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Gearless Power Transmission

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Abstract — *This project "GEARLESS POWER TRANSMISSION" being compact and portable equipment, which is skilful and is having practice in transmitting power at right angle without any gears being manufactured. The El-bow Mechanism transmits the input power towards the output side such a way that the angular forces produced in the slacks are transmitted with the help of rods which takes up the input power and the right angle drive is transferred towards the output slack and rod assembly. Hence very little friction plays while the power is being transmitted.*

Keywords- *Power Transmission, Mechanism, Sliding Pair, Gear, Angle*

1. INTRODUCTION

Gear-less transmission is a compact and portable equipment, which is skillful and having something in practice in the transmitting power at right angle without manufactured and can be made in less time. This project uses EL-Bow mechanism which is an ingenious link mechanism of slider and kinematic chain principle. This is also called as "gear less transmission mechanism" and is very useful for transmitting motion at right angles.This mechanism is for transmitting motions at any fixed angle between the driving and driven shaft. The synthesis of this mechanism would reveal that it comprises of a number of pins would be between 3 to 8 the more the pins the smoother the operation.These pins slide inside hollow cylinders thus formatting a sliding pair Our mechanism has 3 such sliding pairs. These cylinders are placed in a hollow pipe and are fastened at 120* to each other. This whole assemble is mounted on brackets wooden table. Power is supplied by Human effort

2. LITERATURE STUDY

R. Somraj et al. [1]
Analyzed the Design and Fabrication of Gearless transmission for a skew shafts 3nos. of L pin rods were used it was concluded that given arrangement can be used for any set of diameters with any profile of shafts a review paper on design and analysis of gearless transmission mechanism 35 for skew shafts of any angle but the shaft must be having the rotational motion about his own axis transmission is very smooth and desirable and used only for the equal RPM of drivinf shaft and driven shaft by employing link or given type of link for appropriate joints for revolute pair

Shiv Pratap Yadav et al. [2]
performed Real time Study for Design, Analysis and fabrication of gearless power transmission by using elbow mechanism they used 3 Nos. of Elbow rod inclined to the 900 Modelling and rendering of mechanism is done into the CATIA V5 and the analysis was carried on ANSYS the mechanism was working between 80 to 100 RPM after this it was concluded that it has higher scope in future to replace the combersome usage of gears which will be replaced simple.

3. ADAVANTAGES

1. Complete FreedomOf interchangabillity
2. More Efficient Than Gear
3. Simpler Cooling System
4. Low Cost Of Manufacturing

4. APPLICATIONS

1. Tower Clocks
2. Used in Vehicles (Go-carts)
3. Angular Drilling Between 0-90 degree

5. FOOTNOTES

1. BOTH THE DRIVING AND DRIVEN SHAFT SHOULD RUN ON THE SAME RPM.
2. THE RODS SHOULD BE EQUALLY RADIALLY SPACED ON THE CYLINDRICAL DISC.
3. THE MECHANISM TRANSMIT THE MOTION EFFICIENTLY UP TO 100 RPM .
4. GENERALLY STAINLESS STILL IS USED AS THE ROD MATERIAL.
5. MINIMUM 3 NOS. OF PINS SHOULD BE USED FOR TO MAKE TRANSMISSION POSSIBLE.

6. REFERENCES

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