

Design and Fabrication of the Rotating & Tilting Vice

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ABSTRACT: In these modern days, the humans like to do all the works within a certain time with fast and effectively. At the same time, the job should be fulfilling the requirement. The drawbacks of earlier system are overcome the existing system. In the existing system, the radial drilling machine can be used to drill the fixed job with higher efficiency. But it cannot rotate or tilt the job at particular angle. These drawback are overcome by proposed system. Design and fabrication of the rotating and tilting machine vice can be operated by using mechanical linkage such as bevel gears and shaft. By the use of bevel gear, we can achieve the rotation motion. And with the help of nut and screw arrangement, we can achieve the required angle. The proposed machine vice will be very useful to these generation and future generation of peoples.

I. INTRODUCTION

In this existing generation, most of the people are willing to use minimum efforts and more efficiency to fulfill the required work. For the convenience of people in this existing mechanism, introducing a proposed arrangements "ROTATING AND TILTING VICE", by this machine, we can able to finish the work with good surface finish.

The main advantage of this machine is rotate as well as tilting the vice. The machine is fully based on the bevel gear train by using simple mechanism of mechanical linkages such as gears and shaft. The output can be obtained in this system is accuracy when compared to existing system. The components consist of bevel gear, shaft, bearings, nut and bolt, etc. The working principle of the components are briefly explained in the coming topics.

II. WORKING PRINCIPLE

The rotating and tilting machine vice is works based on the principle of bevel gear train mechanism using simple mechanical linkage such as gears, shafts, bearings, etc., According to the principle, the arrangement of gears should be perfectly calculated for the better output. It carries more advantageous features. The earlier and existing machine has some drawbacks such as absence of portability, tilting motion, high accuracy and minimum effort. So, this system is very much usefully to do the job at any angle between $0 - 90^{\circ}$ (degree). Here, **input gear is small as possible and output gear is big as possible.**

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FRONT VIEW



TOP VIEW



IV. CONCLUSION

The aim of the project work undertaken is a part of improving the student's knowledge towards practical design of rotating and tilting machine vice with the help of gear train mechanism.

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This improves not only the practical skill but also various management function such as planning the project, material equipment, group efforts in achieving the targets, costing, improving the project by reducing various costs. The project is designed and completed as per the schedule with facilities available in the machine shop and by purchasing materials in the market.

By completing our project, we need the objectives mentioned for this project is completely fulfilled. So we are satisfied as for the project is concerned.

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