition to his career as an architect, Cahill invented what eventually became known as the “Butterfly Map,” which he patented in 1913 (Cahill 1913b; Monmonier 2017, 45–48, 168). At the time of filing, he was living in San Francisco. His map projection, meant to rival the Mercator projection, divides the Earth into lobes that are joined at their tips and reduces exaggeration or distortion of land masses. In 1909, Cahill described his map projection in the *Scottish Geographical Magazine*, in which he argued, “It would hardly be necessary to say much of the gross exaggeration of Mercator’s projection to a body of

professional geographers, still less would it be necessary if the Mercator projection were used only for those purposes for which it was intended. But it has come into such general unchallenged use for all purposes, that its utter unsuitableness for most of them cannot be pointed out with too much emphasis” (Cahill 1909, 450).

Cahill was a member of the American Institute of Architects as well as the San Francisco Philatelic Society. He traveled extensively in Europe, Canada, the Pacific Coast, Panama, and the West Indies. His pastimes included rowing, swimming, and music. He died on 4 October 1944 in Alameda, California.

City directories: *San Francisco Blue Book* (1904).

Official sources: California Death Index; England Census (1861, 1871, 1881); US Census (1910, 1920, 1930, 1940).

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Cahill, Bernard J. S. 1909. “An Account of a New Land Map of the World.” *Scottish Geographical Magazine* 25: 449–69.

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———. 1913b. Geographical Globe. US Patent 1,081,207, filed 11 February 1913, and issued 9 December 1913.

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B. J. S. CAHILL.

MAP OF THE WORLD.

APPLICATION FILED MAR. 5, 1913.

1,054,276.

Patented Feb. 25, 1913.

WITNESSES

F. C. Schneider
T. B. Keating

INVENTOR

B. J. S. Cahill

BY

Wm. Wright

ATTORNEY

No. 770,350.

PATENTED SEPT. 20, 1904.

L. J. CARTER.
ROAD MAP.

APPLICATION FILED NOV. 23, 1903.

NO MODEL.

Fig. 1.

Fig. 2.

Witnesses:

John Enders,
John Enders,

Inventor:

Lincoln J. Carter,
By Thomas F. Sheridan,
Att'y.

Carter, Lincoln J. (1865–1926)

Lincoln Jared Carter was born on 15 April 1865, in Rochester, New York, to Jared and Caroline Carter. He was named after President Abraham Lincoln, who had been assassinated the day before in a Washington, DC, theater. (Ironically, Carter would have a successful career in the theater industry.) Information on Carter's parents is scarce, ambiguous, and not well represented in public records. His father was born in Illinois, and his mother was born in either Maine or Massachusetts. Carter's education is equally obscure. Although born in Rochester, he spent most of his life in Chicago, where he married Frances F. Cumber in 1899. They had a son, Lincoln J. Carter Jr., born 25 April 1900.

Carter was a playwright. While his work was seldom, if ever, performed on Broadway, he was quite popular with touring companies. His best plays experienced a revival shortly before World War I. These include *The Fast Mail* (1890), *Tornado* (1894), *The Heart of Chicago* (1898), and *Chattanooga* (1899). In 1900, he also worked as a theatrical manager. The Chicago city directory lists him as the “proprietor [of the] Court theatre.” Carter patented inventions titled “Theatrical Appliance” in 1900 and “Stage Appliance for Theatres” in 1901. He worked in the technical aspects of theater and was known for realistically staged train wrecks and shipwrecks.

While most of Carter's work and patents are theater-centric, in 1904 he applied to patent an invention named “Road Map,” designed primarily for cyclists, motorists, and walkers (Monmonier 2017, 66–68). Improvements upon the standard maps of the time include constructing the map out of flexible material, using transverse lines to indicate distance, and including detailed large-scale landmarks, such as telegraph poles. Though cyclists and motorists were part of Carter's targeted market, the invention did not include a map holder for use while traveling.

Carter continued to patent inventions but never returned to cartography. In 1906, he was issued a patent for a “Fireproof Curtain” and in 1907 he patented “Theatrical Scenery.” *The Chicago Tribune* mentioned him in 1907 after two men picked his pockets while he was at the theater with his wife. The men stole \$1,004 and were later arrested. The money was recovered.

In fall 1908, Carter became a partner in the Georges Méliès Company, along with Gaston Méliès and James Lodge. The company distributed French films but never produced their own. Lodge and Carter sold controlling stock of the company in secret, which was not permitted under the Patents Company, a cartel based in New York. While Méliès would later receive a license to produce, Carter never dabbled in licenses or production again. He continued to work behind the scenes as the train effects man for *Dancing Around* (1914) and as a writer for the 1918 play *An American Ace*, both performed on Broadway. In 1920, he also worked as a theatrical promoter.

Carter and Frances divorced sometime after 1910. In 1916, he married Mary Louise Beane in Goshen, Indiana. He resided in Goshen until his death on 13 July 1926 from heart failure.

City directories: “Lakeside” Chicago (1900).

Official sources: US Census (1900, 1910, 1920); Indiana Select Marriage Index.

Other references

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Carter, Lincoln J. 1900. Theatrical Appliance. US Patent 622,807, filed 22 January 1900, and issued 27 November 1900.

- . 1901. Stage Appliance for Theatres. US Patent 688,387, filed 23 February 1900, and issued 10 December 1901.
- . 1903. Theatrical Scenery. US Patent 747,045, filed 13 January 1903, and issued 15 December 1903.
- . 1904. Road Map. US Patent 770,350, filed 23 November 1903, and issued 20 September 1904.
- . 1906. Fireproof Curtain. US Patent 825,532, filed 10 March 1905, and issued 14 August 1906.
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<http://www.imdb.com/name/nm0141777/>.
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<http://www.playbill.com/vault>.
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- "Pickpocket Gets \$1,004 from Lincoln J. Carter." 1907. *The Chicago Tribune*. 15 October, 1.

GM

L. S. CHADWICK.
RECORDING MEANS FOR SIGNALING DEVICES.
APPLICATION FILED APR. 18, 1910.

1,002,368.

Patented Sept. 5, 1911.

3 SHEETS—SHEET 1.

Witnesses:
William A. Purvis.
Chas. A. Burrows.

Inventor—
Lee S. Chadwick.
by his Attorneys—
Hosmer & Hosmer

Chadwick, Lee Sherman (1875–1958)

Lee Sherman Chadwick was born on 26 February 1875, in East Braintree, Vermont, to Eugene Herbert Chadwick (b. 1846) and Emmaline Sarah (Farnsworth) Chadwick (1846–1932). He had two sisters, one older and one younger. The Chadwicks were of Puritan descent, with ancestors among the earliest of New England settlers. Lee Sherman Chadwick attended Purdue University, in Indiana, graduating in 1899 with a bachelor of science in mechanical engineering. According to the Purdue yearbook, *The Debris*, he was a member of the engineering honor society Tau Beta Pi, wrote his thesis on “Design of a Machine Gun of Small Caliber,” and went by “Chad” during his college years.

Shortly after earning his degree, Chadwick moved to Boston, Massachusetts, where he married Ethelyne Pearl Rogers (1877–1963) on 9 July 1900. The couple went on to have three children: Eugenia Pearl, Herbert Lee, and Winfield Scott.

Chadwick had moved to Boston to take a position as superintendent of Boston Ball Bearing Company at the invitation of its president. At the time, the firm was struggling financially, and Chadwick was tasked with getting them back on track. According to a profile of Chadwick written in 1953, at the end of his career, he succeeded in stabilizing the company within just a year by streamlining the engineering process and inventing his own machine to speed production (Ellis 1953).

During his time at the Boston Ball Bearing Company, Chadwick began to experiment with designing and building cars, an activity that consumed much of the rest of his career. After the Boston Ball Bearing Company was sold, he went to work for Searchmont Motor Company in Philadelphia, again as a superintendent. For a time after that, he was self-employed, building only cars that met his own exacting standards. After building some four-cylinder models, he invented a six-cylinder engine that would allow the car to run more smoothly and more

quietly. He called the car “The Great Chadwick” and praised it as “The most powerful, the fastest, the strongest, the safest, the simplest, the quietest, the most easily controlled, the most dependable, the most advanced, the most luxurious car . . . available to the buying public” (Ellis 1953, 133).

After building 264 Chadwick cars, Chadwick left to begin designing his Chadwick Road Guide, which was eventually manufactured in the Cleveland, Ohio, foundry where he had taken a post as a chief engineer (Monmonier 2017, 85–88). The Road Guide alerted drivers when they approached an intersection or other marker by ringing a gong or electric buzzer, powered by compressed air in the manner of a player piano and activated by a recorded disc with perforated markings for each warning type. The device was calibrated to adjust for the vehicle’s speed. Chadwick’s two patents related to his Road Guide, titled “Recording Means for Signaling Devices” and “Signaling Device” were issued in 1911 and 1916, respectively. The device sold for \$55 or \$75, depending on the model (Ellis 1953, 89). At this time, Chadwick had patented 150 inventions, with 30 more pending (Ellis 1953, 132).

Chadwick was a member of the American Society of Civil Engineering and the National Geographic Society. His recreational activities reportedly included big game hunting and shooting, and he was a member of the Cleveland Gun Club. He was registered as a Republican and identified as a Protestant. Chadwick died on 16 September 1958, in Braintree, Vermont, at age eighty-three. Ethelyne died five years later on 7 September 1963 in Randolph, Vermont, at age eighty-six.

Official sources: US Census (1880, 1900, 1910, 1920, 1930, 1940); Social Security Death Index; Vermont Death Records; World War I Draft Registration Cards.

Other references

Chadwick, Lee S. 1911. Recording Means for Signaling Devices. US Patent 1,002,368, filed 18 April 1910, and issued 5 September 1911.

———. 1916. Signaling Device. US Patent 1,180,239, filed 17 March 1910, and issued 18 April 1916.

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Purdue University. 1899. *The Debris* (Yearbook): Class of 1899.

———. 1915. *Register of the Officers and Alumni*, 1875–1915, 35.

MRH

S. Cornell,
Mounting Globes,

Nº 4,098.

Patented July 5, 1845.

Fig. 1.

Fig. 2.

Fig. 4.

Fig. 3.

Fig. 5.

Witnesses.
H. M. Cornell
Wm. Runtle.

Inventor.
S. Cornell.

Cornell, Silas (1789–1864)

Silas Cornell was born in Scarsdale, New York, on 29 November 1789 to Benjamin Cornell (1761–1841) and Alice (Sutton) Cornell, who married in 1783 and had six or seven children. (Silas was apparently their middle child.) The family was Quaker, and Cornell attended the Friends School at Nine Partners in the Hudson Valley. It was there that he met Sarah Mott (1791–1872), whom he married on 12 December 1815. Silas and Sarah had five children.

Silas Cornell and his wife were educators, who taught school in Flushing on Long Island, New York, before moving upstate to the Rochester, New York, area in 1823. They purchased a fifty-six acre farm just northwest of Rochester in the township of Greece, where they cleared the land, built a house, and started a nursery business. The Cornells also built a private school on their property, which they operated from 1824 to 1828, instructing students in reading, writing, arithmetic, geography, English grammar, natural philosophy, astronomy, chemistry, botany, drawing, and painting.

In 1836, Cornell, who was also trained as a surveyor, opened a surveyor's office in Rochester, where he worked as a surveyor and civil engineer for most of the rest of his career, except for a five-year stint (1847–1852) when he and Sarah left to be superintendents of the Rhode Island Quaker School in Providence. He was known as a staunch abolitionist and was related to the Ithaca Cornells.

Among various inventions, Cornell is famous for building a sundial that was placed on the front lawn of the old First Presbyterian Church in Rochester around the year 1833 (McKinney 1991). Designed through observations of the North Star, the sundial was so precise that Rochester residents of the time used it to set their watches. In 1839, Cornell published a wall map of Rochester that was so complete and accurate that

the city immediately adopted it as the base map to which later maps and surveys of the city were tied.

Cornell's map-related patent, titled "Mounting Globes," was issued in 1845 (Cornell 1845b; Monmonier 2017, 181–84). The inspiration for this invention likely came from his experience teaching geography on Long Island and at his own schoolhouse. The wooden globe, which measured five inches in diameter, was packaged separately from its stand to avoid damage. Cornell (1845a) also created an instruction manual to accompany the globe that described—in straightforward language—the form of the earth, the inclination of the axis of the earth in its orbit, the change of seasons, and other basic geographical concepts. The manual contained testimonials from four professors, a college president, and the Episcopal bishop of Western New York, who all praised the globe's design and proclaimed it a useful pedagogical tool.

Similarly, an ad for Cornell's globe in an 1844 edition of the *District School Journal of the State of New York* called it "a beautiful and cheap instrument" that "should be in every school and every family" ("S. Cornell's District School Globe" 1844). In 1846, the *Common School Journal* contained what amounted to an ad for Cornell's globe that read, "This cheap little affair is really one of the happiest inventions that we have seen for many a day. . . . This Globe was invented by Silas Cornell, of the Society of Friends, and partakes in no small degree of the practical character, economy, and simplicity, which distinguish that society" (Mann 1846, 334). Like its inventor, Cornell's globe was well regarded.

Cornell died 7 May 1864. He and Sarah are both buried in Mt. Hope Cemetery, which he helped to design.

City directories: Rochester, NY (1861, 1863–1864).

Other references

Cornell, Silas. 1845a. *A Description of Silas Cornell's Improved Terrestrial Globe with the Manner of Using It: Intended for the Use of Schools, Academies, and Families*, 2nd ed. Rochester, NY.

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MRH

N. B. CREGIER.
SIGNALING SYSTEM.

APPLICATION FILED MAR. 16, 1904.

915,075.

Patented Mar. 16, 1909.

2 SHEETS—SHEET 1.

Cregier, Nathaniel Banks (1865–1935)

Nathaniel Banks Cregier, who went by the name Banks, was born on 9 December 1865, in Chicago, to Dewitt Clinton Cregier (1829–1898) and Mary Sophia Foggin Cregier (1831–1921), both born in New York City. He had two sisters and seven brothers, all born in Chicago. In 1889, Banks married Blanche Ellsworth, who had also been born and raised in Chicago. In January 1891, Banks and Blanche had their only child, a son they named Ellsworth Banks Cregier.

Dewitt Cregier, his father, served as the chief engineer of the Chicago Water Department for twenty-five years, from 1864 to 1889. He received two patents for fire hydrant designs, issued in 1875 and 1876. The Cregier fire hydrants were implemented in Chicago; some might still be in working condition. Dewitt Cregier was Chicago's thirty-first mayor, serving from 1889 to 1891. In 1894, President Cleveland appointed him superintendent of the Indian Warehouse, a facility in Chicago that furnished supplies to the US Indian Service.

Although Banks Cregier listed his occupation as electrical engineer, there is no evidence of formal academic training. His father, who most likely shared his experience with the patent system, received half ownership of two of Banks's patents. Chicago employed Banks Cregier as an electrical engineer from 1884 to 1891. Before he filed a patent for an electrical train signal in 1890, the technical journal *Mechanical Engineer* (1887) reported that he had “perfected an invention for a system of electric signaling between trainmen.” His design included a complete electrical circuit with metal clips on each train car, so that if a car had to be broken out, the circuit would remain closed. John Fitzpatrick, a telegraph operator, worked with Banks in developing the invention. Together, they convinced officials of the Northwestern Pacific Railroad to allow an experimental test on a real train. Fitzpatrick worked in the city's fire alarm office and probably contributed significantly to Banks

Cregier's understanding of the electrical and bureaucratic operation of municipal fire alarm systems.

Cregier incorporated the Cregier Signal Company of Chicago on 18 January 1908, with R. N. Stiles and J. A. Brown listed as business partners. The firm's mission was to manufacture and sell electrical devices. By 1910, the company had established a positive reputation across the country. On 15 October 1909, the *Los Angeles Herald*, in its coverage of a novel exhibit, identified Cregier Signal as one of the six biggest alarm makers in the world ("Will Test Alarms" 1909). This exhibit was a gathering of alarm makers eager to demonstrate their systems and win a city contract worth between \$75,000 and \$100,000 for the installation of a hundred fire alarm boxes, fifty police boxes, and central office equipment. After the exhibition, Los Angeles contracted with Cregier Signal to develop a fire alarm system for the University district, where the firm installed a system connecting three fire stations and a central headquarters to one hundred street fire alarm boxes that telegraphically transmitted signals to headquarters, where the system included a map. Cregier Signal put each box on a separate circuit, which allowed a clockwork mechanism that opened and closed circuits to transmit signals. In a 1910 article on the new university district system, *Insurance Engineering* praised Cregier Signal's use of the individual circuit as a distinctive feature suitable for use across the nation, but considered the map merely "attractive and somewhat useful . . . but [not an] essential part of the system" ("Fire Alarm Systems" 1911). Cregier Signal remained active in Chicago, and the *Chicago Eagle* highlighted its Fire and Police Alarm Apparatus on 5 November 1910 ("Cregier Signal Company" 1910).

