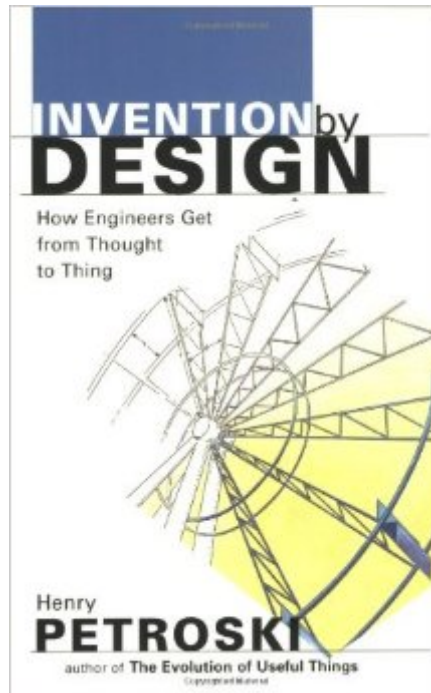


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# Invention By Design; How Engineers Get From Thought To Thing



## Synopsis

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.

## Book Information

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## Customer Reviews

The author of this book starts out by saying, "As simple as familiar objects may seem at first glance,

their conception, development, manufacturing and marketing may pose great difficulties". He goes on to prove that this is true by citing the histories of some very familiar items. His first example is the ordinary paper clip. Literally hundreds of improvement patents have been issued, yet it is still not "perfected". The most common clip was given its present form by a company called Gem Ltd. in the last century and is still referred to in the industry as the "Gem" clip. Inventors are still trying to overcome its negative features. The author lists several shortcomings such as its tendency to tear paper, requiring its loops to be spread when clipping on, and its habit of slipping off thick stacks of paper. Next he considers the common wood-cased pencil. When wax was added to the lead for smoother writing and added to the wood for easier sharpening, the lead often separated from the wood and would break when the pencil was used or even when dropped. Etching the lead surface and coating it with a suitable chemical solved this problem. However, overcoming the BOPP (Broken-Off Pencil Point) problem has not been as easy. Understanding why points fracture as they do is far from as simple as you might think. His next case history is that of the zipper. In patent literature, they go back to 1851! The description of its evolution is fascinating. There is a great sketch of the tooling that applies the zipper teeth to the fabric. The author notes how ideas often come unexpectedly -- but usually to individuals who can see the idea's potential.

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