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Mark Monmonier

# Patents and Cartographic Inventions

*A New Perspective for Map History*

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Palgrave Studies in the History of Science and Technology  
ISBN 978-3-319-51039-2      ISBN 978-3-319-51040-8 (eBook)  
DOI 10.1007/978-3-319-51040-8

Library of Congress Control Number: 2017932751

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Cover image Herman E. Schulse  
Cover design by Fatima Jamadar

Printed on acid-free paper

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The registered company is Springer International Publishing AG  
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

*To the memory of my maternal grandfather,  
Wesley W. Mason (1879–1932),  
whom I never met. He held a variety of jobs (including private detective  
and plant foreman) before becoming a full-time inventor and was awarded  
several patents for bottle caps and crown-making devices.*

## PREFACE

This book explores an arena of cartographic creativity largely ignored by map historians: the patent system, whereby an inventor can lay claim to a novel idea and control its use for two decades. As I argue in Chap. 1, the patent system is not just a way to get ideas in print but also a parallel literature, similar in fundamental ways to the conventional academic-scientific-technical literature of books and journal articles. Although the patent system appeals to a different kind of innovator—someone with a product in mind and a decidedly more practical bent than the typical scholar—it is a coherent literature, with a vetting process, distribution channels, citation protocols, and searchable databases. In this milieu the patent examiner serves as both editor and peer reviewer, and the vetting, as I show, can be contentious and protracted. Although patents are characterized by a distinctive jargon I call *patentesque* and by a heavy reliance on drawings to explain a device or process, the published patent, like the published journal article, addresses a shared need for achievement that motivates inventors and scholars alike.

Unlike most map histories, this book is more about devices and techniques than about maps and atlases. Cartographic inventors who filed patents created clever products and processes intended to make map information easier to use—a cartographic variant of the better mousetrap. Their emphasis on the quotidian is apparent in the book's individual chapters, which focus on admittedly mundane applications like streetcar transfers, rural address guides, mechanical route-following machines that anticipated the GPS, folding schemes, world map projections, and diverse improvements of the terrestrial globe. The final chapter, with an emphasis

on you-are-here mall maps, relates early applications of electricity in interactive mapping to the rise of digital cartography and the emergence of patent trolls, for whom the patent is largely a license to litigate.

Coverage begins in the mid-nineteenth century and extends through the pre-computer era, with additional narrowing in individual chapters as developments dictate. Except for noting the emergence of digital cartography in the final chapter, I avoid the complications of semiconductors and software, which demand a book of their own. In addition, my focus on patents awarded in the United States reflects a dearth of data on applications abandoned or rejected as well as the complexity of exploring patents issued in Britain, Canada, France, Germany, and Switzerland, among others. By concentrating on US patents, I could rely on complementary online databases maintained by the US Patent and Trademark Office and by the Google Patents Project as well as pre-1975 case files in the National Archives at Kansas City. But because of an increasingly international market for intellectual property, non-US residents figure prominently in the chapters on map folding and map projections.

In seeking insights and understanding, I employed a four-pronged research strategy that began by using the US Patent Classification System to identify relevant patents, principally in the Printed matter/Maps and Education and demonstration/Geography categories. Google Patents provided PDF files of published patents, including all artwork. Case files from the National Archives, which include correspondence between the Patent Office and the inventor and the inventor's attorney, shed light on the examiner's concerns, including an effort to both clarify and narrow the inventor's claims. For added background on the inventors, I relied on genealogical research tools, principally Ancestry Library Edition, which provided a generally useful portal to manuscript census schedules, city directories, draft board records, and similar components of Big Microdata, which sometimes yielded key details about an inventor's education, training, and relevant family connections. I say "sometimes" because the inventors varied widely in their biographical footprints, which online searching of newspaper databases and the HathiTrust Digital Library could occasionally clarify—advertisements and news articles, where available, were valuable evidence of commercial follow-through. Google Patents also provided useful details about an inventor's prior or subsequent experience with the patent system. Finally, I tabulated counts of inventions by year and category, used simple statistical analysis to compare trends in map-related patents with patenting in general, and created time-series frequency plots,

all of which enriched the narrative with an analytical framework. If pressed to sum up my research design in a few words, I would call it, simply, archival and statistical graphics.