Cregier was issued at least eleven patents between 1889 and 1932 (Monmonier 2017, 227–31). In 1918, he was issued a patent for a telephone system that used lamps to indicate when a call was about to come into the central station. Seven maps were used to trace the origin of each call. In 1927, after the city

hired Cregier to survey its police, telephone, and fire alarm telegraph systems, he found evidence of the unlicensed use of his patented electrical circuit. Cregier filed a patent infringement suit, which was not settled until 1940 because city officials resisted a speedy resolution. Although a \$19,000 settlement had been discussed, in the end he received only \$5,000.

Banks Cregier died on 10 January 1935 and is buried in the Rosehill Cemetery and Mausoleum in Chicago.

Official sources: US Census (1900, 1920, 1930); Social Security Death Index; Report of the Department of Law City of Chicago (1940).

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15 October.

GM

200

PINE STREET.—RACINE AVENUE.

53 Peter G. Andrews	108 C. B. Hosmer
55 Mr. & Mrs. Max Koelling	108 Mrs. F. L. Hosmer
<i>Receiving day Tuesday</i>	112 Mr. & Mrs. Havemeyer & dr.
55 Mrs. William Floto	112 Mrs. Perry H. Smith & son
69 Robert Fergus	112 Ernest F. Smith
71 Mrs. Lucy Rapp	120 Mr. & Mrs. John R. Key
71 Miss Louise Leveran	122 Mr. & Mrs. John T. Lester & dr.
71 Joseph Elwell	122 Charles H. Lester
71 Frank Elwell	134 Mr. & Mrs. H. P. Crowell
77 & 79 Newport Flats	136 Mr. & Mrs. A. F. Gartz
A Mr. & Mrs. H. F. Chandler	138 Mr. & Mrs. N. B. Cregier
<i>Receiving day Monday</i>	<i>Receiving day Wednesday</i>
A Miss Maude M. Hinde	138 Miss Edith Ellsworth
<i>Receiving day Monday</i>	<i>Receiving day Wednesday</i>
B Mrs. L. B. Heard	138 Miss Belle Ellsworth
B Dwight B. Heard	<i>Receiving day Wednesday</i>
C Arthur Brainard	220 Mrs. Minnie Allmendinger
C Miss Mabel W. Brainard	224 Mrs. G. H. Bentley
<i>Receiving day Monday</i>	
D Mr. & Mrs. Emile Phillippon	107 Mr. & Mrs. George Sturges&drs.
<i>Receiving day Thursday</i>	115 Mr. & Mrs. W. F. Dummer

July 29, 1947.

J. E. CROUCH

2,424,601

ICOSAHEDRAL MAP

Filed Jan. 25, 1944

2 Sheets-Sheet 1

Inventor
JOEL E. CROUCH

Severest Parker
Attorney

Crouch, Joel E. (1899–1957)

Joel E. Crouch, who went by the name Elmer, was born on 3 December 1899, in Jacksonville, Illinois, to Elmer Lorenzo Crouch (1869–1943) and Mary Crouch (1869–?). Crouch lived as an only child with his father and stepmother, Eda Madison Crouch (1883–1959). His father, a physician, specialized in neurology and psychiatry at the Illinois Central Hospital for the Insane. Crouch attended Jacksonville High School.

Crouch registered for the World War I draft in 1917; existing records do not indicate if he served. In 1918, he matriculated at Illinois College. As a freshman, he joined the Men's Literary Society, Phi Alpha, and the track team. He continued to run track, including throughout his senior year while working at a drugstore. In 1920, he received a bachelor of science in mathematics. He continued his education at Yale University, where he studied engineering, became a member of the engineering honor society Tau Beta Pi and an associate member of the scientific research society Sigma Xi, and received a varsity letter for track. In 1923, he graduated cum laude from Yale University, and received a bachelor of science in civil engineering.

After graduation, Crouch started his industrial career by working for a year as a foreman for the Bethlehem Steel Company in Bethlehem, Pennsylvania. In 1924, he worked as a field engineer at Edge Meer Iron Company until 1935 while living in Wilmington, Delaware, where he married his wife, Jessie F. Davie (c. 1900–?). He continued his career as a project engineer at E. I. Du Pont. In 1936, he was hired as a combustion engineer at the American Lime and Stone Company, in Bellefonte, Pennsylvania. In 1938, he began teaching at Pennsylvania State College as an assistant professor of engineering. In 1941, while teaching, he earned a master of science in industrial engineering. In 1942, he worked as consultant in production and inventory control for Piper Aircraft Corporation in Lock Haven, Pennsylvania. In 1945, he

became an associate professor at Pennsylvania State, where he taught as an engineering professor until 1947.

Crouch was a member of the Institute of Navigation, a nonprofit, professional organization founded in 1945 for the advancement of the science of navigation. He was a member of the American Legion, the American Material Handling Society, the American Management Association, the American Society for Mechanical Engineers, and the American Society for Engineering Educators.

On a faculty questionnaire at Penn State, he listed his hobby as celestial navigation, related to his two patents, “Astronomical Device” (Crouch 1946) and “Icosahedral Map” (Crouch 1947), which he applied for while working at Penn State. His Icosahedral Map was a map projection that represented the earth’s surface on twenty triangular sections that could be laid flat or assembled into a globe (Crouch 1947). Each section, locally centered, uses gnomonic projection. His Astronomical Device was geometrically similar insofar as it used an icosahedron to represent celestial bodies encompassing a congruent globe with coastlines (Crouch 1946). Crouch never described either of his inventions in an academic or scientific journal, and it is not apparent that either invention was ever manufactured or licensed (Monmonier 2017, 148–51).

Crouch and his wife, Jessie F. Davie, lived in Wilmington, Delaware, until 1947. They had two children, Joel E. Crouch Jr. (1928–1948) and Mary Jane Crouch (c. 1932–?). For the remaining ten years of his career he worked as an associate professor of engineering at Stevens Institute of Technology in Hoboken, New Jersey, where he was a strong supporter of the athletics and ROTC programs. The Air Force ROTC unit at Stevens awarded him the honorary rank of colonel. In 1948, his son Joel died in a subway accident while traveling from New York City to their home in Hoboken. Crouch sued the City of New York in Federal Court for \$50,000 in damages after seeking a settlement.

On 15 August 1957, Crouch died at the age of fifty-seven, at St. Mary's Hospital after a short illness. He is buried in Beaverdale Memorial Park in New Haven, Connecticut.

City directories: Wilmington, DE (1928).

Official sources: US Census (1900, 1920, 1930, 1940); Social Security Death Index; World War I Draft Registration Cards.

Other references

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“Students, Faculty and Alumni Mourn Prof. Crouch’s Death.” 1957. *The Stute*. Hoboken, NJ: Stevens Institute of Technology. 11 October.

“Sues in Subway Death.” 1948. *New York Times*, 8 September, 34.

KF

**Crouch Jas L (Elevia) fruit dlr h608
Pine**

**Crouch Joel E (Jessie) eng h505 W
10th**

Crouch John R clk h403 E 8th

March 2, 1948.

I. FISHER

2,436,860

GLOBAL MAP

Filed Feb. 19, 1945

2 Sheets-Sheet 1

IRVING FISHER, INVENTOR.

BY *Pineles & Greene*

Fisher, Irving (1867–1947)

This entry is based largely on *Irving Fisher: A Biography*, by Robert Loring Allen (1993).

Irving Fisher was born 27 February 1867 in Saugerties, New York, to George Whitefield Fisher (1833–1884) and Ella Westcott Fisher (1846–1929). He had three siblings: Cora (1864–1873), Lincoln (1866–1866), and Herbert (1873–?). They grew up primarily in Peace Dale, Rhode Island, in a religious household, understandable insofar as George Fisher was an ordained minister. Following a controversy with another pastor, Fisher's father lost his job and was unemployed for two years. The family moved to New Haven, Connecticut, where they stayed from 1881 to 1882. After this daunting period of unemployment, Fisher's father relocated the family to Cameron, Missouri, where he became the pastor of the First Congregational Church.

Fisher attended Hillside High School in New Haven, where he demonstrated a passion for debate. During his time at Hillside, he created his first invention, a mechanical apparatus to support the top of his school desk when opened. In 1882, Fisher entered the Smith Academy Advanced Preparatory Scientific School of St. Louis, Missouri, as a junior, and developed an interest in mathematics. While at the school, he designed an invention that improved the internal mechanism of a piano. The US Patents Office took note of this design and offered him a *caveat*, which would prevent a later inventor from claiming the same idea.

In order to attend school in St. Louis, Fisher lived with his aunt, May Jackson, his father's older sister, and her husband George E. Jackson, a professor at Washington University. May Jackson died in the spring of 1884. Fisher, determined to go to college, specifically Yale like his father before him, had planned to work for a year to build a small financial reserve and study independently before attending college. A second plan involved applying to West Point. Yale accepted Fisher on 5 July 1884, a

week before his father, who had been ill since late 1883, died from tuberculosis.

Fisher followed through with his admission to Yale, and his mother and brother Herbert moved with him to New Haven. Ella Fisher worked as a dressmaker and employed Herbert, aged eleven, as an errand boy. Fisher provided for his family by earning money through tutoring and entering contests. He tried but failed to capitalize on his piano invention. Fisher was an oarsman on the Yale crew team, where he implemented a new invention: a rowing indicator to facilitate smoother strokes. This design was never patented. Severe overwork brought on a month-long illness during his freshman year.

In 1885, Fisher finally received the patent for his piano mechanism but had no success in licensing it to a manufacturer, largely because the mechanism only worked with square pianos which had been steadily declining in popularity.

Letters from Fisher to his lifelong friend William Eliot as well as recollections of his college friends indicate that he had a strong nonconformist streak as well as an ego. His college nickname, in reference to this ego, was “Magnus.” In 1886, Fisher was tutoring mathematics in Pittsfield, Massachusetts. At this time, he considered a career in mathematics. He graduated first in his class from Yale in 1888 and was a member of the Skull and Bones secret society.

Fisher continued his educational studies at Yale under Willard Gibbs, a theoretical physicist, and William Graham Sumner, a sociologist. He expanded his personal interests, publishing poetry, social commentary, and book reviews. In 1891, he received the first PhD in economics to be granted by Yale. His thesis, *Mathematical Investigations in the Theory of Value and Prices*, developed the theory of general equilibrium.

In 1893, Fisher married Margaret Hazard (?–1940). The couple had three children: Margaret, Carol, and Irving. Their daughter Margaret, diagnosed with schizophrenia, suffered a nervous breakdown. Fisher sent her to receive treatment in

Trenton, where the psychiatrist Henry Cotton surgically removed her intestines and a portion of her bowel to treat her mental illness. This procedure resulted in her death in 1919.

Fisher was an advocate of many things, including temperance, vegetarianism, fresh air, exercise, and eugenics. He had a reputation for being aggressive, righteous, and humorless.

He studied in Berlin and Paris before returning to Yale in 1890, first as a tutor, then as a professor of political economy. Between 1900 and 1903, Fisher contracted tuberculosis, which he survived. The experience had a profound impact, and he began to preach widely about the benefits of the outdoors, cofounding the New Haven Anti-Tuberculosis Association, which he served as recording secretary from 1904 to 1911. He worked as editor of the *Yale Review* until 1910. Fisher began to publish books on economics, including *The Purchasing Power of Money* (1911).

In 1913, Fisher patented a graphic system for organizing information, which, unlike his earlier piano mechanism, became commercially successful. It earned him a small fortune, which he lost in the crash of 1929. The system was patented under a company founded by Fisher, the Visible Index Company, which merged with its competitor, Kardex Rand Company, in 1925. His other patents include designs for a “Book and Paper Rack” (1904) and the Comparascope (1930), a reflecting projector for overlaying one image on another.

He was the president of the American Economic Association (1918) and the Econometric Society (1930), which he had cofounded. Fisher’s published works and theories contributed to the economic modern monetary theory and established the Fisher effect, which explains the relationship between inflation and real interest rates. He was an advocate of consumption taxes, having established the theory behind it. In 1935, he became professor emeritus at Yale.

Fisher’s interest in cartography flowered in the 1940s, when he devised an interrupted, twenty-sided polyhedral map projection (Monmonier 2017, 151–53). He described his

strategy in the October 1943 issue of the *Geographical Review*, where he called for discarding the Mercator projection, the working chart of navigators, as a framework for whole-world map projections. According to John Snyder (1993, 269), construction of Fisher's projection "was relatively simple, but [its] use of the gnomonic projection [for individual facets] leads to a 58 percent range of [variation in map] scale." The following year, Fisher and Osborne Maitland Miller, the map projection expert at the American Geographical Society, published *World Maps and Globes*, a well-illustrated tutorial for general readers. In 1945, Fisher filed a patent application titled "Global Map." The patent office granted the patent in March 1948, nearly a year after Fisher's death in New York City on 29 April 1947 at age eighty.

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PHILLIPS-LOOMIS MATHEMATICAL SERIES

ELEMENTS OF GEOMETRY

BY

ANDREW W. PHILLIPS, PH.D.

AND

IRVING FISHER, PH.D.

PROFESSORS IN YALE UNIVERSITY

PART TWO—GEOMETRY OF SPACE

NEW YORK ♦ CINCINNATI ♦ CHICAGO.
AMERICAN BOOK COMPANY

ELLEN E. FITZ.
Globes.

No. 158.581.

Patented Jan. 12, 1875.

WITNESSES.
G. J. Bates.
W. Boardman.

E. E. Fitz.
J. Curtis Atty.

Fitz, Ellen Eliza (1835–1886)

Ellen Eliza Fitz was born in Kingston, New Hampshire, on 20 March 1835 to Asa Fitz (1811–1878) and Susan (Burroughs) Fitz. (This might have been Kingston, Maine, rather than Kingston, New Hampshire.) Asa Fitz had attended the Pembroke Academy in New Hampshire, and in 1845 he published *An Elementary Geography for Massachusetts Children*, coauthored with William B. Fowle. At that time, the Fitz family was living in East Cambridge, Massachusetts, where Asa worked as a music teacher. Ellen Fitz had a twin, Charles Frederic, who pursued interests in historical and biological research.

In 1854, Ellen Fitz graduated from West Newton English and Classical School in Massachusetts, and later worked as a governess in St. John, New Brunswick, Canada. In 1875, she applied for a patent for an invention titled “Mounting and Attachment for Terrestrial Globe.” As the patent’s title implies, the invention was a mounting device designed to promote understanding of the effects of Earth’s rotation on its axis and revolution around the sun (Monmonier 2017, 184–86). Dubbed the Fitz globe, it debuted in Philadelphia in 1876 at the Centennial Exhibition. Fitz also wrote a handbook, published in 1875, to accompany the globe. Her experience as a governess probably had an important role in her creating this new globe, which was specifically designed for educational purposes. Her clever mounting device was specifically intended to help students understand seasonal and latitudinal variations in the amount daylight, twilight, and nighttime darkness.

Between 1876 and 1881, Fitz moved to Somerville, Massachusetts. She designed another mounting globe, patented in 1882, to show star positions. Fitz’s design was unique because it could indicate the position of any star at any time of the year, regardless of horizon.

Fitz died on 12 October 1886, in Watertown, Massachusetts. The cause of death is unknown.

Official sources: US Census (1850, 1860); Massachusetts Town and Vital Records; Canadian Census (1871).

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16		William W. Henry	26 f	Coastmaker	1		New Britain	
17	593 4889	J. Ford	34 m	Liquor Dealer	4	5700	Mass	
18		Sarah "	31 f				Mass	
19		Isabel "	13 f				Mass	1
20		Joshua	11 m				"	1
21		Edwin Fitz	24 f	Teacher of Music			New Bedford	
22	334 459	David Thompson	45 m	Physician	4	300	"	
23		Mary A. "	43 f				Vermont	
24		Willis B. "	13 m				Mass	1

Gatliff, Robert Lewis (1890–1965)

Robert Lewis Gatliff was born in Kentucky on 7 March 1890. No information on his parents can be found. Gatliff had a unique hobby of creating unconventional hats, which he discovered in childhood when he dressed up an old pot and wore it on his head. Not much is known of Gatliff's family or his background, but according to the 1935 Florida population census, the highest level of education he completed is equivalent to junior high school.

Around 1920, Gatliff moved to Miami, Florida, and worked for Railey-Milam Hardware store both as a retail salesman and a displayman. Working on window displays equipped Gatliff with working knowledge of light bulbs and wiring, which would become relevant in his patent. In 1922, with the assistance of Robert Rumiart Jr., Gatliff patented a design titled "Directory." Gatliff's automatic city directory used multicolored lights to indicate two paths to a destination, one on foot, one for automobiles—a unique design at the time (Monmonier 2017, 224). Alternative routes were also available. Gatliff's electrical directory was complex in design, and in his patent, Gatliff does not provide specific details on how to set up wiring to display multiple destinations. During this period, Gatliff was living at the YMCA, which might indicate financial hardship.

In 1927, Gatliff moved to Tampa and began working for Knight and Wall Company. He patented a design titled "Advertising Device," which consisted of "moving" characters. Through the use of electrical lighting, Gatliff's billboard could display the action of a man taking a drink from a Coca-Cola bottle. Gatliff was in no way associated with the Coca-Cola company, nor was he commissioned to create this billboard. There is no evidence that either of Gatliff's patents were produced for commercial purposes.

