Creative Thinking and Innovative Invention - The Inventions of Mechanical Devices by Using Creative Thinking Techniques

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The 21st century is the century of vigorous development of science and technology and knowledge innovation. The design of products must be constantly innovated and improved to remain competitive and gain profits. To design products that are easy to use, low-cost to manufacture, and of high quality, it is important to use innovative design methods to design products systematically. There are many creative thinking techniques such as checklist method, attribute listing, morphological chart analysis, brainstorming, and creative design methodology of mechanical devices, which are available for helping idea generation in conceptual design. This manuscript will introduce how to use creative thinking techniques to innovate and invent mechanical devices. Some design examples are proposed to illustrate the design procedures of creative thinking techniques for inventing mechanical devices.

How to use creative thinking techniques to innovate mechanical devices is proposed in this study. It is hoped that it can provide effective help to engineers when designing mechanical devices, so that the design of mechanical devices can be more systematic. The designed mechanical devices must meet the human's needs and the advantages of simple operation, more stability, low manufacture cost, and more safety. It is hoped that this research can improve the R&D capabilities of engineers and enhance industrial competitiveness.

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Experience:

Assistant Engineer, Technology Research Center of Yu-Tan Machinery Co., Ltd., 1982/10–1983/02.

Assistant and Associate Researcher, Mechanical Industry Research Institute, 1983/03–1986/08.

Lecture, Associate Professor, and Professor, Department of Power Mechanical Engineering, National Formosa University, 1988/08–present.

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