How one writes is no less important than how he (or she) looks for and interprets data. Creating a narrative that is at once informative, incisive, reliable, and readable requires some cherry picking. That said, in all chapters, the most important inventions and inventors were impossible to avoid, hence the inclusion of a few inventors with frustratingly faint biographical footprints. In some cases, I might have said more, but chose not to, in the interest of concision and narrative flow: these chapters are stories and I wanted to make them as coherent as the facts allow. In other cases, I might have said less but was unable to resist an intriguing tidbit that adds, I hope, to the reader's understanding of the complexity of the patent system as a parallel cartographic literature.

Constructing the narrative was often an exercise in cautious interpolation when connecting facts (some firmer than others) and discerning motivations in the absence of inventors' diaries, business records, and personal correspondence. My reliance on inference when stitching together an explanation should be apparent in subtle caveats like *plausible*, *perhaps*, and *would have*.

Frequent direct quotations from a published patent as well as from correspondence in its case file are intended to convey a flavor of not only the jargon I call patentese but also the patent examiner's careful (and occasionally cantankerous) scrutiny of the inventor's claims. The inventor's, examiner's, or attorney's original wording is often sufficiently concise to obviate a paraphrase.

Because the flavor of an invention is frequently best communicated by the inventor's drawings, my narrative also incorporates numerous facsimiles to help explain how a device or process works, to show the inventor's concern for detail, and to illustrate the patent's distinctive form as a geometrically rich literary text. As stark abstractions, these diagrams attest to the difficulty of describing an innovation with words alone—explaining it to a manufacturer who might want to license it, describing it to a competing inventor who needs to know what's "old" and thus no longer patentable, and informing an attorney eager to resist a patent examiner's objections or fend off a charge of infringement.

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## ACKNOWLEDGMENTS

During this book's concentrated two-year period of gestation, I depended on the support of many institutions and people. The Maxwell School of Citizenship and Public Affairs at Syracuse University provided a one-semester research leave; the Geography and the Spatial Sciences (GSS) Program and the Science, Technology, and Society Program (STS) at the National Science Foundation supported a graduate research assistant for one year; and the National Archives at Kansas City provided access to the case files for numerous patents. I am especially indebted to Jake Ersland and Robert Beebe, archivists in Kansas City; David Delzingaro, in the editorial division of the US Patent and Trademark Office; and Ralph Ehrenberg, of the Geography and Map Division of the US Library of Congress (and several decades ago, the National Archives). Librarians who were especially helpful include John Olson and Darle Balforte, at Syracuse University; Jenny Marie Johnson, at the University of Illinois at Urbana-Champaign; and Meredith Anne Weber, in Special Collections at The Pennsylvania State University. Eric Anderson, of the Cartography and Geographic Information Society, and Paul Young, at the US Geological Survey, provided valuable information on John Snyder, and Maureen Reynolds, Tompkins County Clerk, assisted with corporate records. Claudia Asch, who worked with me on the History of Cartography Project, helped with German translation; Christina Leigh Dietz, of the Maxwell School, provided valuable guidance on the NSF grant; and Emily Bukowski and Christopher Robert Allen assisted in ferreting out relevant facts about several of the inventors. Joe Stoll, staff cartographer in the SU geography department, provided valuable advice on Photoshop; Brian

von Knoblauch, Mike Cavallaro, Mike Fiorentino, and Stan Ziemba, all in the Maxwell School's Instruction and Computing Technology (ICT) group, helped me navigate the shoals of software and operating system upgrades and other electronic hazards; and Margie Johnson, administrative assistant in the Geography Department, helped me cope with the arcana of the university's accounting systems. Many thanks too to my wife Marge for encouragement and constant support.

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