Gatliff married Louise Cote in 1929. Cote had two children from a previous marriage, both of whom took Gatliff's

surname: Jacqueline (b. 1919) and Rene (b. 1922). Gatliff did not have any biological children. He and Cote divorced in 1934.

Gatliff returned to Miami after his divorce in 1934 to resume his career at Railey-Milam as a displayman. There is a four-year gap in information before he returned to Railey-Milam that is indicative of either a period of unemployment or inconclusive records and reveals little of Gatliff's married life. It is possible Gatliff worked for Knight and Wall until his divorce, or perhaps he left for unspecified reasons.

During the 1930s and 1940s, Gatliff began to receive recognition for his hobby of constructing hats out of odd materials. The Oregon-based *Eugene Guard* wrote an article on Gatliff's hats titled "Young Hardware Clerk Becomes Millinery Designer" in 1937, and *The Toledo Blade* did a piece on the "Hats of Hardware" (1951), declaring Gatliff's designs to be an upcoming fashion trend. Gatliff constructed his hats out of metal, paintbrushes, steel wool, tea kettles, and stock items available at the hardware store. By 1950, Gatliff had designed over a hundred hats. While these designs were prevalent in magazines and fashion pieces, it is unclear whether Gatliff ever capitalized on their popularity or manufactured any hats as a sideline.

Gatliff died in 1965 in Florida.

City directories: Miami (1921, 1923, 1935, 1958–1959), Tampa, FL (1927).

Official sources: US Census (1910, 1920, 1930); Florida County Marriage Records; Florida State Population Census (1945); Social Security Death Index.

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- “Young Hardware Clerk Becomes Millinery Designer.” 1937. *Eugene (OR) Guard*. 20 June, 18.

GM

MIAMI PAP
 417-419 Second St.

GATES LOUIS D (Verna D; J A Gates & Son), Sec and Treas Mutual Security Co, h 218 4th, Tel 1097-X1

Gates Sarah Louise, office mgr L A Jones, h Little River, Fla

Gates Wm A (Valeria), eng F E C, h 311½ 5th

Gates Wistar W (Eva S), h 120 Coral Park

Gatliff Robert L, slsmn Railey-Milam Hdw Co, r Y M C A

Gato Fernando, clk Joseph Fine

Gause Margaret (wid H H), r 309 3d

Gautier Apartments, 240 N E 1st av (900 Av C) and 60 N E 3d (308 9th)

ings, Tents, Sails,
 awlins and Flags

June 27, 1944.

W. G. GINGERY

2,352,380

MAP PROJECTION

Filed Nov. 27, 1942

INVENTOR.

WALTER G. GINGERY

BY

Walter G. Gingery
Attorneys

Gingery, Walter George (1884–1979)

Walter George Gingery was born on 30 August 1884 in Copley, Summit County, Ohio, to Harry (nickname: ‘Xury’ or ‘Xura’) Gingery (1858–1949) and Edith Emmaline Gingery (née Blakely, 1851–1947). Walter grew up with a twin brother, Wallace Frank (1884–1979), an older sister, Maud Olive (1882–1967), and a younger sister, Bernice Ella (1896–1989). His father, who owned and operated a grocery store and post office, held a variety of jobs, including carpenter; operator of mining machinery, sawmill, and thresher; and postmaster (Gingery 1918).

In 1902, Gingery graduated from Copley High School. After graduating, he and his brother, Wallace Frank, worked as machinists, but Gingery did not see a future in this work and only worked as a machinist for a year or two (Gingery 1918; “Necrology” 1980). His high school principal encouraged him to pursue higher education and helped arrange free tuition for his first year at Mount Union College in Alliance, Ohio. His college degree would lead him to a satisfying career in teaching mathematics and secondary school administration (Ross and Cattel 1948).

Gingery began his undergraduate studies in 1905. To help fund the rest of his schooling, he taught mathematics in schools at Darrowville and New Baltimore, Ohio. He graduated with a bachelor of science in 1911 (“Necrology” 1980). On 6 April 1912, he married Clara Eugenia Slutz (1886–1979) and together they had six children: Corrine (1913–2007), Ruth (1914–2004), Edith (1916–2008), Robert (1919–2012), William (b. 1923), and Richard (b. 1924).

Gingery continued his career in teaching after completing his undergraduate degree. He worked as an acting professor of mathematics at Wittenberg College from 1911 to 1913 and as a public high school teacher in Newark, Ohio, from 1913 to 1916 while taking graduate courses at the University of Chicago in

mathematics and astronomy. After receiving his master of science in 1916, he took up a post as special lecturer at McMaster University in Hamilton, Ontario (Ross and Cattel 1948).

In 1917, Gingery served as head of mathematics at Shortridge High School in Indianapolis. He was promoted to assistant principal in 1925. Two years later he became the inaugural principal at George Washington High School in Indianapolis, where he would work for twenty-four years (“Necrology” 1980). While pursuing his career as a teacher and school administrator, Gingery also received recognition for the “Map Projection” that he designed for the easy determination of air miles between locations. He filed this patent in 1942 and received it in 1944 (Gingery 1944a). He intended this invention to improve maps and map projections by enabling people to more accurately see the relationships of various places on the globe to a particular central location while providing minimum distortions of the shape of land masses at the expense of continuity (Monmonier 2017, 170n22). In an article on world map projections for *School Science and Mathematics*, he included his own projection as an example of an “Air-Age map” (Gingery 1944b).

As an educator, school administrator, and inventor, Gingery became involved in several different organizations. He joined the Indiana Academy of Science in 1918 and was elected a fellow in 1946. He was also involved in many other educational and historical organizations in Indiana as well as the Boy Scouts of America (“Necrology” 1980). In 1947, teachers, parents, and staff of George Washington High School commemorated his many years of service to the city’s public schools. In 1951, Gingery retired as a high school principal, but because of his reputation for effectiveness in the classroom, several nearby colleges sought him out as a part-time teacher. Over the next seven years he taught at Knox College, Otterbein College, Hanover College, and Indiana University. After 1960, he moved

to Sun City, Florida, where he made violins as a hobby until his death on 30 July 1979 (“Necrology” 1980).

City directories: Akron, OH (1903, 1904), Bloomington, IN (1919, 1931, 1943, 1952, 1955, 1957, 1958, 1960), Galesburg, IL (1956), Indianapolis, IN (1918, 1919, 1920, 1921, 1922, 1923, 1924, 1926, 1927, 1928, 1929, 1931, 1933, 1936, 1940, 1943, 1949), Springfield, OH (1913, 1914).

Other references

- Find A Grave (website). 2010. “Xury Gingery.” Find A Grave Memorial no. 61894913, citing Sharon Center Cemetery, Sharon Center, OH. <https://findagrave.com/>.
- . 2014. “Walter George Gingery.” Find A Grave memorial no. 124520961, citing Mansion Memorial Park and Funeral Home, Ellentown, FL. <https://findagrave.com/>.
- Gingery, Walter G. 1918. *Wade Family History: Being a Genealogy and Short Biographies of the Family of Wenman and Margaret Wade*. Greenfield, Indiana: Wm. Mitchell.
- . 1944a. Map Projection. US Patent 2,352,380 filed 27 November 1942, and issued 27 June 1944.
- . 1944b. “Map Projections for an Air Age.” *School Science and Mathematics* 44, no. 2: 101–11.
- Monmonier, Mark. 2017. *Patents and Cartographic Inventions: A New Perspective for Map History*. New York: Palgrave Macmillan.
- “Necrology: Walter George Gingery.” 1980. *Proceedings of the Indiana Academy of Science* 89: 45.
- Ross, Edna E., and Jacques Cattell. 1948. *Leaders in Education: A Biographical Dictionary*. Lancaster, Pennsylvania: Science Press.

H. B. Goodyear,

Geographical Globe.

N^o 31311.

Patented Feb. 5, 1861.

Witnesses.

A. M. Smith
Geo. H. Clarke.

Inventor.

Henry B. Goodyear
by A. H. Clark, atty.

Goodyear, Henry Bateman (1802–1879)

Henry Bateman Goodyear was born on 28 December 1802, in New Haven, Connecticut, to Amasa (1772–1841) and Cynthia Bateman Goodyear (1774–1845). His father operated a small farm in New Haven on Oyster Point (“Charles Goodyear” 2013). He was also an inventor of farming equipment and owned an ivory button mill in Naugatuk, Connecticut (Find A Grave 2006; “Charles Goodyear” 2013). Goodyear had two older brothers, Charles (1800–1860) and Willis (1800–1874). He also had five younger brothers and sisters: Robert (1803–1839), Nelson (1811–1852), Amasa Jr. (1813–1841), Amasa Munson (1814–1841), and Harriet (1840–1841).

Goodyear married Jerusha B. Murphy (1811–1881) on 3 January 1844 (Colton 1912). They spent much of their adult life in Paris, where Henry represented the rubber interests of his firm (Kirkman 1899). They had twelve children. Their first child, Mary Goodyear, died in infancy. Their other children include Mary (1846–1920), Emma (1848–1877), Nelson (1850–1871), Fanny (1854–1943), Florence (b. 1856), Eunice (1857–1943), Harriet (1859–1910), John (b. 1875), Henry (b. 1877), and Maude (b. 1878). Their last child, Austin (b. 1879), died in infancy.

In 1861, Goodyear received a patent for his invention “Method of Relieving Geographical Outlines on Molded Elastic Globes.” A short description of the invention says, “In this way, it will be seen an elastic or rubber ball is or may be produced, which while it serves every purpose of the ordinary rubber ball, is in addition a round map or ‘globe’ with its land or sea divisions or objects or figures appearing and standing in relief yet flush with the general surface and serving to maintain the rotundity of the globe which the ball represents.” The description goes on to state that, “The ball thus made may of course be afterward painted and varnished as desired.”

He claimed to have invented three novel aspects of the ball's design. The first is his method of constructing a gutta-percha (India) rubber ball by inscribing and then identifying the several divisions that represent a celestial or territorial globe on a metallic or other suitable core. The second includes the method of printing or lettering the interior of the matrix. The third involves the method of constructing a hollow gutta-percha ball with the elements of its exterior standing in relief but flush with the general surface, preserving the ball's round shape (Monmonier 2017, 192–93).

Goodyear died at the age of seventy-six, in Paris, Ile-de-France, France on 11 February 1879. His body was laid to rest in New Haven, Connecticut (Kirkman 1899).

References

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- Find A Grave. 2006. “Amasa Goodyear.” Find A Grave memorial no. 14342638, citing Grove Street Cemetery, New Haven, CT. <https://findagrave.com/>.
- Kirkman, Grace Goodyear. 1899. *Genealogy of the Goodyear family*. San Francisco: Cubery.
- Monmonier, Mark. 2017. *Patents and Cartographic Inventions: A New Perspective for Map History*. New York: Palgrave Macmillan.

and is useful in a lecture or school room. A very cheap paper globe is now met with, in which the printed gores are brought together edge to edge by a string, not exactly to a spherical form, but sufficiently so for familiar reference.

Globes are also made by Goodyear, of inflated india-rubber, or of silk coated with india-rubber solution. Adams has made them of gutta-percha, with surface in relief, and in detachable zones and sections.

Globes of paper pulp have been suggested, molded inside of shells whose inner surfaces have intaglio representations of the inequalities of the earth's surface, so that the globe shall represent the mountains

(No Model.)

O. D. GRAY
EDUCATIONAL GLOBE.

No. 418,455.

Patented Dec. 31, 1889.

Fig. 1.

Fig. 2.

WITNESSES:
Gustav Dietrich.
R. A. Posterus

INVENTOR
Olin D. Gray,
BY
Chas. C. Hill
ATTORNEY

Gray, Olin D. (1855–1938)

Olin D. Gray (1855–1938) was born in 1855 (month and day unknown) in either Maine or Remsen, New York, to Benjamin Franklin Gray (1816–1904) and Maria Jenkins Gray (1823–1897). He lived with his parents and siblings, George W. Gray (1845–1914), Benjamin Franklin Gray (1847–1929), Willis R. Gray (1850–1870), and Harry J. Gray (1867–1870). The extent of his education is unknown.

In 1880, he lived in St. Louis, Missouri, where he worked as a bank clerk. On 6 September 1883, he married Lydia Blossom Gwin in Manhattan, New York, and they had two children, Laura (1900–?) and Hiram Liggett (1893–1969). In 1885, he established the Gray Lithography Company in Brooklyn, New York, and served as company president. He was also a director of the Gray Realty and Development Company of New York City (*Directory of Directors* 1915, 267) and served as the first president of the National Lithographers' Association.

On 31 December 1889, Gray received a patent for an invention titled “Educational Globe,” described as an improvement of a globe in which the two hemispherical sides represent the travel routes of Christopher Columbus. The halves separate to reveal an expansive, accordion-like strip printed with pictures depicting the history of the Western Hemisphere and various interest points (Monmonier 2017, 115). Gray apparently did not manufacture or otherwise promote his invention.

In 1900, he was arrested for printing lottery tickets and his lithography machines were confiscated, but he was not convicted. On 8 August 1907, the Irving National Bank took action against the Gray Realty and Development Company as well as Gray and his wife, claiming intent to defraud his creditors by transferring ownership of the real estate properties to his wife, Lydia, or to the company in order to benefit his credit and prevent seizure of said properties (*Irving National*

Bank v. Gray 1916). In 1910, Gray sold his lithography company for a large sum of money. In 1914, he invested \$30,000 in the John J. Mitchell Company, which eventually went bankrupt. In 1920, he moved to Tarrytown, New York, where he lived with his wife, children, and servants. In 1930, he moved to Coconut Grove, Miami, Florida to retire with his wife.

On 2 September 1938, Gray died at his daughter's home in Fairfield County, Connecticut, at the age of eight-four after a long illness. He is buried in Woodlawn Cemetery in Bronx, New York.

City directories: New York, NY (1886).

Official sources: US Census (1880, 1905, 1910, 1920, 1930).

Other references

Directory of Directors in the City of New York. 1915. New York: Directory of Directors.

Gray, Olin D. Educational Globe. US Patent 418.455, filed 18 November 1889, and issued 31 December 1889.

“History Mystery Houses #5.” 2013. *Garden City (NY) News Online*, March 8. http://www.gcnews.com/news/2013-03-08/Front_Page/History_Mystery_Houses_5.html.

Irving National Bank v. Gray. 1916. 74 App. Div. 29 (NY App. Div. 1916).

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Monmonier, Mark. 2017. *Patents and Cartographic Inventions: A New Perspective for Map History*. New York: Palgrave Macmillan.

G. W. R. HARRIMAN.
MEANS FOR PRESENTING GEOGRAPHICAL AND STATISTICAL INFORMATION.
1,362,939.
Patented Dec. 21, 1920.
17 SHEETS—SHEET 1.

Witnesses:

G. L. Johnson
L. B. Bachecker

Inventor
George W. R. Harriman
By *Wright, Brown, Smith & May*
Attorneys.

Harriman, George W. R. (1871–1942)

George Winsor Richardson Harriman was born in Somerville, Massachusetts, on 25 May 1871, to John Harriman (1834–1912) and Sarah J. Wheeler Harriman (1830–1910). His father worked as a printer and his mother worked in “a railway stable,” though doing what it is difficult to say. The Harriman family also took in lodgers. George was the youngest of four sons. His siblings were Frank Anthony (1865–1919), Kendall Flint (1867–1965), and John Emery (b. 1870). George received eight years of formal education.

On 28 November 1900, George married Mabel Locke Harriman (1877–1962) with whom he had three children: Roger (1902–1980), Charlotte (1906–1965), and Elizabeth (b. 1912). Early in his marriage he lived in Malden, Massachusetts, with his in-laws. While in Malden, he held several positions in Boston as a civil engineer, for example, with the Boston and Maine Railroad, the Metropolitan Improvement Commission, and Harriman Brothers, Civil Engineers.

In addition to working as an engineer, Harriman engaged in community service through the Young Men’s Christian Union (YMCU) of Boston from 1889 to 1910 (YMCU publications 1893–1894). The organization provided young men with books, papers, games, classes, religious services, lectures, and other means of instruction and entertainment. Harriman served as an usher, chairman for the YMCU auxiliary committee, and lecturer on topics like “The Modern Railroad” in 1894 and “The Young Man’s Part in Civic Development” in 1910.

Harriman’s passion for service was also evident in his business dealings, which were often tinged with a desire for fairness. In 1907, he joined Charles S. Hanks (1857–1908)—a wealthy lawyer who had attended Harvard with President Roosevelt and who became inspired by Harriman—as special counsel to the Interstate Commerce Commission (ICC). As members of the Commission, Harriman and Hanks submitted a

report to the ICC president suggesting that freight rates could be reduced 10 percent without affecting dividends or wages. Their report and discussion within the ICC led to the Hepburn Act, passed by Congress in 1906. Railroad companies had tried to deal with inflation by increasing their rates, which had led to protests. The Hepburn Act gave the ICC the power to address shippers' concerns by setting maximum rates, limiting the practice of providing free passes to railroad employees, and standardizing bookkeeping practices. President Roosevelt used the Hepburn Act to carve out regulations for the railroad industry as a middle road between free market competition and government regulation.

