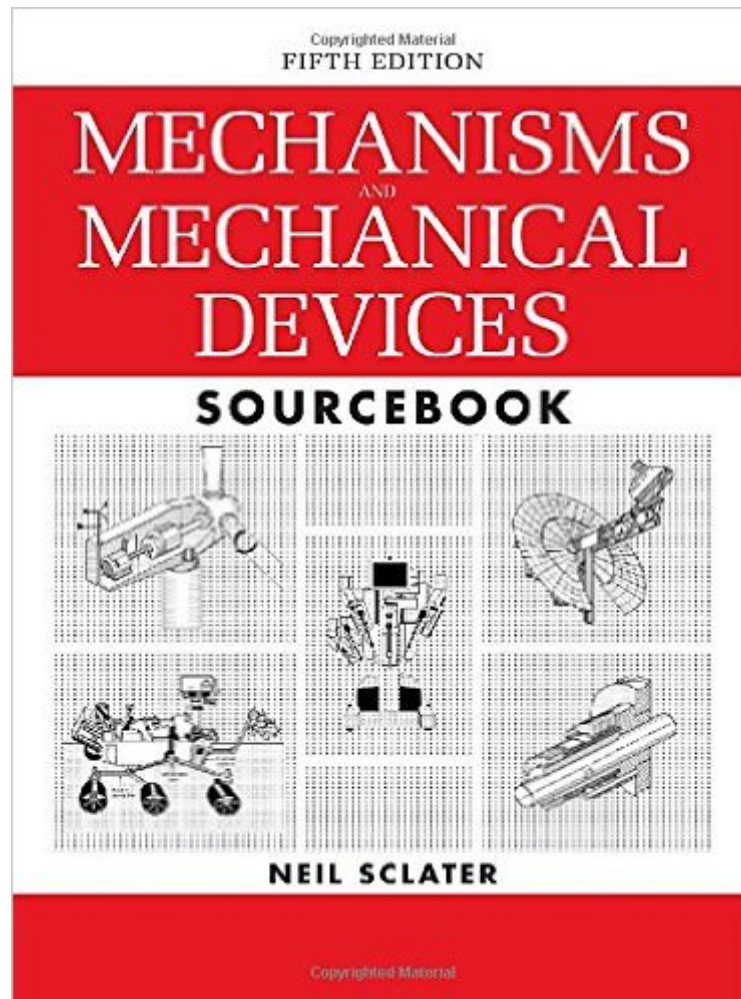


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# Mechanisms And Mechanical Devices Sourcebook, 5th Edition



## Synopsis

THOUSANDS OF DRAWINGS AND DESCRIPTIONS COVER INNOVATIONS IN MECHANICAL ENGINEERING Fully revised throughout, this abundantly illustrated reference describes proven mechanisms and mechanical devices. Each illustration represents a design concept that can easily be recycled for use in new or modified mechanical, electromechanical, or mechatronic products. Tutorials on the basics of mechanisms and motion control systems introduce you to those subjects or act as a refresher. Mechanisms and Mechanical Devices Sourcebook, Fifth Edition, contains new chapters on mechanisms for converting renewable energy into electrical power, 3D digital prototyping and simulation, and progress in MEMS and nanotechnology based on carbon nanotubes. A new chapter on stationary and mobile robots describes their roles in industry, science, national defense, and medicine. The latest advances in rapid prototyping are also discussed. This practical guide will get you up to speed on many classical mechanical devices as well as the hot new topics in mechanical engineering. COMPREHENSIVE INDEX MAKES IT EASY TO FIND SUBJECTS OF INTEREST GLOSSARIES OF TERMS ON: CAMS, GEARS, MECHANICS, MOTION CONTROL, ROBOTICS, WIND TURBINES, PUMPS, AND 3D DIGITAL PROTOTYPING AND SIMULATION COVERAGE OF MOBILE ROBOTS THAT EXPLORE MARS, PERFORM MILITARY DUTIES AND PUBLIC SERVICE, HANDLE AUTOMATED DELIVERY, CONDUCT SURVEILLANCE FROM THE AIR, AND SEARCH UNDER THE SEA DETAILS ON THE MECHANISMS IN RENEWABLE-ENERGY AND WIND-TURBINE AND SOLAR-THERMAL FARMS AND WAVE-MOTION POWER PLANTS Mechanisms and Mechanical Devices Sourcebook, Fifth Edition, covers: Basics of mechanisms \* Motion control systems \* New stationary and mobile robots \* New mechanisms for renewable power generation \* Drives and mechanisms with linkages, gears, cams, genevas, and ratchets \* Clutches and brakes \* Latching, fastening, and clamping devices and mechanisms \* Chains, belts, springs, and screws \* Shaft couplings and connections \* Motion-specific devices \* Packaging, conveying, handling, and safety mechanisms and machines \* Torque, speed, tension, and limit control systems \* Instruments and controls: pneumatic, hydraulic, electric, and electronic \* New 3D digital prototyping and simulation techniques \* New rapid prototyping methods \* New directions in mechanical engineering

