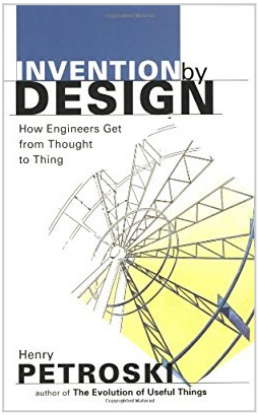

Invention by Design; How Engineers Get from Thought to Thing

By Henry Petroski

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Henry Petroski's previous bestsellers have delighted readers with intriguing stories about the engineering marvels around us, from the lowly pencil to the soaring suspension bridge. In this book, Petroski delves deeper into the mystery of invention, to explore what everyday artifacts and sophisticated networks can reveal about the way engineers solve problems.

Engineering entails more than knowing the way things work. What do economics and ecology, aesthetics and ethics, have to do with the shape of a paper clip, the tab of a beverage can, the cabin design of a turbojet, or the course of a river? How do the idiosyncrasies of individual engineers, companies, and communities leave their mark on projects from Velcro® to fax machines to waterworks?*Invention by Design* offers an insider's look at these political and cultural dimensions of design and development, production and construction.

Readers unfamiliar with engineering will find Petroski's enthusiasm contagious, whether the topic is the genesis of the Ziploc baggie or the averted collapse of Manhattan's sleekest skyscraper. And those who inhabit the world of engineering will discover insights to challenge their customary perspective, whether their work involves failure analysis, systems design, or public relations. Written with the flair that readers have come to expect from his books, *Invention by Design* reaffirms Petroski as the master explicator of the principles and processes that turn thoughts into the many things that define our made world.

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Editorial Review

From Publishers Weekly
Invention, Petroski has steadfastly maintained, comes from a failure of design. The paperclip that can only be used in one direction, that becomes easily tangled in a box, or that tears the paper has led inventors to a cycle of improvements and patents. That's the story of the case studies here, many of which Petroski has used in other books?the paperclip, zipper and aluminum can appeared in The Evolution of Useful Things, the pencil in The Pencil; and the San Francisco-Oakland Bay Bridge in Engineers of Dreams. But Petroski still manages to add something new. When talking about the Bay Bridge, for example, he goes into great depth here about the impact of factors far removed from statics, dynamics and hydraulics. He looks at the importance of John Roebling's personal charisma and the impact of the 1879 failure of the Firth of Tay bridge on the subsequent construction of bridges. In the same way, his sections on "Facsimile and Networks" and "Airplanes and Computers" offer very interesting insights into the economics of implementing large-scale projects (fax machines became popular in part because of Federal Express's promotion of its new ZapMail, which turned into a $300 million bath for the company). Those who don't know Petroski's work will find this an enjoyable introduction. Those who do, will appreciate the additional gloss.

From Library Journal
Petroski (The Pencil, LJ 3/1/90) has done much to make the nerdy world of engineering interesting and accessible to the reader. Here, he's after a different audience, one interested in the philosophy and cultural study of the process of invention. By examining the relationship between the invention of devices and their refinement over time by others, Petroski identifies design principles that engineers use to make things work. Written as a series of case studies ranging from the paper clip to the zipper to the FAX machine to the Boeing 777, this book is engaging but tends to instruct rather than entertain. Little exercises that ask the reader to, say, imagine refinements to the basic plastic sandwich bag hint at this book's history as an engineering course curriculum, but it's still good reading for those interested in the gestalt of engineering design. Quotations and illustrations from patent applications are particularly fascinating and are used well. For popular science collections.?Mark L. Shelton, Univ. of Massachusetts Medical Ctr., Worcester

From Booklist
Want to invent a new paper clip? A new mode of electronic communication? You'll succeed only if you can meet the types of challenges Petroski identifies in this lucid and lively book. Readers with no ambitions of becoming inventors will still take a keen interest in these case studies of engineers who, by dint of ingenuity and persistence, have created important new structures or devices. Whether designing something as small as a pencil or as large as the World Trade Center, successful engineers must not only devise new technology but also find a way to situate that technology within the existing economic, social, and ecological order. Every case study includes well-chosen pictures and schematic drawings to clarify how inventors resolve technical difficulties, and the carefully researched text explains how they make their new creations economically feasible and socially acceptable. Students of technology will delight in one part of the book, cultural historians in another, but both groups will praise the author. *Bryce Christensen*

Users Review

From reader reviews:

Elizabeth Brock:

The feeling that you get from Invention by Design; How Engineers Get from Thought to Thing may be the more deep you looking the information that hide in the words the more you get thinking about reading it. It doesn't mean that this book is hard to comprehend but Invention by Design; How Engineers Get from Thought to Thing giving you joy feeling of reading. The article writer conveys their point in a number of way that can be understood by simply anyone who read the item because the author of this reserve is well-known enough. This specific book also makes your own personal vocabulary increase well. It is therefore easy to understand then can go together with you, both in printed or e-book style are available. We advise you for having that Invention by Design; How Engineers Get from Thought to Thing instantly.

Frances Oberlin:

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Natalie White:

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Peggy Witzel:

A lot of people always spent their free time to vacation or maybe go to the outside with them household or their friend. Did you know? Many a lot of people spent they will free time just watching TV, or perhaps playing video games all day long. If you wish to try to find a new activity honestly, that is look different you can read the book. It is really fun for you personally. If you enjoy the book that you just read you can spent the entire day to reading a e-book. The book Invention by Design; How Engineers Get from Thought to Thing it doesn't matter what good to read. There are a lot of people who recommended this book. They were enjoying reading this book. If you did not have enough space to deliver this book you can buy often the e-book. You can m0ore easily to read this book from a smart phone. The price is not too costly but this book possesses high quality.

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