In addition to his volunteer work, business involvements, and work on behalf of the ICC, Harriman filed several patents, most notably for a "Means for Presenting Geographical and Statistical Information" (Harriman 1916, 1920), which helped the user find and plan routes to places with specific traits. The invention's various components are bound together in a compact folder for easy reference from one area to another.

In 1915, Harriman published the book *Railroad Valuations: A Treatise on Methods for the Valuation of Property of Common Carriers* (Harriman 1915), in which he explained the Valuation Act as well as limitations placed by the Supreme Court. His intent was to demonstrate how his Geographic Code System could accurately provide a final valuation of a railroad.

Four years later, in 1919, Harriman, for a charge of merely \$1, allowed the War Department to use his invention, which is referred to in Congressional hearings as the "Harriman Geographic Code System" (Moses 1928). Using Harriman's invention, the military service published maps on a scale of 1:500,000 that provided information on railways and highways as well as water and air facilities. After adopting Harriman's invention, the War Department determined that the government was capable of running necessary services at a lower cost than would have otherwise been possible.

In 1916, Harriman filed a patent application for a “Geographical Compilation.” Received in 1924 (Harriman 1924), this patent integrated a map of a territory with an index of the localities within that territory, along with any other pertinent information. The information is arranged in a convenient manner that correlates the index with the map as well as with the other charts, delineators, and tables.

Sometime before, George and Mabel Harriman had moved their family to Washington, DC, where they rented a home and where George worked for a lithography company. While living in Washington, Harriman filed two additional patents that were elaborations of his “Geographical Compilation.” The first patent, which he filed in 1916 and received in 1923, was titled simply “Chart” (Harriman 1923). This invention provided businesses with information about such phenomena as the times and locations of tides, rainfall, and temperature conditions at various times over the year, and also the times of dividend payments on capital investments. The invention consists of a chart presenting points of location on the Earth’s surface and “points of time.” The second was a patent for a “Waterway Chart” that geographically displays facts about waterways and other bodies of water in relation to their uses in commerce, industry, and recreation (Harriman 1922). This chart provides accurate facts about the shipment of goods expressed in a logical order. This chart could also be used for general reference. Harriman received the patent for this invention in 1922. In 1928, Congress debated as to whether to adopt the Harriman Geographic Code System for governmental, administrative, or publication purposes (Moses 1928).

After Mabel died, on 3 June 1926, Harriman continued to work as a civil engineer. But at this time he had his own practice, which he maintained through at least the early 1930s. By 1935, he had moved to New York City, where he lived in a home with several other boarders. Harriman died seven years later in Brewster, New York.

City directories: Boston, MA (1890, 1902, 1903, 1905, 1906, 1907, 1908, 1909, 1912, 1913, 1914, 1915, 1916, 1917), Cambridge, MA (1897), Malden, MA (1906, 1908, 1910, 1911, 1913, 1914, 1916, 1917), Washington, DC (1923, 1928, 1929).

Official sources: US Census (1880, 1900, 1910, 1920, 1930, 1940).

Other references

Harriman, George W. R. 1915. *Railroad Valuations: A Treatise on Methods for the Valuation of Property of Common Carriers*. Boston, MA: Wright & Potter.

———. 1916. Means for Presenting Geographical and Statistical Information. US Patent 1,192,829, filed 17 April 1912, and issued 25 July 1916.

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———. 1922. Waterway Chart. US Patent 1,429,285, filed 18 December 1920, and issued 19 September 1922.

———. 1923. Chart. US Patent 1,448,961, filed 23 June 1916, and issued 20 March 1923.

———. 1924. Geographical Compilation. US Patent 1,512,598, filed 23 June 1916, and issued 21 October 1924.

Moses, George H. and others. 1928. *Select Joint Committee on the Harriman Geographic Code System*, First Congress, 70th session, 1-381.

Report of the Boston Young Men's Christian Union. 1893, 1894.

INGLES ELAINE	ROOMER	F	W	36	M	No. 8	NEW YORK
GREENE FRANK	ROOMER	M	W	33	M	No. 8	ENGLISH
→ KATHERINE	ROOMER	F	W	32	M	No. 8	MASSACHUSETTS
KRISTOFFERSSON SIXTEN	ROOMER	M	W	36	M	No. 8	SWEDEN
→ ALICE	ROOMER	F	W	38	M	No. 49	SWEDEN
HARRIMAN GEORGE W.	ROOMER	M	W	69	W	No. 8	MASSACHUSETTS
COSTANZO RAYMOND	ROOMER	M	W	29	M	No. 8	PENNSYLVANIA
→ FLORENCE	ROOMER	F	W	23	M	No. 82	PENNSYLVANIA
DALSGAARD SVEN	ROOMER	M	W	35	S	No. 8	DENMARK
BATTERMAN JAMES	ROOMER	M	W	60	S	No. 8	IRELAND
DELANEY FRANK	ROOMER	M	W	50	M	No. 8	NEW YORK

E. A. JONES.
ROUTE INDICATOR MECHANISM.
APPLICATION FILED JULY 29, 1913.

1,092,147

Patented Apr. 7, 1914.
2 SHEETS—SHEET 1.

FIG. 1.

FIG. 2.

FIG. 5.

WITNESSES

M. B. Borden

H. E. Galambos

INVENTOR
E. A. Jones.

per *Percy W. Moore*

Attorney

Jones, Ernest Albert (1880–1951)

Ernest Albert Jones was born 1 July 1880 in Saratoga, New York, to William Colpitts Jones (1835–1913) and Alexandrina Victoria Shaw (1838–1916). Jones's parents, originally from the Quebec region of Canada, immigrated to the United States in 1870 and resided in New York City until 1915. His father worked as a real estate agent. The couple had three sons and two daughters; Ernest was the youngest. Jones was close to his brother Joseph, with whom he collaborated on several inventions later in life.

Like Joseph, Ernest Jones worked as a mechanical engineer, although he was never formally trained. Comprehensive records of his educational background do not exist, possibly because Jones divided his time between the United States and England. It seems safe to assume that, like his brother Joseph, Ernest Jones was largely self-educated. During World War I, he worked as a consulting engineer, focusing on the manufacture of munitions.

According to a US Consular application, Jones had lived on and off in England since 1903. Other records indicate he arrived in London in 1908 for “commercial and motor business,” and would remain until 1918. In his application, Jones expressed a desire to remain a US citizen and return to his home country after World War I had ended. He applied for a passport in 1915, 1917, 1918, and 1920, for the sole purpose of remaining in England. In April 1926, he returned to New York from Southampton aboard the ship *Homer*; however, he lived out the rest of his life in England. He married an English woman, Frances Evelyn Johnston, at an unknown time. The couple had one child, son Joseph Thornton (1906–?), born in England.

While in England, Jones patented three inventions, all focused on automobiles. In 1910, he patented an invention titled “Improvements in Carburetting Apparatus for Internal Combustion Engines.” In 1913, he patented an invention titled “Route-Indicator Mechanism,” probably intended as an enhancement of his brother Joseph's Live-Map Meter but no

less useful for other automobile navigation systems that used an odometer cable (Monmonier 2017, 81–82). Jones’s compensating device recognized that weaving to avoid obstacles would add to the recorded distance and thus cause the Live-Map disk to run ahead of the vehicle’s position along the prescribed route. His device would adjust the miles driven to better approximate the actual distance along the center line. The patents office requested that Jones abbreviate the title from “Route Indicators or the Like for Public Service Vehicles” to a more inclusive “Route-Indicator Mechanism.” Joseph’s Live-Map Meter had been intended for individual motorists, rather than taxis, buses, and other public service vehicles. The invention’s original title, which implies a more limited marketing strategy, suggests that the Live-Map Meter might not have been selling well to owners of private motor cars. According to records from the European Patent Office, Ernest Jones registered his patent in France, Germany, Switzerland, and Great Britain. In 1915, he patented a “Kinematograph Target Apparatus,” a firing-range device that would project a target onto a screen, and halt the projector if the target was struck.

It appears that Jones worked closely with his siblings. He came to England in 1921 as a representative of not only the Jones Speedometer Indicator Company, the company his brother Joseph had founded, but also his eldest brother Percival, an attorney at law. What services Jones provided remains unclear. In his 1918 draft registration, Jones listed his occupation as a self-employed trading and consulting engineer. He also claimed exemption due to unspecified work he was doing for the Allies. Jones has no military record, so it appears he received his exemption.

Jones died in England on 3 June 1951 at the age of seventy; records indicate he suffered from “left lower lobe pneumonia” and multiple infective arthritis. His wife and son survived him. He was buried three days after his death at Hendon Park Cemetery in London, England.

Official sources: Passenger Lists of Vessels Arriving at New York, New York; US Federal Census (1880); US Consular Registration Applications; US Passport Applications; World War I Draft Registration Cards.

Reports of the Deaths of American Citizens, compiled 01/1835–12/1974. Publication A1 5166. NAI: 6138 57. Record Group 59. National Archives at College Park, Maryland. Microfilm Publication M237, 675 rolls. NAI: 6256867. Records of the US Customs Service, Record Group 36. National Archives at Washington, DC.

Other references

“Improvements in or Relating to Route Indicators.” 1913. *The London Standard*. 13 October.

Jones, Ernest Albert. 1910. Improvements in Carburetting Apparatus for Internal Combustion Engines. British Patent 1909-16215, filed 12 July 1909, and issued 23 June 1910.

———. 1913. Improvements in and Relating to Driving Mechanism for Indicators or the Like for Mechanically-Propelled Road Vehicles. British Patent 1913-01825, filed 22 January 1913, and issued 9 October 1913.

———. 1914. Route Indicator Mechanism. US Patent 1,092,147, filed 29 July 1913, and issued 7 April 1914.

———. 1915. Kinematograph Target Apparatus. British Patent 1914-23307, filed 30 November 1914, and issued 6 May 1915.

Monmonier, Mark. 2017. *Patents and Cartographic Inventions: A New Perspective for Map History*. New York: Palgrave Macmillan.

J. W. JONES.

COMBINED ROAD MAP AND ODOMETER.

APPLICATION FILED AUG. 6, 1909.

1,040,345.

Patented Oct. 8, 1912.

2 SHEETS—SHEET 1.

Witnesses:
M. A. Hood.
R. C. Fitzhugh.

Joseph W. Jones, Inventor
By his Attorneys
Mauro Cameron Lewis & Massie

Jones, Joseph William (1876–1960)

Joseph William Jones was born 7 June 1876 in Saratoga, New York, to William Colpitts Jones (1835–1913) and Alexandrina Victoria Shaw (1838–1916). His father was a real estate agent. Originally from Quebec, the couple emigrated to the United States in 1870 and resided in New York City until 1915. They had three sons and two daughters. Joseph Jones was their second youngest. Later in life, he would collaborate with his younger brother Ernest on various automotive inventions.

Though Jones completed eight years of schooling, there is no record of a college education. In 1896, he worked as a laboratory lackey for Emile Berliner in Washington, DC. Berliner's disk record phonograph would soon replace the standard Edison cylindrical phonograph. While working on the project, Jones improved upon the method of engraving record grooves on a wax master. In 1901, he received a patent for his record groove design. He sold this patent to the Columbia Graphophone Company for \$25,000, which allowed him to launch the Jones Instrument Company and become an independent inventor. During his lifetime, Jones received over thirty patents for a wide range of designs, both in the United States and abroad.

On 7 August 1901, Jones married Jennie Reid (1880–?) from Brooklyn. Records do not indicate that the couple had any children. They resided in New York City. In November 1905, Jones applied for passports for himself and his wife. He identified his occupation as mechanical engineer, and indicated that he would return to the United States “within two years.” It is not clear where, when, for what purpose, or for how long they traveled internationally.

In 1909 Jones patented an invention titled “Combined Road-Map and Odometer,” often referred to as a “Live-Map.” The apparatus, known as a Live-Map Meter, contained a celluloid disk and was attached to the edge of a car on the

driver's side of the steering wheel. An indicator was connected to the car's front axle by a flexible shaft designed to reach any part of the vehicle. The disk was marked on the outside to indicate distance traveled, up to a hundred miles, as well as distances between important crossroads, turns, and other waypoints. A pointer indicated the location of the car along the route, assuming the driver did not stray from the prescribed path. Disks for different routes could be inserted into the receptacle. The Touring Club of America, of which Jones was the director, had the responsibility of compiling and distributing these disks. *The Gilded Times*, a blog concerned with science and technology in the 1910s and 1920s, pronounced Jones's invention as the predecessor to the GPS and judged it more advanced than similar devices in use at the time ("The First GPS" 2014).

The Live-Map Meter was available to consumers in 1912. In 1913, Jones's brother Ernest improved upon Jones's Live-Map Meter by patenting the "Route Indicator Mechanism," a supplementary device designed to adjust for the driver's inability to precisely follow a route's centerline—without this adjustment the indicator disk could get appreciably ahead of the vehicle's position along the prescribed route. Ernest Jones's other contributions to his brother's company included representing the Jones Instrument Company while abroad in England.

Many of Jones's patents revolve around automobiles and roadmaps. At the time, not many roads were paved, and long-distance driving still posed a danger to drivers and passengers. Several years before he patented his Live Map, Jones received a patent for a speedometer.

In 1910, Jones spent three months in Brussels, Belgium, as a US delegate in the International Road Congress. The purpose of the conference was to standardize construction and implement proper maintenance of roads. Jones understood the dangers of the road, and did his best as an advocate and an inventor to promote safety. Other designs by Jones include a tachometer

casing, a speedometer casing, a shoe polishing machine, a duplicating apparatus, a massage apparatus, and a steam generator. In May 1910, *Life* advertised the Live Map along with the Jones Speedometer and an invention called the electric Yobel, which was a reliable, suitably loud car horn.

In 1918, Jones registered for the World War I draft. He was age forty-two at the time, and probably was never called. His last patent, an aircraft gunnery training aid titled “Range Estimating Trainer,” was filed in 1943. What Jones did between 1943 and 1960 is not clear. He died 7 March 1960 in New York.

Official sources: US Federal Census (1880); US Passport Applications; World War I Draft Registration Cards.

Other references

“Favors American Highway Congress.” 1910. *New York Times*. 21 August.

Gelatt, Roland. 1977. *The Fabulous Phonograph, 1877–1977*. 2nd ed. New York: Macmillan, 132–33.

Jones, Earnest Albert. 1914. Route Indicator Mechanism. US Patent 1,092,147, filed 29 July 1913 and issued 7 April 1914.

Jones, Joseph William. 1901. Production of Sound Records. US Patent 688,739, filed 19 November 1897, and issued 10 December 1901.

———. 1904. Sound Recording Apparatus. US Patent 763,903, filed 1 May 1900, and issued 28 June 1904.

———. 1904. Speedometer. US Patent 765,841, filed 28 June 1903, and issued 26 July 1904.

———. 1909. Massage Apparatus. US Patent 942,206, filed 7 November 1908 and issued 7 December 1909.

———. 1912. Combined Road-Map and Odometer. US Patent 1,040,345, filed 6 August 1909 and issued 8 October 1912.

———. 1944. Range Estimating Trainer. US Patent 2,364,720, filed 28 September 1943, and issued 12 December 1944.

“Jones Live Map, New Jones Yobel, Jones Speedometer”
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Department, United Manufacturers.

GM

JONES LIVE-MAP

gives you your route and keeps you straight. Under its guidance the most muddling twists, turns and corners melt away behind you. It is better than a Human Guide because it is always doing its work to the exclusion of everything else. It doesn't dream over the scenery, it doesn't babble while you drive, it doesn't forget the way.

The roads of the World, divided into convenient sections, are printed on its revolving disc. One hundred miles are described on each. The momentary position of your flying car is indicated on the silently turning disc by a pointer. Thus it shows at a glance where you are and tells with a word what to do.

The Jones Live-Map emancipates you from slavery to great, stopping maps and profound route-books that you can't make head or tail of without stopping.

All Live-Map discs are prepared by the Touring Club of America, Broadway at 76th Street, New York.

A witty camera has made for us a score of excruciatingly funny photographs, from life, of Dilemmas of the Road. We guarantee every experienced motorist who will send for it a hearty laugh—besides full information about the Live-Map. Write United Manufacturers, address below.

NEW JONES YOBEL

Caruso can make more noise than a rowdy at a baseball game. The singer pleases you; the screecher offends. If the quality of a sound is pleasing you don't mind its great volume. To say that the sound which is most offensive, is, therefore, the most penetrating is absurd.

The new Jones Electric Yobel is the most penetrating of all automobile signals, but it is not raucous or terrifying or insulting. It may be imperative, yet it does not suggest an intoxicated chauffeur out "joy

riding." You recognize it at once as the distinct signal of a lady's or gentleman's car.