## Book Information

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## Customer Reviews

Mr. Sclater has combined his vast experience in engineering and writing talents to produce a current anthology of mechanical basics with up to date applications. The size of this edition of Mechanisms and Mechanical Devices sourcebook (5th) is dwarfed by the scope of the technical content within. He has captured the visuals of most existing devices coupled with unparalleled verbal descriptions. The heart of this tome is Neil's explanatory text which can help and encourage beginning students of design and additionally, speed up implementation for experienced designers/inventors looking for related mechanisms to implement their creations.

This is a book that will sit around, and be opened a number of times, as you look for new ideas for MAKE projects. Lots of drawings, that are fairly easy to understand, as well as a number of drawings covering how some items are manufactured. I put it right up there with my "How Things Work" books

I am mechanical engineer. I expected to get design examples, but I feel like it is more like "museum" of machinery. There are many devices, but many of them are not analyzed. The pictures are hard to understand, because they look like blueprints drawn by hand. The texts explains only about the history and usage, NOT about how the mechanisms actually works. The book contains many ideas, but not the actual contents.-----Edit: I would recommend Machines & Mechanisms: Applied Kinematic Analysis (4th Edition) It is one of the easier textbooks that requires only high school math.

As a Kinetic Sculptor, I've been using versions of this book for the past 20 years or so. It's great as a starting point for brainstorming new ideas or solving problems when developing mechanical

inventions and designs. Worth every penny!

I am embarking on a career as a product developer. This book has been quite helpful to me. I often need to check on "previous art" for patent development. Although the USPTO has an extensive collection of older patents, many of the drawings are of relatively poor quality. Many of the images in this book are of much higher quality than those available via Google patent website or the USPTO website. The section on 3D printing technology is very detailed. Highly recommended

I have a Fourth Edition of this book. The book has a wealth of mechanisms and can be a great source of design. However, one should be very careful to use mechanisms based on descriptions and formulas in this book. A very disappointing example can be found on page 7, Fig. 13. The authors claim that depicted mechanism is a Scott Russell Straight Line Generator. Actually, the shown mechanism is not Scott Russell and clearly does not generate straight line. Well, this classic mechanism is very simple. It is easy to figure out why it does generate perfect straight line, and why the mechanism shown in the book, does not do anything close to that. But most mechanisms in the book are much more complicated. Relations and formulas are not that obvious. After seeing Scott Russell, I do not trust any description and formula in the book. This is a great and useful collection, but its engineering value is questionable. I hope the error was fixed in 5th Edition. Just be careful.

great learning tools to have at work. when you are developing new proto types these kind of books really help the process of putting the machines into a working concept in your head and that makes it way easier to put it down on the design software. gives you a better sense of direction. not always but still great learning tools

Magical!! I've only dipped into it so far (~4 hours), but this seems to be one of the best books I've ever seen. Definitely top 10, cross genre. It's an Encyclopedia of the concepts in every mechanical device on earth. There is relatively little text accompanying most diagrams, but important differences between competing designs are called out, and well as significant pros and cons. Some typical applications are often given. Organized by general application; all the clutch systems are together, all the linear bearing systems are together. Chapter start goes into the math, terminology and principals in more detail. Best usage seems to be as a first step in the design process. Quickly familiarize yourself with the various standard options for an application. Do detailed an in-depth research elsewhere once something has piqued your interest. I'll eventually read this book cover to

cover, and am considering getting a second copy to keep at work. If you like mechanisms, build or design things, or enjoy understanding how the world works, it's a must have in my opinion.

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