A crisp, snappy signal in the city street, a far-flung, penetrating note upon the country road. Urgent, yet civil, the Jones Yobel secures quick co-operation and instant right of way.

Uses 75% less electricity than any other horn. If your dealer doesn't have the Jones Yobel, write United Manufacturers, address below.

JONES SPEEDOMETER GEARED TO THE TRUTH

The hand on the dial of the Jones Speedometer feels the pull of the wheel on the road. This pull is by metal-to-metal contact, by shaft-and-gear connection—a direct drive which can never weaken, never vary.

Other speedometers depend on a magnet and a hair spring to pull the indicating hand. Magnets lose their strength; hair springs, like mercury, are sensitive to the slightest changes of weather. And between the magnet and the indicator is an air gap that breaks the transmission of speed. In this way a magnetic speedometer records outside influences.

The Jones Speedometer records speed—speed only. Neither the uncertain condition of a magnet, nor the changeable tension of a hair spring, nor anything else but speed is transmitted to the Jones indicating hand. No power, or influence, outside of the turning of the road wheel, can affect it. That is why we say the Jones Speedometer is "Geared to the Truth."

Send us the name of your dealer if he doesn't keep the Jones Speedometer, and we'll see that you get one quick. Write United Manufacturers, address below.

ALL JONES ACCESSORIES WHOLESALERS BY THE UNITED MANUFACTURERS. OTHER STANDARD EQUIPMENT ACCESSORIES, WHOLESALERS BY UNITED MANUFACTURERS, ARE

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UNITED MANUFACTURERS, - 250 West 54th Street, New York

March 22, 1932.

O. C. LEVY

1,850,177

FIRE ALARM SYSTEM

Filed Feb. 11, 1929

4 Sheets-Sheet 1

Inventor
Oscar C. Levy

W. H. Carter, Att'y.

Levy, Oscar Charles (1903–1969)

Oscar Charles Levy was born on 11 October 1903, in Chicago, to Ben (or Benjamin) Levy and Lina Levy. His parents had emigrated from a part of Germany that became Poland after 1920. Despite being born in Germany, Ben and Lina were fluent in English. The Levys were Jewish and spoke Yiddish in the home. Ben worked as a saloonkeeper, and Lina was a stay-at-home mother. Oscar Levy was the oldest child; his brother Herbert was born two years after him, and his brother Albert was born two years later. Oscar and Herbert Levy attended the same college, and both became electrical engineers.

In 1929, Levy graduated from the University of Illinois at Urbana. He was an electrical engineering major, and a member of the Tau Delta Phi fraternity, to which Herbert also belonged. While in college, Oscar Levy was a member of the Electrical Engineering Society, participated in the Electrical Engineering Show, and was on the track team. The college yearbook lists him as the “Chief Engineer.” At graduation, Levy was awarded the honor of “high scholarship.” Levy returned to Chicago and worked at the Automatic Electric Company.

Levy’s background in electrical engineering was relevant to his invention of a fire alarm system for small towns or rural communities (Monmonier 2017, 231). Unlike systems in use at the time, Levy’s made use of multiple circuits and pull-boxes to be a more “effective” design. His system was designed for small communities in which multiple pull-boxes were linked to a central station with a siren. Each pull-box was assigned a unique code that was received at the central station. When an alarm was pulled, the siren sounded. The assigned pull-box code made it possible to trace the distress signal to its origin. On 11 February 1929, Levy filed a patent application for his “inexpensive and more effective” fire alarm system. The patent was issued 22 March 1932, but there is no evidence Levy developed his invention commercially. Had Levy implemented his system, it

would have probably contained a map of the community. No map was included in the patent drawings, but Levy thought that a map showing the fire alarm boxes and their respective circuits would be helpful, though not essential.

In 1935, Levy married Betty Sussman (1903–1997). Like Levy, Betty was born and raised in Chicago. They had one child, a daughter Gloria, born in Illinois in 1939. Shortly after her birth, Levy and his family moved to Baltimore, Maryland, where he would reside until he died.

Levy continued to work as an electrical engineer and inventor through the 1940s. He filed an application for a telegraph switching system in 1935 and was issued the patent in 1938. At the time, Levy was working at Associated Electric Lab Inc. His design did not include a map. Levy is recognized as an inventor of the Totalisator, an automatic odds computing system. The Totalisator was used at horse racing tracks as a more accurate means of displaying ticket summaries and betting pools. The device displayed the total number of tickets issued as well as the groupings of different types of tickets. It made betting on horse races more efficient and accurate. Levy filed an application for the totalizing system in 1949 and the patent was granted in 1953. He became executive vice president of American Totalisator Company, founded by Harry L. Straus, in 1967 and held that position until his death at age sixty-five. Levy died on 27 May 1969 and was buried at the Har Sinai Cemetery in Maryland.

Official sources: US Census (1930, 1940); Social Security Death Index.

Other references

Find A Grave (website). 2013. “Oscar C. Levy.” Find A Grave memorial no. 122214914, citing Har Sinai Cemetery, Owings Mills, MD. <https://findagrave.com/>.

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“Oscar C. Levy” [obituary]. 1969. *The [Hagerstown, MD] Morning Herald*. 29 May, 10.

GM

United States Patent [19][11] **4,315,747****McBryde**[45] **Feb. 16, 1982****[54] HOMOLINEAR COMPOSITE EQUAL-AREA WORLD PROJECTIONS****[76] Inventor:** F. Webster McBryde, 10100 Falls Rd., Potomac, Md. 20854**[21] Appl. No.:** 811,318**[22] Filed:** Jun. 29, 1977**[51] Int. Cl.³** G09B 29/00**[52] U.S. Cl.** 434/150; 283/34**[58] Field of Search** 35/40, 41, 42; 283/34, 283/35; 434/150**[56] References Cited****U.S. PATENT DOCUMENTS**

1,050,596 1/1913 Bacon 283/34

OTHER PUBLICATIONS*Elements of Cartography*, by Robinson et al., Third Edition, 1969, John Wiley & Sons, Inc. publisher, 2 title pages, pp. 222-233, 380-383.*Equal-Area Projections for World Statistical Maps*, by McBryde et al., Special Publication No. 245, U.S. Dept.

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The Homolosine Projection: A New Device for Portraying the Earth's Surface Entire, by J. Paul Goode, pp. 119-125, published 1925.*An Introduction to Anthropology*, by Beals and Holjer, Third Edition, The MacMillan Company, New York, title page, pp. IX, X, 1965.*Primary Examiner*—William H. Grieb*Attorney, Agent, or Firm*—Cushman, Darby & Cushman**[57]****ABSTRACT**

An equal-area homolinear composite world map having parallels of latitude parallel to the equator. The map combines an equatorial map section and polar map sections. The equatorial map section is the equatorial portion of a fusiform equal-area world map and the polar sections are the polar portions of a flat-polar equal-area world map. The fusiform and flat-polar maps are prepared according to mapping equations which are the same except that the latter are adjusted to provide flat poles.

2 Claims, 4 Drawing Figures

McBryde, F. Webster (1908–1995)

Felix Webster McBryde was born on 23 April 1908, in Lynchburg, Virginia, to John McBryde (1873–?), a teacher, and Flora McBryde (1883–?). He was their youngest, with two older sisters, Carolyn (b. 1914) and Flora (b. 1911).

McBryde attended Tulane University, in New Orleans, Louisiana, where he majored in history and sociology and received a bachelor of arts in 1930. He was a member of the honor society Phi Beta Kappa and the social fraternity Sigma Nu. After graduation, he became a research fellow at the University of Colorado for a year. In 1932, he conducted research at Clark University. In 1933, he continued his education as a graduate student at the University of California-Berkeley, where he started a PhD program and published an equal-area world map cast on the Eckert VI projection. In 1935, he moved to Columbus, Ohio, where he taught in the geography department at Ohio State University from 1937 to 1942. He received his PhD from the University of California-Berkeley in 1940. In 1942, McBryde was a senior geographer in military intelligence at the War Department, in Washington, DC. Later that year, the *Ohio Journal of Science* published his paper “A Map of the World in Perspective: A New Attempt to Improve World Areal Plottings, Based upon Eckert’s No. 6 Projection” (McBryde 1942).

A newly elected member of Association of American Geographers (as it was called at the time), he believed the organization needed to change with the field of geography. In 1943, he founded the American Society for Geographical Research (ASGR), later known as the American Society of Professional Geographers (ASPG), a network dedicated to the discipline of geography (Miller 1996). In 1945, McBryde left Washington to conduct fieldwork in Peru for the Smithsonian Institution. While in Peru, he served as the director of the Institute of Social Anthropology, in Lima. Three years later McBryde became the chief geographer for the Latin American

program of the US Census Bureau and, as the founding director, established the Ecuadorian Institute of Anthropology and Geography in Quito. He also taught geography at the University of Maryland, and in 1949, he collaborated with mathematician Paul V. Thomas on the development of several world projections designed to represent polar areas more realistically.

In 1950, the Institute honored McBryde as a lifetime honorary director. He continued his career as an adviser to the president of Honduras, Villeda Morales, from 1958 to 1964, until the InterAmerican Geodetic Survey of the US Army hired him as chief of the physical and cultural branch of its National Resources Division. From 1965 to 1970, he worked as the field director of Bioenvironmental Program of the Atlantic-Pacific Interoceanic Sea Level Canal Studies. He also worked for the Battelle Memorial Institute as field director of its Andean Ecology Project. In 1970, he founded the McBryde Center for Human Ecology. McBryde spent the rest of his career as a consultant to Battelle and as a hydrology ecologist and consultant for the Panama River Navigation Project. In 1973, he consulted on a project to control pollution in Chesapeake Bay. With his vast knowledge of Latin America and ecological studies, he also conducted research on the origin of maize in Latin American countries.

McBryde published a series of world maps cast on interrupted equal-area projections. In 1977, he filed a patent application for an invention titled “Equal Area Projections for World Statistical Maps.” As equal-area composite maps of the world that were useful for thematic maps, McBryde’s projections minimize distortion by employing multiple central meridians and representing the poles as lines rather than points (Monmonier 2017, 157–58). The patent was issued in 1982.

In 1979, the Association of American Geographers interviewed him for *Geographers on Film: 25 Archival Gems*. In 1981, he worked as a United Nations consultant. In 1982, he received a Certificate of Merit from the American Congress on

Surveying and Mapping. In 1989, he founded the Ronald Reagan Republican Center and was a charter member of President George H. W. Bush's Republican Presidential Task Force. In 1992, he was part of the Republican Presidential Trust for two years before representing the Potomac, Maryland, area as a member of Republican Party Platform Planning Committee.

He married Frances Van Winkle McBryde, an artist, and had three children, Richard Webster McBryde, John McLaren McBryde, and Sarah Elva McBryde. On 3 June 1995, McBryde died in Potomac, Maryland, at age eighty-seven, of complications from hip surgery.

City directories: Columbus, OH (1938, 1939).

Official sources: US Census (1930, 1940); Social Security Death Index.

Other references

- “F. Webster McBryde” [obituary]. 1995. *Washington Post*. 6 June.
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W. O. MOFFATT & A. VON SCHRENK.

TRANSFER TICKET.

APPLICATION FILED MAR. 3, 1913.

1,201,605.

Patented Oct. 17, 1916.

WITNESSES

George T. Ben
John A. Kibben

INVENTORS

William C. Moffatt
Arnold von Schrenk

BY

Priscilla Knauth
ATTORNEYS

Moffatt, William C. (1883–1969)

William Christopher Moffatt was born in New York, New York, on 22 June 1883. He was the son of Irish immigrants James (b. 1845) and Eliza Moffatt (b. 1848). His father worked as a printer. William had two older brothers, John (b. 1875) and James (b. 1880), and two older sisters, Elizabeth (b. 1872) and Margaret (b. 1877).

In March 1913, at the age of nineteen, William Moffatt filed a “Ticket Transfer” patent jointly with Arnold von Schrenk (Monmonier 2017, 1–4, 10, 15–16). The two men presumably met while working for United Traction Company in Albany, New York. Moffatt worked for the company as assistant secretary and treasurer while von Schrenk was the general superintendent. A description of the patent says that the transfer ticket provides a “representation of connecting railway routes,” that can be “punched or marked at predetermined points, when the ticket is issued whereby the continuing trip for which said ticket may be validly used is indicated” (Moffatt and von Schrenk 1916). In other words, the transfer ticket enables a passenger to continue on the journey to the location as marked on the transfer ticket and prevents “looping,” a slang term for making a round trip without paying for the return leg.

In 1924, at the age of thirty-six, Moffatt married Ruth Gardner Lumley (1899–1969) from Scranton, Pennsylvania. Although Ruth did not attend school, she was able to read and write. Together they had two sons. The first was Donald Christopher Moffatt (1925–2011), followed by John Warren Moffatt (1927–1987).

Moffatt spent most of his adult life in Scranton, Pennsylvania. He started out in the area working as a stenographer. Other jobs he took later in life included work as a clerk for the Erie and Wyoming Valley Railroad; a clerk for the Delaware, Lackawanna, and Western Railroad; and a storekeeper at the Delaware and Hudson Coal Storehouse. In addition to

working as a clerk and storekeeper, William Moffatt also volunteered his time as a trustee of the First Presbyterian Church of Dunmore. He died in August 1969.

City directories: Scranton, PA (1900, 1902, 1903, 1904, 1906, 1907, 1916, 1917, 1918, 1919, 1920, 1926, 1927, 1928, 1929, 1930, 1931, 1932, 1936, 1937, 1939, 1940, 1942, 1946, 1949, 1953, 1957, 1958, 1960).

Official sources: US Census (1900, 1930); Social Security Death Index.

Other references

Moffatt, William C., and Arnold von Schrenk. 1916. Transfer Ticket. US Patent 1,201,605, filed 3 March 1913, and issued 17 October 1916.

Monmonier, Mark. 2017. *Patents and Cartographic Inventions: A New Perspective for Map History*. New York: Palgrave Macmillan.

AA

1914 Albany-Rensselaer City Directory (actually)

William C. Moffatt, 1914 Albany directory

" Morris bds 5 Garden [Watervliet
Moffatt Harry printer 18 Beaver h at
" William C rem to Scranton Penn
Moffett F Chandler lawyer 51 State rm

William C. Moffatt, 1916 Scranton PA directory; same 1917

— Wm C gen'l storekpr D & H Co, r
514 Dudley D
Moffitt Anna G. clk. r 224 Brack

William C. Moffatt, 1907 Scranton directory

— William C, clk D L & W R R, r
514 Dudley D
Moffitt Anna G. 224 Brack

William C. Moffatt, 1918 Scranton directory

— Wm C, storekpr Hudson Coal Co.
h 514 Dudley D
Moffitt Cecilia. clk. r 507 Pittston av

William C. Moffatt, 1927 Scranton directory, after having married Ruth

lor av
Moffatt Wm C (Ruth G) storekpr h1716
Penn av
Moffit Agnes M h707 S Main av

ARTS, &c.—Continued.

INVENTIONS OR DISCOVERIES.	PATENTEES.	RESIDENCE.	WHEN ISSUED.
Divitals, and preventing forgeries,	C. S. Rafinesque,	Lexington, Ky.	August 23, 1825.
Drawings, machine for making perspective,	Richard Lyons,	New Rumley, Ohio,	June 14, 1834.
Drawing, mechanical, perspective,	Simoon De Witt,	Albany, N. Y.	April 30, 1813.
Engraving, - - -	Isaac Hutton and G. Fairman,	New York,	January 8, 1802.
Engraving and printing, metallic plates,	David H. Mason,	Philadelphia, Pa.	May 17, 1822.
Etching end pieces of bank notes,	Henry Tanner,	Philadelphia, Pa.	July 1, 1815.
Files for papers,	Saml. Angell,	Providence, R. I.	April 22, 1834.
Flute, German,	William Schaffer,	New York,	June 6, 1814.
Glass frames, for pictures, &c.	John Scott,	Philadelphia, Pa.	April 6, 1831.
Globe, for teaching geography,	Elizabeth Oram,	New York,	January 12, 1831. ▼
Grammar, teaching,	John Lamb,	Hillsdale, N. Y.	July 23, 1820.
Grammatical key,	James Brown,	Newark, N. J.	November 3, 1817.
Grammatical mirror,	Cyrus Durand,	Springfield, N. J.	March 17, 1818.
Gilding copper, brass, &c.	George Richards,	Birmingham, England,	May 17, 1838.
Guitar,	E. N. Sherr,	Philadelphia, Pa.	October 6, 1831.
Harmonicon,	Francis H. Smith,	Northampton, Va.	April 7, 1825.
Ink, applying to types,	John Prince,	Philadelphia, Pa.	November 19, 1833.
Ink, coloring matter, &c.	James Rennie,	Lodi, N. Y.	June 9, 1834.
Ink, distributor,	John Prince,	New York,	December 3, 1829.
Ink, distributor, (re-issue),	John Prince,	Philadelphia, Pa.	November 19, 1833.
Ink, distributor.— <i>See Printing Press.</i>			
Ink, distributor, self-operating,	John Maxson,	Schenectady, N. Y.	January 9, 1835.
Ink, distributing cylinder, for copper plates,	Andrew Maverick,	New York,	April 17, 1810.
Ink, distributing on types, roller for,	Hugh Maxwell,	Lancaster, Pa.	December 26, 1817.
Ink holder,	Dani. Harrington,	Philadelphia, Pa.	April 22, 1831.
Ink stand,	Oliver Barber,	Hartford, Ct.	May 13, 1813.
Ink stand,	Anson Havrood,	Easton, Mass.	November 23, 1818.

Oram, Elizabeth (d. 1865?)

Vital records for Elizabeth Oram are elusive. She might have been born as Elizabeth Swope in Washington, DC, to Daniel Paul Swope (1875–?) and Mary Estelle Swope (1880–1902); the couple also had a son. There is no record of Elizabeth’s education, but her career as an educator suggests that she probably attended a traditional school.

From 1815 to 1847, Oram worked as a teacher, author, and artist in New York City. In 1830, she served as principal of New York’s Female High School, one of the city’s few opportunities for women eager for an academic education. In 1846, Oram published the first American composition textbook written by a woman, *First Lessons in English Grammar and Composition with Exercises in the Elements of Pronunciation Words for Dictation and Subjects for Composition*. In 1860, she published a textbook titled *Oram’s Grammar*.

Dedicated to education, she invented a relief globe that included a movable ecliptic in which the sun moves in relation to the seasons to demonstrate celestial latitude and longitude as well as the effect of the solar declination angle (Monmonier 2017, 186–88; Warner 1987, 118). On 12 January 1831, Oram received a patent for an invention titled “Globe for Teaching Geography.” Although patent records were destroyed in a fire in 1836, her invention was described in a brief summary published in May 1931 in the *Journal of the Franklin Institute*, which routinely reported on recent patents of particular note. Because the title of the patent survived in a list of patents prepared for Congress by the patent office, it was issued an “X” patent number. *The Directory of American Tool and Machinery Patents*, a volunteer project that attempted to recover, from other sources, information about patents lost in the fire, found no patent drawings or other records, and the principal reference to her patent is the Franklin Institute commentary. There is no

indication that Oram's globe was ever manufactured and marketed.

Details of Oram's life are sketchy. An Elizabeth Oram who might have been the teacher and inventor died on 8 May 1865 and is buried in Oak Hill Cemetery in Washington, DC.

Official sources: US Census (1930)

Other references

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Skinner, Roger Sherman. 1830. *The New York State Register for the Year of Our Lord 1830*. New York: Clayton & Van Norden.

Warner, Deborah Jean. 1987. "The Geography of Heaven and Earth." *Rittenhouse: Journal of the American Scientific Instrument Enterprise* 2, no. 8: 108–37.

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INVENTIONS OR DISCOVERIES.	PATENTEES.	RESIDENCE.	WHEN ISSUED.
Armlets, - - -	Edward West, - - -	Kentucky, - - -	May 19, 1800.
Ball stocks, printers', - - -	John Babcock, - - -	New Haven, Ct. - - -	March 18, 1818.
Bank notes, - - -	George Murray, - - -	Philadelphia, Pa. - - -	March 23, 1822.
Bank notes, - - -	James Pugh, - - -	Philadelphia, Pa. - - -	August 13, 1822.
Bank notes, preventing counterfeits, &c. - - -	Francis Peabody and Joseph Dixon, - - -	Salem, Mass. - - -	April 20, 1832.
Bills of credit, - - -	John Golder, - - -	Philadelphia, Pa. - - -	September 26, 1835.
Bills of exchange, - - -	Charles C. Wright, - - -	New York, - - -	June 19, 1835.
Binder, for newspapers, - - -	Ezra Repley, - - -	Troy, N. Y. - - -	December 26, 1837.
Binding, ornamental, and raised, - - -	D. K. Vanreclton, - - -	New York, - - -	December 12, 1820.
Biting figures on steel cylinders, for printing calico, - - -	David H. Mason and M. H. Baldwin, - - -	Philadelphia, Pa. - - -	October 30, 1827.
Blocks, for printing colors on silk, - - -	John Crabtree, - - -	New York, - - -	December 7, 1837.
Brushes, for blending colors, &c., - - -	George M. Morris, - - -	Philadelphia, Pa. - - -	March 6, 1835.
Blocks, stereotype, - - -	Bradbury Haskett, - - -	Boston, Mass. - - -	May 21, 1832.
Blocks, stereotype, - - -	Saml. Sawyer, - - -	Boston, Mass. - - -	May 28, 1832.
Blocks, stereotype, - - -	Enoch Hale, - - -	Boston, Mass. - - -	February 15, 1833.
Blocks, stereotype, extendible, - - -	Elihu White, (assignee of G. W. Grater,) - - -	New York, - - -	January 7, 1831.
Blocks, stereotype, fastening, cam and spring, - - -	Abel Chandler, - - -	Concord, Mass. - - -	July 13, 1832.
Blocks, stereotype plates, - - -	Bradbury Haskett, - - -	Boston, Mass. - - -	March 8, 1831.
Blocks, stereotype, used in printing, - - -	Matthew Smith, - - -	New York, - - -	January 20, 1819.
Blocks, stereotype, used in printing, - - -	Samuel G. Goodrich, - - -	Boston, Mass. - - -	October 11, 1828.
Bookbinder's press, - - -	John J. Wells, - - -	Hartford, Ct. - - -	March 23, 1824.
Book-binding, - - -	John T. Sutherland, - - -	Philadelphia, Pa. - - -	July 27, 1812.
Book-binding, - - -	John Meer, - - -	Philadelphia, Pa. - - -	August 26, 1818.
Book-binding, - - -	Jesse Torrey, - - -	Germantown, Pa. - - -	August 8, 1829.

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MECHANIC ARTS, MANUFACTURES, GENERAL SCIENCE:

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EDITED

BY THOMAS P. JONES, M. D.

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AND SUPERINTENDENT OF THE PATENT OFFICE AT
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VOL. VII.

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J. HARDING, PRINTER.

1831

American Patents for January, with Remarks. 307

wheel and parts for applying the same according to this my specification."

We confess that we do not understand the reference to the atmospheric pressure, and the syphon principle, although we have carefully read the parts in which they are described; but the description is an involved one, and we could not take the time to make it a study, without a fair prospect of learning something from it. The drawing which accompanies the specification, lends little or no aid to the description, being very indifferently executed.

22. For an improvement in the *Manufacture of Buttons*, called the Safe Eye Button; Charles Goodyear, Philadelphia, Pennsylvania, January 12.

This patent is taken for enclosing pieces of cloth, leather, or other substances which can be penetrated by a needle, between plates of metal. These plates have a hole of one-quarter of an inch diameter punched in them, to serve as an eye through which the sewing is to be effected.

"The improvement which the said Charles Goodyear claims consists in the manner of fastening between the shells, the cloth, leather, catgut, or substance to be sewn through, and in making the eye of the button of cloth, leather, catgut, or other substance of a similar form, leaving holes, and thereby obviating the objection to most buttons which are liable to cut the thread with which they are fastened on clothes."

The specification describes the formation of the plates or shells, and the manner of uniting them; but these are not represented by drawings, which ought to have been done.

23. For an *Instrument for the Teaching of Geography*; Elizabeth Oram, city of New York, January 12.

As this instrument is the invention of a lady, we will, of course, allow her to tell her story in her own way, without any animadversions of ours, which might mar the narrative, or involve us in inextricable difficulties.

"Be it known, that I, Elizabeth Oram, of the city of New York, have invented a new and useful instrument for the teaching of geography, and that the following is a full and exact description of the construction and use thereof as invented by me.

"It consists of a globe, upon which the surface of the earth is represented by various heights, as they exist in nature. By this the distinction between land and water is clearly seen. The various ranges of mountains, with their relative heights exhibited; and their influence upon heat and productions, with their geological structure.

"By means of a magnet inserted in the surface of the improved globe, the great principle of attraction may be clearly shown, by affixing thereto any small iron figure.

"This globe is surrounded by the principal circles of the sphere, The ecliptic is elevated, by means of which, and a moveable and

308 *American Patents for January, with Remarks.*

illuminated sun, the manner in which the earth receives its rays, and the causes of seasons, may be clearly exhibited. On the horizon there is affixed a small instrument, by which the causes of eclipses are shown.

"A moveable star, brings to the comprehension of pupils the nature of right ascension, declination, celestial latitude and longitude."

ELIZABETH ORAM.

24. For an improvement on the *Bar Share Plough*; Edmund M. Waggenet, Adair county, Kentucky, January 12.

We have no doubt that the plough described is a very good one, but its appearance is much like that of many other ploughs; and although the patentee has placed it before us with much care, he has not told us in what his invention consists; he has, however, mentioned some of its good properties, and we will repeat after him, that "The plough is adapted to work with or without a coulter, and designed for fallowing, ridging, and ditching farm lands; draining marshes; turnpiking roads, and repairing highways."

"The projective slope of the bar and share gives to the plough a descending draft, which causes it to draw to and retain its hold in the earth to the depth regulated or required. The rolling board and face of the share forming a regular circle, and passing on at near right angles, *rolls, beds, and pulverizes* the earth at one and the same time. Placing the surface soil to the depth the plough runs, and bringing the clay, or sub-soil, upon the surface. All parts of the plough which are pressed by the earth being metallic, immediately scours smooth, cuts, slides, and rolls off the earth without friction or compression, which renders the draft extremely light; and from the combination of its parts, is rendered the more permanent by a hard draft."

25. For an improvement in the *Percussion Lock for Cannon*; Enoch Hidden, city of New York, January 14.

In its general features this lock bears a strong resemblance to that patented by Mr. Joshua Shaw, of Philadelphia; but to lessen the powerful reaction upon the cock, or hammer, from the explosion, by which it is liable to be broken, that part of it which is immediately over the vent, has a hole drilled in it, to allow the explosion from the touch hole to pass through it. It has also a preventive spring, placed near the head of the cock, to ease it off in its recoil.

The claims are, the opening in the head of the cock; the mode of making the cock, as described in the specification; the preventive spring; a small steel or other metal tube to contract the vent hole; a piece of metal with leather or sponge, to place on the priming to keep it dry, or to close the vent when the gun is sponged, &c.

26. For sawing boards by means of a *Double Toothed Saw*; Stafford Dawly, Annsville, Oncida county, New York, January 14.

J. B. PLATO.

MAP OR CHART.

APPLICATION FILED DEC. 7, 1914.

1,147,749.

Patented July 27, 1915.

WITNESSES:

F. H. Cuno
L. Rhoades

INVENTOR.

J. B. PLATO.

[Signature]
ATTORNEY.

Plato, John Byron (1876–1966)

John Byron Plato was born on 17 December 1876 in Chicago, Illinois, to John Byron Plato (c. 1843–1881) and Helen Larrabee Plato (c. 1843–1931). (John the son typically self-identified as J. B. Plato or John B. Plato, and apparently never used the appellation *Jr.*) His parents had married on 27 December 1865, and lived in Geneva, Illinois. He was an only child. His father, identified by the 1880 census as a “retired lawyer” suffering from “consumption” (tuberculosis), died in 1881, and Plato’s mother apparently never remarried. He lived with her through much of his life and at various residences in Illinois, Colorado, and New York until her death at age eighty-eight.

Plato was thirty-eight years old in late December 1914, when he filed an application for a map-related patent that was issued an expeditious eight months later (Plato 1915). With the ambiguous title “Map or Chart,” the patent described a geographic addressing scheme based on a rural residence’s distance and direction from a nearby town or village. Called the “Clock System,” his schema partitioned a county into hinterlands, and further partitioned each central place’s hinterland into “districts” separated by twelve evenly spaced radial lines and “numbered in clockwise succession from 1 to 12,” and also into “zones” separated by concentric circles with integer radii and numbered consecutively 0, 1, 2, 3, and so on. The overlay of districts and zones divided the hinterland into “areas,” within which individual dwellings were differentiated by a letter, a symbol, or another number, listed along with the resident’s name in the county’s Rural Index and marked on an accompanying map. As a 21 February 1920 article in *Literary Digest* explained, Plato’s objective was to give rural residents “a real address” just like city-dwellers (“Putting the Farmer on the Map” 1920, 28).

Plato’s life can be reconstructed from census records and city directories, which indicate an impressive diversity of

occupations, several related to his patent (Monmonier 2017, 36–38). At some point prior to 1898, he and his mother moved to the home of his maternal grandmother, in Denver, where he probably completed four years of high school. During the Spanish-American War (1898–1899) he served in the Philippines as a private in the First Colorado Infantry of the United States Volunteers. In 1900, he was a draftsman; between 1901 and 1906 he was a lumber dealer, specializing in cabinet woods and veneers; and from 1906 through 1909 he managed the Plato Manufacturing Company, which produced the Plato Horse Hitch, a device for preventing the horse from running away with a wagon when the driver stepped down. He gained experience with the patents system in 1905, when he filed three patents for the horse hitch. City directories for 1910 and 1911 listed him as manager of the South Side Lumber Yard. In 1912 he was a teacher at the Villa Park School and still living with his mother, but a significant change had occurred by 1914, when the Denver directory listed him as a rancher, living by himself at a Denver address. The 1916 directory reported him at a different address, still in the Denver area, but mentioned no occupation. Other sources confirm that around that time he was a livestock and dairy farmer: his purchases and sales appeared occasionally in the *Guernsey Breeders' Journal*, and in the July 1917 issue of *System on the Farm*, he was coauthor of a short article describing a clever, cost-effective way of housing a small herd (Hall and Plato 1917). Around this time, he was apparently living in Semper, Colorado (the address listed in his patent), which is now a suburb of Denver. According to a 1917 article in the popular technology periodical *Illustrated World*, he conceived the idea for the Clock System after he missed a sale because “some eastern buyers” could not find his farm (French 1917).

Plato actively promoted his invention (Monmonier 2017, 39–49). In 1916, he compiled, published, and copyrighted a “Rural Directory Map” for Fort Collins, Colorado. After attempting unsuccessfully to license or sell the concept to the

Post Office and some Chicago investors, he interested College of Agriculture faculty at Cornell University in the Rural Index as a means of empowering farmers. By 1918, he was living in Ithaca, he worked as a machinist at a local aircraft plant while he recruited local investors, who helped him set up a company to make and market address guides, first produced for towns and later for counties. The 1920 Census reported Plato living with his mother at a local rooming house and working as a farmer. By 1922, he was working fulltime at his own company, which between 1919 and 1929 registered copyrights for maps and guides for eleven counties in New York and one in Pennsylvania. During this period he experimented with diverse production and marketing strategies, including compilation by local school children, free mailbox signs, and price breaks for farmers. In the end, the endeavor was supported by a combination of sales and advertising. Marketing efforts emphasized that the addressing strategy had been patented.

Plato's company failed to survive the Great Depression. It registered its last copyright in mid-July 1929, three months before the historic stock market crash. Helen Plato died in March 1931, and her son John left Ithaca for Washington, DC, where he found employment as a mapmaker by either the Agricultural Adjustment Administration or the Census Bureau—city directories report both. In 1936, after Plato's patent had expired, local investors formed a new firm, replaced the Clock System with an eight-sector "Compass System," and by 1940 had remapped all but two of Plato's original twelve counties and registered copyrights for twenty-one more. Even so, activity and staffing had slowed by 1940, and the firm went out of business in 1941 (Monmonier 2017, 49–54).

In 1948, at age seventy-one, John Plato was married for the first and only time, to Christine G. Plato, who was twenty-four years younger. Christine was born on 10 July 1900, and died in Maryland, on 2 April 1991. In the late 1940s and early 1950s, she apparently operated a daycare center on the Plato property.

In 1988, she was in a Gaithersburg, Maryland, nursing home. Nothing is known of her life before marrying John. She was not issued a Social Security card until 1962.

John Byron Plato died on 29 June 1966, at a veteran's hospital in Washington. He merited an obituary in the *Washington Post*, which noted that "he came to Washington in 1933 as a map expert for the government" but was silent about both his patent and his work in Ithaca. Plato's ultimate achievement was the incremental purchase of rural property near Washington, and his donation before his death of a fifty-acre nature preserve to the Girl Scouts.

City directories: Denver, CO (1898, 1899, 1900, 1901, 1902, 1903, 1904, 1906, 1907, 1908, 1909, 1910, 1911, 1912, 1914, 1916), Ithaca, NY (1919, 1922, 1923, 1925, 1927, 1929, 1930, 1931, 1932, 1937, 1940, 1941), Washington, DC (1933, 1934, 1935, 1936).

Official sources: Catalog of Copyright Entries (1919); US Census (1880, 1900, 1910, 1920, 1930, 1940); World War I Draft Registration Cards; Cook County (IL) Birth Certificates Index; Illinois Marriage and Divorce Records; New York State Census (1925); Social Security Death Index; Social Security Administration response to FOIA request (14 January 2015).

Other references

American Rural Index Corporation. 1919. *Clock System Rural Index, Ulysses Township*. Ithaca, NY.

French, W. F. 1917. "Watch Locates Neighboring Farmers." *Illustrated World* 27: 247–48.

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- Palto, J. B. 1905. Horse Hitching Device. US Patent 823,964, filed 21 June 1905, and issued 19 June 1906.
- . 1911. Hitching Device. US Patent 986,591, filed 26 December 1905, and issued 14 March 1911.
- . 1915. Map or Chart. US Patent 1,147,749, filed 7 December 1914, and issued 27 July 1915.
- Plato, J. B. and William H. Kilgore. 1905. Hitching Attachment for Vehicles. US Patent 807,047, filed 29 April 1905, and issued 12 December 1905.
- “Putting the Farmer on the Map.” 1920. *Literary Digest* 64, no. 8: 28–29.
- Sanderson, Dwight. 1920. “Locating the Rural Community.” *Cornell Reading Course for the Farm*, lesson 158 (June): 429–33.
- “Uncle John Plato, Benefactor of Girl Scouts in Forestville” [obituary]. 1966. *Washington Post*. 1 July, B8.
- United States Rural Directory Co., Mountain States Division. 1916. *Rural Directory Map, Fort Collins, Colorado*. Denver, CO.

Oct. 31, 1933.

R. F. POLLARD ET AL

1,932,909

EDUCATIONAL APPARATUS

Filed July 11, 1932

Pollard, Robert Floyd (1894–1961)

and

Pollard, Oscar H. (1896–1976)

Robert Floyd Pollard was born on 20 July 1894 in Fairland, Indiana, and his brother Oscar Hand Pollard was born on 22 December 1896 in Shelby, Indiana. They lived on the family farm in Brandywine, Indiana, with their parents, Henry D. (1854–1951) and Harriette Elizabeth Pollard (1860–1923), and their siblings, Nora B. (b. 1877), Mary Alice (1878–1941), Stella (1880–1939), and George W. (b. 1885).

On 28 June 1917, Robert, who was twenty-three, married Ruby M. Woolridge (b. 1899). In 1920, they lived in Brandywine, where he worked in farming. In 1917, Oscar was working as a ranch hand in Meade, South Dakota. On 7 September 1922, Oscar, who was twenty-five, married Olive Mae Pollard (b. 1900), with whom he eventually had three children. Oscar had completed two years of college. The brothers were a year and a half apart and, presumably, were personally close insofar as they followed nearly identical career paths. In 1930, both brothers were working as teachers in the Indianapolis public schools. It seems that Robert acquired at least two years of college.

In 1933, the Pollard brothers received a patent for an invention titled “Educational Apparatus,” a device intended to teach students geography by quizzing them on place names (Monmonier 2017, 232–34). The map includes names and places linked by an electrical circuit that lit up a bulb when the correct connection was made. The electrical circuit could be adapted to teach other subjects. The device was not produced commercially.

In 1942, Oscar and Robert lived in Indianapolis and worked as postal clerks. Oscar served in the military between 1942 and 1945. On 5 December 1961, Robert, who was sixty-seven and had divorced, died in Indianapolis and was buried in Boggsstown

Cemetery, near Shelbyville, Indiana. On 8 January 1976, Oscar died in Indianapolis at age seventy-nine and was buried in Washington Park East Cemetery in Indianapolis; he was still married to Olive, who died in 1984.

City directories: Indianapolis, IN (1932).

Official sources: US Census (1900, 1910, 1920, 1930, 1940); World War I Draft Registration Cards; World War II Draft Registration Cards (1942); Marion County, IN Marriage Index; Social Security Death Index.

Other references

Find A Grave (website). 2011. "Oscar Hand Pollard." Find A Grave memorial no. 79825951, citing Washington Park East Cemetery, Indianapolis, IN. <https://www.findagrave.com/>.

———. 2010. "Robert Floyd Pollard." Find A Grave memorial no. 61812780, citing Boggstown Cemetery, Boggstown, IN. <https://www.findagrave.com/>.

Monmonier, Mark. 2017. *Patents and Cartographic Inventions: A New Perspective for Map History*. New York: Palgrave Macmillan.

Pollard, Robert F., and Oscar H. Pollard. 1933. Educational Apparatus. US Patent 1,932,909, filed 11 July 1932, and issued 31 October 1933.

Form 1 **REGISTRATION CARD** | No. **9**

1 Name in full **Oscar H. Pollard** Age, in yrs. **21**
(Given name) (Family name)

2 Home address **Fauland, Ind.**
(No.) (Street) (City) (State)

3 Date of birth **December 22 1895**
(Month) (Day) (Year)

4 Are you (1) a natural-born citizen, (2) a naturalized citizen, (3) an alien, (4) or have you declared your intention (specify which)? **Natural**

5 Where were you born? **Fauland, Indiana, U S A**
(Town) (State) (Nation)

6 If not a citizen, of what country are you a citizen or subject?

7 What is your present trade, occupation, or office? **Ranch or Farm Labour.**

8 By whom employed? **Tom Ward**
 Where employed? **Dalzell & O 30**

9 Have you a father, mother, wife, child under 12, or a sister or brother under 12, solely dependent on you for support (specify which)? **No**

10 Married or single (which)? **Single** Race (specify which): **Caucasian**

11 What military service have you had? Rank **None**; branch **None**;
 years _____; Nation or State _____

12 Do you claim exemption from draft (specify grounds)? **No**

I affirm that I have verified above answers and that they are true.

85 **Oscar H. Pollard**
(Signature or mark)

If person is of African descent, year of this owner

J. B. RHODES.
ROUTE INDICATOR.

APPLICATION FILED JULY 27, 1910.

1,005,474.

Patented Oct. 10, 1911.

4 SHEETS—SHEET 1.

Rhodes, Jay B. (1865–1931)

Jay Byron Rhodes was born on 2 March 1865, in Oshtemo, Michigan, to David Rhodes (1825–1898) and Abigail Slack (1829–1912), both originally from New York. Rhodes, who probably had no more than an elementary school education, spent most of his life in Kalamazoo, where in 1891, at the age of twenty-six, he built the first self-propelled vehicle in the city and demonstrated the vehicle on Rose Street to considerable local stir (Lyon 2004). He had originally hoped the vehicle would carry passengers from Kalamazoo to Gull Lake, but he never perfected the design. In a move of youthful naiveté, he sold the car for \$50, despite investing more than \$3,500 in its development.

After this setback, Rhodes moved to Chicago, where he took a job as a mechanical engineer with the Austin Manufacturing Company. While there, he developed a dumping device for railroad cars carrying bulk material. The device became widely used: according to records at the Kalamazoo Valley Museum, it helped simplify the building of the Panama Canal and was widely used on the frontlines of World War I.

In 1903, Rhodes moved back to Kalamazoo, where he invented his principal map-related invention: a route indicator for vehicles that was printed on a brass cylinder (Monmonier 2017, 83–85; Jay B. Rhodes 1910, 1911). His younger brother Bert (Rhodes 1911), who also patented a route indicator, signed over the rights to Jay. Bert's device displayed place names as the vehicle passed them.

Rhodes invented his most profitable creation in 1921: a cap with a vented spout that could fit onto a canning jar was marketed as a device to dispense oil into a car engine. Profits and licensing fees provided sufficient income for him to devote all of his time to inventing. Over the course of his career, Rhodes received more than two hundred patents for his ideas (“J. B. Rhodes: Kalamazoo’s Edison” 2007).

In 27 July 1887, Rhodes married Flora Rhodes (1867–1946), with whom he had one son, Lewis. He died 12 October 1931, in Kalamazoo, Michigan.

Official sources: US Census (1910, 1920, and 1930);
Michigan Death, Birth, and Burials Index.

Other references

“J. B. Rhodes: Kalamazoo’s Edison.” 2007. *Museography* 6, no. 2: 12–14.

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[https://commons.wikimedia.org/wiki/File:Local_products_--_Kalamazoo_Valley_Museum_024_\(6926490837\).jpg](https://commons.wikimedia.org/wiki/File:Local_products_--_Kalamazoo_Valley_Museum_024_(6926490837).jpg)

Lyon, David O. 2004. “A Century of Automobiling in Kalamazoo.” *Museography* 3, no. 3: 12–14,

http://kvm.kvcc.edu/info/museON/museographies/Museography_IX.pdf.

Monmonier, Mark. 2017. *Patents and Cartographic Inventions: A New Perspective for Map History*. New York: Palgrave Macmillan.

Rhodes, Bert O. 1911. Route Indicator. US Patent 1,010,802, filed 15 March 1909, and issued 5 December 1911.

Rhodes, Jay B. 1910. Route Indicator. US Patent 951,966, filed 6 July 1909, and issued 15 March 1910.

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J. B. RHODES.
DISPENSING CAN.

APPLICATION FILED DEC. 27, 1920.

1,403,636.

Patented Jan. 17, 1922.

INVENTOR.
Jay B. Rhodes
BY *Chappell & Earl*
ATTORNEYS.

Swett, Edward R., Jr. (1904–1981)

Edward Ricker Swett, was born on 7 August 1904, to Edward R. Swett (1879–1931) and Edna B. Swett (1877–?). He spent most of his life in Muskegon, Michigan, and completed at least two years of college. Although Swett’s life history is sketchy, at age nineteen, he married Louise Kooman (1904–1996), with whom he had three or four children. By age twenty-five, he was working and living in Muskegon’s Occidental Hotel, which his father managed. During this time, he invented a “Fire Alarm System” for which he received a patent in 1933.

Swett’s alarm system linked a fire-telegraph or telephone switchboard to an electric map, thereby creating a way to more accurately report the exact location of a fire (Monmonier 2017, 224–27). According to the *Proceedings of the City Commission*, in 1930, the City of Grand Rapids purchased Swett’s Fire Alarm System, “together with files and indexes to be used in connection therewith,” for the sum of \$4,960.50. “When placed in operation,” the commissioners maintained, the system “will enable the Fire Department to expedite and lessen chances of error in recording and answering fire alarms” (“Contracts: Edward R. Swett, Jr.” 1930). It is not clear that he sold systems to other municipalities.

According to the 1940 census, Swett owned his own home, had two sons (eight and fifteen) and one daughter (two years old), and was a commercial representative in the telegraph industry, with an income of \$3,900. Records indicate that he died 16 January 1981 in Volusia, Florida. He never received a second patent.

Official sources: US Census (1910, 1920, 1930, 1940);
Michigan Marriage Records; Social Security Death Index.

Other references

“Contracts: Edward R. Swett, Jr.” 1930. *Proceedings of the City Commission of Grand Rapids, Michigan*. 14 August.

Monmonier, Mark. 2017. *Patents and Cartographic Inventions: A New Perspective for Map History*. New York: Palgrave Macmillan.

Ring-Ziegler Family Tree. 2017. Ancestry.com Public Member Trees. <https://www.ancestrylibrary.com/family-tree/person/tree/53057728/person/13506079410/story>.

Swett, Edward R., Jr. 1933. Fire Alarm System. US Patent 1,929,759, filed 25 August 1930, and issued 10 October 1933.

MRH

54625. Your Committee on Administration submits herewith an agreement between Edward R. Swett, Jr., and the City of Grand Rapids, for the purchase of an Electric Fire Alarm Map, together with files and indexes to be used in connection therewith, for the sum of \$4,960.50. This system, when placed in operation, will enable the Fire Department to expedite and lessen chances of error in recording and answering fire alarms, and we therefore recommend that the same be approved and the Mayor authorized to execute the same on behalf of the City.

George Veldman, W. B. Chalmers,
Committee on Administration.

Adopted.

Yeas — Coms. Chalmers, Karel,
Panfil, Schriber, Souter, Veldman
—6.

Nays—0.

No. 751,226.

PATENTED FEB. 2. 1904.

A. VAN DER GRINTEN.

MAP.

APPLICATION FILED OCT. 2, 1899.

NO MODEL.

Fig 1

Fig 2

Witnesses:-

Carl H. Crawford
C. W. Kieck

Inventor:-

Alphonse Van der Grinten
by Pooley Brown
his Attorneys

Van der Grinten, Alphons (1852–1921)

Alphons (sometimes spelled Alphonse) Van der Grinten was born 18 April 1852 in Prussia to Lambert and Petronella Van der Grinten. No information was discovered about his childhood or education. On 23 May 1887, at age thirty-five, he was granted US citizenship, according to court records in Cook County, Illinois. An official record of his arrival in New York, on 19 August 1887, via a ship from Rotterdam, Netherlands, lists his nationality as American, which suggests he had arrived much earlier, probably with his parents, before moving to Chicago.

On 29 May 1889, in Chicago, he married Adelheit (also spelled Adelheid or, later, in US Census records, Adelaide or Adelaide) Effertz (1866–1945), who was also German-born. The couple had one daughter, Anna, born 25 February 1890. The 1900 census has the family living independently in Chicago's 30th Ward, though subsequent records show them sharing a dwelling on Racine Avenue in the 18th Ward with another family—the Hartings or Hartungs—likely Adelaide's sister's family.

Van der Grinten worked as a draftsman at Rand, McNally and Company. While employed there, he invented a new cartographic projection meant to rival and improve upon the Mercator projection. He struggled somewhat to patent the map: he was initially rejected for poor wording, lack of clarity, failure to describe a method, and errors of fact. He also lost touch with the patents office for a year; in a plea letter to reinstate his patent application, he cited ill health and the need to work six days per week at his job in order to support his wife and child as reasons for the lapse in correspondence (Monmonier 2017, 162–64).

In 1904, more than four years after filing, he received his patent (Van der Grinten 1904b). Shortly afterward, Van der Grinten published two academic papers about his invention, one

in Germany and one in the *American Journal of Science*, in which he mentioned that he had also patented his map in Canada, France, and Great Britain (Van der Grinten 1905). Despite the difficulties Van der Grinten encountered in obtaining the patent, he achieved prominence for his projection when the National Geographic Society adopted it for their world reference map in 1922, shortly after his death. It was used as such until 1988 (Monmonier 2017, 165).

Van der Grinten described and advocated for his map in a 1904 manuscript that he titled, *The New Circular Map of the Whole World*. In this handwritten manuscript, he described how, in his map, “all maximal errors shall be concentrated at the poles, so that the continents fall within the zone of least alteration” (Van der Grinten 1904a, 1). In concluding, he touted the benefits of this approach, writing,

By inventing this circular projection I was exclusively guided by the purpose to find the most practical method for a simple geometrical construction of the latitudinal lines of the network on a strict mathematical basis, determining the magnitudes of errors in such a manner, as to balance the rate of increase of same towards the poles as produced by Mollweide’s or Aitoff-Hammer’s equivalent, and Mercator’s conformal projections. Mercator’s projection is fully characterized by Mercator himself as destined for navigators and not for geographers. (Van der Grinten 1904b, 12)

Like others before and after him, Van der Grinten saw his map as a rival to other popular map projections—particularly the Mercator—and proclaimed its relative advantages over his competitors.

Van der Grinten died on 2 July 1921 in Chicago, Illinois, and is buried in St. Marie Cemetery. Fourteen years his junior, Adelaide outlived her husband by nearly twenty-five years. Social Security records indicate that she became a US citizen in September 1941 before passing away on 6 October 1945.

Official sources: Cook County (Illinois) Deaths Index; Cook County (Illinois) Marriages Index; New York Passenger Lists; US Census (1900, 1910, 1920, 1930); US Social Security Applications and Claims Index.

Other references

Monmonier, Mark. 2017. *Patents and Cartographic Inventions: A New Perspective for Map History*. New York: Palgrave Macmillan.

National Geographic Society. 1922. "The Society's New Map of the World." *National Geographic Magazine* 42: 690–91.

Van der Grinten, Alphons. 1904a. Map. US Patent 751,226, filed 2 October 1899, and issued 2 February 1904.

———. 1904b. *The New Circular Map of the Whole World: Invented and Constructed by A. Van der Grinten, C.E.* Chicago, IL.

———. 1905. "New Circular Projection of the Whole Earth's Surface." *American Journal of Science* 19: 357–66.

MRH

W. O. MOFFATT & A. VON SCHRENK.

TRANSFER TICKET.

APPLICATION FILED MAR. 3, 1913.

1,201,605.

Patented Oct. 17, 1916.

WITNESSES

George T. Ben
John A. Kibben

INVENTORS

William C. Moffatt
Arnold von Schrenk

BY

Priscilla Knauth
ATTORNEYS

von Schrenk, Arnold (1880–1935)

Arnold von Schrenk was born on 12 December 1880 in Hoboken, New Jersey. He was one of ten children of two immigrants from Central Europe: Joseph Franz Ferdinand Freiherr von Schrenk (1842–1890) and Anna Bandkte von Schrenk (1849–1918). The exact origin of his parents is unclear. Sources suggest that his father might have been from Austria, Germany, or Transylvania, while his mother might have been from Austria or Germany.

In June 1901, von Schrenk graduated from Columbia University with a degree in electrical engineering (Monmonier 2017, 4). Two months later he started working in the testing department of the General Electric Company in Albany, New York. He stayed in this department for two years before moving to the construction department of General Electric in 1903. In 1905, he moved to the New York Central and Hudson River Railroad, where he worked as a draftsman and inspector. Here he received two promotions: in December 1906, he became the chief draftsman, and in December 1907, he was promoted to assistant engineer. Within this time frame, he married Helen Gillett Barns (1886–1941). In the summer of 1908, he studied the leading European railway systems, as well as other examples of foreign transportation. In 1909, he started work in the engineering department of the Albany-based United Traction Company. By 1911, he was general superintendent in charge of the Troy division of the company.

In March 1913, von Schrenk filed a Ticket Transfer patent jointly with William Moffatt in Albany, New York (Moffatt and von Schrenk 1916). A description of the patent says that the transfer ticket provides a “representation of connecting railway routes,” that can be “punched or marked at predetermined points, when the ticket is issued whereby the continuing trip for which said ticket may be validly used is indicated.” In other words, the transfer ticket enables a passenger to seamlessly

continue on her journey to the location as marked on the transfer ticket and enabled the company to prevent a passenger from making a free return trip (Monmonier 2017, 1–4, 10, 15–16).

Arnold von Schrenk left Albany for St. Louis, Missouri, in 1914 to work with his older brother, Herman, a plant pathologist who consulted with railroads and utilities on the effective use of creosote (Monmonier 2017, 4). In St. Louis he filed three additional patents. In January 1917, Arnold von Schrenk (1919a) filed a patent for an invention titled “Mechanical Movement,” which was intended to “be utilized in connection with many other devices wherever it is desired to apply a relatively greater force by the application of a smaller controlling power.” The patent illustrates how the device can be used for automobile and railway car brakes. The following month, von Schrenk filed a patent titled “Nail, Spike, and the Like” (von Schrenk 1918), which was intended to solve the problem whereby “the nail as ordinarily constructed enters the material wedge fashion and forces apart or opens up the grain or fibers of the wood or other material with the result that unintentional splitting is a constant occurrence.” His patent resolves this problem by constructing “a nail in such a manner that on being driven into a material it will act in the nature of a saw whereby the grain or fibers of said material will be cut progressively as the nail is driven home, thus reducing to a minimum or eliminating any traverse forces tending to split the material.” His patent provided a simple and cheap nail useful for a variety of projects in which nails had not been suitable. In May 1916, he filed a patent for a “Removable Running-Board for Automobiles” (von Schrenk 1919b), which was made out of metal or wood and faced with rubber.

In 1918, von Schrenk joined the war effort as a first lieutenant in the Army Signal Corps. He was stationed in Washington, DC; Dayton, Ohio; and Cleveland, Ohio, and was honorably discharged on 28 April 1919.

By 1930, von Schrenk and his wife relocated to North Carolina. He died in Fletcher, Henderson County, North Carolina, on 12 December 1935. His body is interred at Bellefontaine Cemetery in St. Louis, Missouri, in a burial plot that includes his in-laws, William Eddy Barns (1855–1916) and Louise Gillett Barns (1859–1934) as well as his wife.

City directories: Albany, NY (1910, 1914).

Official sources: US Census (1880, 1920, 1930).

Other references

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Moffatt, William, C. and Arnold von Schrenk. 1916. Transfer Ticket. US Patent 1,201,605, filed 3 March 1913, and issued 17 October 1916.

Monmonier, Mark. 2017. *Patents and Cartographic Inventions: A New Perspective for Map History*. New York: Palgrave Macmillan.

von Schrenk, Arnold. 1918. Nail, Spike, and the Like. US Patent 1,273,427, filed 1 February 1917, and issued 23 July 1918.

———. 1919a. Mechanical Movement. US Patent 1,291,664, filed 5 January 1917, and issued 14 January 1919.

———. 1919b. Removable Running Board for Automobiles. US Patent 1,310,973, filed 1 May 1916, and issued 22 July 1919.

AA

Oct. 14 , 1924.

1,511,487

C. M. WILLIAMS
GEOGRAPHICAL GLOBE

Filed March 29, 1922

2 Sheets-Sheet 1

Fig. 1.

Inventor:
Charles M. Williams,
by Allen S. Sargent
Attorney

Williams, Charles M. (1868–?)

Charles M. Williams was born on 19 April 1868 in Des Moines, Iowa, to Addison C. Williams (1834–?), an Episcopal minister, and Edith Williams (1840–?). According to the 1930 census, he did not attend school. In 1900, he married Josephine M. Fargo (1871–1948) and lived in California, where he worked as a businessman. In 1910, he manufactured hub oilers and lived with his wife, their children, Charles Addison Williams (b. 1897) and Rodney Fargo Williams (b. 1908), and his wife's parents. Details about Williams's life (including his middle name) are sketchy.

In 1919, Williams focused on designing, manufacturing, and promoting an invention he called an index globe. He reached out to Alexander Graham Bell, President Gilbert Grosvenor, and members of the National Geographic Society in search of funding. Wallace Atwood, professor of physiography at Harvard University and eventual president of Clark University, helped Williams acquire funding and determined appropriate locations to feature on the globe (Williams, Charles, to Wallace Atwood [letter] 1919).

In 1922, Williams filed a patent application titled “Geographical Globe.” The globe highlighted various places, and provided information about landmarks and exhibitions from the World's Fair on a strip of paper under a magnifying glass within one of the oceans (Monmonier 2017, 206–10). The patent was awarded in 1924.

Williams was successful in convincing newspapers to promote his globe (“Globes Are to be Built in This City” 1922; “Makes Geography Easy: Local Man's Globe Tells Everything” 1920; “New Globe Index” 1930; “New Map Makes Geography Easy” 1920; Sutton 1931). In 1922, he traveled to Edinburgh to arrange the maps in order to begin production in Los Angeles. In 1929, the *Los Angeles Times* published an official list of endorsements that included such prominent organizations as the

National Education Association, Northwestern University, and the Vatican (“World Globe Making Begins” 1929). He designed a specialized printing press for the paper strips used in his invention. In 1930, *Popular Science* published an article about his educational globe, including pictures of his specialized printing press (“Invents Combination Globe and Atlas” 1930). In 1932, Williams formed the Williams-Pridham Index Globe Company, for which he served as director and his son, Charles, was production manager (“Geographic Globe Unit Gets Permit” 1932). He issued 1,675 shares of stock at this time. A year later, in April 1933, a bankruptcy filing claimed that the patents were worth \$41,961 (“Bankruptcy Petitions” 1933). In October the company’s assets were liquidated in a bankruptcy auction (“Auction” 1933).

Although Williams lived at least until 1933, details of final years and death are elusive. A family tree in Ancestry reports that Josephine Fargo Williams died in 1948, but online genealogical databases are silent on the date and circumstances of Charles Williams’s death.

City directories: US Census (1870, 1900, 1910, 1930).

Official sources: US Census (1870, 1900, 1910, 1930); Social Security Death Index; US Department of Veterans Affairs BIRLS Death File.

Other references

“Auction.” 1933. *Los Angeles Times*. 8 October, 10.

“Bankruptcy Petitions.” 1933. *Los Angeles Times*. 4 May, 12.

“Geographic Globe Unit Gets Permit.” 1932. *Los Angeles Times*. 9 October, 21.

“Globes Are to Be Built in This City.” 1922. *Los Angeles Times*. 24 May, 3.

“Invents Combination Globe and Atlas.” 1930. *Popular Science Monthly*. April, 34.

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- Monmonier, Mark. 2017. *Patents and Cartographic Inventions: A New Perspective for Map History*. New York: Palgrave Macmillan.
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- Williams, Charles M. 1924. Geographical Globe. US Patent 1,511,487, filed 29 March 1922, and issued 14 October 1924.
- Williams, Charles, to Wallace Atwood [letter]. 1919. Dr. Wallace Atwood Papers. 26 December, box 4-1-4. Clark University Archives and Special Collections, Clark University, Worcester, MA.
- “World Globe Making Begins.” 1929. *Los Angeles Times*. 29 September.

Other Inventors with Map-Related Patents

Anderson, William C. (1891–1969). Anderson was born in New Jersey in 1891. His map-related patents are “Map,” US Patent 2,155,387, filed 22 August 1936, and issued 25 April 1939, and “Method of Plotting Great Circle Courses and Apparatus,” US Patent 2,268,632, filed 8 September 1938, and issued 6 January 1942. At the time of filing, he was living in Montclair, New Jersey. Anderson’s contribution is further discussed in Monmonier (2017, 166).

Balch, Samuel W. (1862–1940). Balch was born in Malone, New York, on 18 January 1862. His map-related patent is “Map,” US Patent 1,610,413, filed 12 December 1924, and issued 14 December 1926. At the time of filing, he was living in Montclair, New Jersey. More information on Balch’s contribution can be found in Monmonier (2017, 165, 168).

Bendtin, Paul M. (1884–1976). Bendtin was born in Berlin, Germany, on 7 March 1884. His map-related patent is “Game,” US Patent 1,652,851, filed 26 October 1925, and issued 13 December 1927. At the time of filing, he was living in St. Paul, Minnesota.

Boorman, J. Marcus (1831–1909). Boorman was born in New York City on 8 April 1831. His map-related patent is “Geometric Blocks for Mapping,” US Patent 185,889, filed 26 July 1876, and issued 2 January 1877. At the time of filing, he was living in New York City. For more information, see Monmonier (2017, 138–42, 167, 179).

Boyden, George Edmund (1867–?). Boyden was born in Boston, Massachusetts, on 9 October 1867. His map-related patents are “Chart for Vehicles,” US Patent 1,113,747, filed 22 November 1911, and issued 13 October 1914, and “Vehicle

Signaling System,” US Patent 1,168,053, filed 17 July 1914, and issued 11 January 1916. At the time of filing, he was living in New York City. See also Monmonier (2017, 90).

Colas, Jules A. (1851–1929). Colas was born in Wezuia, France, on 1 April 1851. His map-related patent is “Map,” US Patent 752,957, filed 24 February 1902, and issued 23 February 1904. At the time of filing, he was living in Chicago, Illinois. More information can be found in Monmonier (2017, 160).

Dacey, Derek (1949–). Dacey, who is British, was born in March 1949. His principal map-related patent is “Foldable Product with Fold Lines That Are Partly Provided with Creases and Partly by Lines of Perforations,” US Patent 8,414,300, filed 14 August 2002, and issued 9 April 2013. At the time of filing, he was living in Winford, Great Britain. Further discussion can be found in Monmonier (2017, 128).

Falk, Gerhard Ernst Albrecht (1922–1978). Falk was born in Berlin, Germany, on 15 June 1922. His map-related patents include “Method of Folding Maps and the Like,” US Patent 2,572,460, filed 10 February 1949, and issued 23 October 1951; “Photographic Method for Making Geographic Maps,” US Patent 2,650,517, filed 10 February 1949, and issued 1 September 1953; “Map Capable of Being Folded Together and Spread Flat Again,” US Patent 2,615,732, filed 14 March 1950, and issued 28 October 1952; and “Method for Folding Large Area Maps into the Shape of a Book and Correspondingly Folded Maps,” US Patent 3,143,363, filed 11 July 1961, and issued 4 August 1964. At the time of filing, he was living in Hamburg, Germany. For more discussion on Falk’s contribution, see Monmonier (2017, 114, 121–24, 128, 166–68); for an obituary see Hans Ermel, “Gerhard Falk,” *Kartographische Nachrichten* 29 (1979): 32–33.

Fuller, Richard Buckminster (1895–1983). Fuller was born in Milton, Massachusetts, on 12 July 1895. His distinctive map-related patent is “Cartography,” US Patent 2,393,676, filed 25 February 1944, and issued 29 January 1946. At the time of filing, he was living in Washington, DC. For additional information about Fuller, see the Buckminster Fuller Institute’s website, <https://www.bfi.org/about-fuller/biography>. Monmonier (2017, 148, 153–55, 168) also provides more information on Fuller’s contribution.

Jones, John A. Obtaining biographical information for Jones was complicated by the abundance of people with the same name. His map-related patent is “Geographic Location Identification System,” US Patent 5,445,524, filed 3 May 1994, and issued 29 August 1995. At the time of filing, he was living in Alvin, Texas. Also see Monmonier (2017, 29–31).

Lindenthaler, Frank J. (1878–1964). Lindenthaler was born in Austria on 1 April 1878. His map-related patent, shared with John Protz, is “Route Indicator for Automobiles,” US Patent 915,976, filed 30 November 1907, and issued 23 March 1909. At the time of filing, he was living in New York City. For more discussion, see Monmonier (2017, 70–74, 77).

Lovegrove, Francis Augustus (1869–1951). Lovegrove was born in England in August 1869. His map-related patent is “Printing Machine for Spheres and the Like,” US Patent 1,728,351, filed 10 August 1928, and issued 17 September 1929. At the time of filing, he was living in Halifax, Nova Scotia, Canada.) Further discussion of Lovegrove’s contribution can be found in Monmonier (2017, 194).

McDonald, George Wallace (1955–). McDonald was born in Scotland in 1955. His distinctive map-related patent is “Folded Sheet,” US Patent 5,156,898, filed 20 June 1991, and issued 20

October 1992. At the time of filing, he was living in the Channel Islands, United Kingdom. See also Monmonier (2017, 112–14, 124–25).

Merk-Wirz, August. Biographical details for Swiss inventor Merk-Wirz remain elusive. His map-related patent is “Directory Board,” US Patent 1,132,108, filed 18 June 1913, and issued 16 March 1915. At the time of filing, he was living in Zurich, Switzerland. See also Monmonier (2017, 220–24, 226, 244).

Morison, Henry Arthur (1879–?). Morison was born in England in 1879. His principal map-related patent is “Insurance Reference Sheet,” US Patent 1,090,789, filed 7 March 1910, and issued 17 March 1914. At the time of filing, he was living in Seattle, Washington.

Piggot, Robert (1795–1887). Piggot was born in New York City on 20 May 1795. His map-related patent is “Apparatus for Teaching Geography and Astrography,” US Patent 2,426, issued 17 January 1842. For more information, see Monmonier (2017, 179–81, 188).

Protz, John (1858–?). Protz was born in Austria in 1858. His map-related patent, shared with Frank J. Lindenthaler, is “Route Indicator for Automobiles,” US Patent 915,976, filed 30 November 1907, and issued 23 March 1909. At the time of filing, he was living in New York City. Monmonier (2017, 68, 70–74, 77) further discusses Protz’s contribution.

Schulse, Herman Ernest (1889–1957). Schulse was born in Bayonne, New Jersey, on 17 March 1889. His map-related patents are “Chronological Instrument,” US Patent 1,959,601, filed 19 September 1931, and issued 22 May 1934; and “Chronological Instrument,” US Patent 2,000,457, filed 16 July 1929, renewed 7 September 1934, and issued 7 May 1935. The

first patent lists him as a resident of Wilmington, Delaware, and the second lists him as a resident of East Orange, New Jersey. More information on his contribution can be found in Monmonier (2017, 199–202).

Smith, Bertha O. (1878/79–?). Smith was born Bertha Olson in Illinois or Minnesota in 1878 or 1879. Her common surnames probably account for uncertainty about the details of her life—the Upper Midwest has many Olsons, not to mention its share of Smiths. Her map-related patent is “Device for Depicting Prevailing Air Currents of the Earth,” US Patent 2,105,619, filed 22 June 1936, and issued 18 January 1938. At the time of filing, Smith was living in Minneapolis, Minnesota. For more information, see Monmonier (2017, 197–99).

Smith, James Addison (1888–1971/72). Smith was born in Shanghai, China, on 12 November 1888. His map-related patent is “Globe,” US Patent 2,153,053, filed 22 November 1937, and issued 4 April 1939. At the time of filing, he was living in Seattle, Washington. Monmonier (2017, 148, 167) also discusses Smith’s contribution.

Spilhaus, Athelstan (1911–1998). Spilhaus was born in Capetown, South Africa, on 25 November 1911. His principal map-related patent is “Geographical Sundial,” US Patent 4,520,572, filed 14 March 1984, and issued 4 June 1985. At the time of filing, he was living in Middleburg, Virginia. For an obituary, see Nierenberg, William A. 2000. “Athelstan Spilhaus, 25 November 1911–30 March 1998.” *Proceedings of the American Philosophical Society* 144: 343–47. Monmonier (2017, 158–59, 167) further discusses Spilhaus’s contribution.

Van Dam, Stephan (1941–). Van Dam (also known as Stephan R. W. Muth) was born in Germany. His principal map-related patent is “Sheet Folding Method and Product,” US Patent

4,502,711, filed 6 July 1983, and issued 5 March 1985. For more on Van Dam's contribution, see Monmonier (2017, 128).

Wilson, William. Little if any biographical information is available for Wilson. His map-related patent is “Geographical Map, Globe, and Other Geographical Appliance,” US Patent 944,248, filed 28 July 1909, and issued 21 December 1909. At the time of filing, he was living in Edinburgh, Scotland. See also Monmonier (2017, 142).

Zeiss, Carl H. (1887–1961). Zeiss was born in Chicago, Illinois, on 26 September 1887. His principal map-related patent is “Game,” US Patent 2,000,369, filed 8 January 1934, and issued 7 May 1935. At the time of filing, he was living in Winnetka, Illinois.

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MRH & MM

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