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Design of Two Wheel Drive Forklift - Pedal Operated

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ABSTRACT

An improved and advanced technology like mechanical fork lift brought revolution in the all heavy engineering industries. Now a day, wide spread use of the forklift truck had revolutionized ware housing practices around the world. Mixture of material handling systems is already in use. Forklifts have revolutionized warehouse work. They make it possible forone person to move heavy weight items easily. Well-maintained and safely operated forklifts make lifting and transporting cargo items an easy process. In this paper, a method is proposed to move heavy items with the help of a Pedal Operated forklift to lift and transport medium weight goods. It is fast, efficient and low power consuming equipment that also requires less space to move around.

Keywords: Pedal, Forklift, Transport, Warehouse, Material handling

1. INTRODUCTION

This article guides a stepwise walkthrough of Forklift and its related Technology. Forklift is a device which is used to transfer goods from origin to destination point. Running on fuel (diesel mostly) they can generate required torque for defined applications. Segways are short distance transport domestic vehicle which are mostly used in malls and domestic transportation.

2. OBJECTIVES

- To modify mechanism of forklifts.
- Using two wheel drive forklift to simplify driving experience.
- To make effective loading/ unloading of object using latest robot techniques.
- To make operations environment friendly.
- To reduce cost of operation by substituting fossil fuel engine.
- Increase safety at work.
- Increase accuracy of work.
- Automation of application.

3. PROCEDURE

3.1. Bits and Pieces Together

We've taken references by analyzing needs of workers from our institute. By analyzing their need we`ve thought to combine various technologies like Forklift & Segway. By combining

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these technologies we can ease the workload of workers and maximize their capacity to lifting and transferring their goods effectively. After these thought we've started analyzing required Data to Design and Manufacture our two wheels drive forklift. We've taken references from some international journals containing research and data of 'Fork, Forklift and Segway'. All the References for Designing 'Two Wheel drive Forklift' are taken from respective data books and research papers.

3.2. Use of Simulation Software

There was numbers of software available which can mimic the process involved in our research work and can produce the possible result. One of such type of software was CREO parametric. We can easily make design and modeling of our desired production 3-D. Second such type of software was Ansys, in which we can analyses the load applying on product and find it is safe or not. We can also use other software like AUTOCAD, Top Solid, and MATLAB for modeling and performing Static Load Analysis on our product.

4. IDENTIFY, RESEARCH AND COLLECTED IDEA

We've analyzed the Data available from already researched Journals on our subject, through the Internet. We've also analyzed Standard Design book for Manufacturing of Forklift. After Analyzing all the data we`ve found that our design is viable and safe. After Exploring of new possibilities in forklift technology, we've tried to apply to our design. After some Corrections and Modification we found the new way to apply these technologies feasibly. All these technologies were helpful to make our forklift better and ease in use.

Picture of Analysis and Components are Given Below:

Figure1 Two Wheel drive Forklift

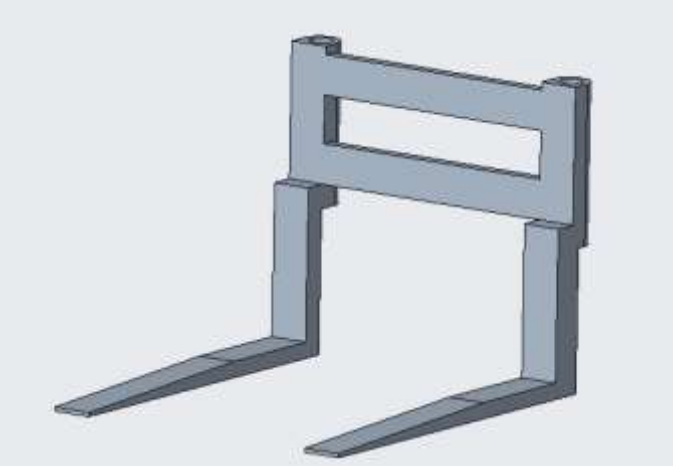

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Figure 2 Fork

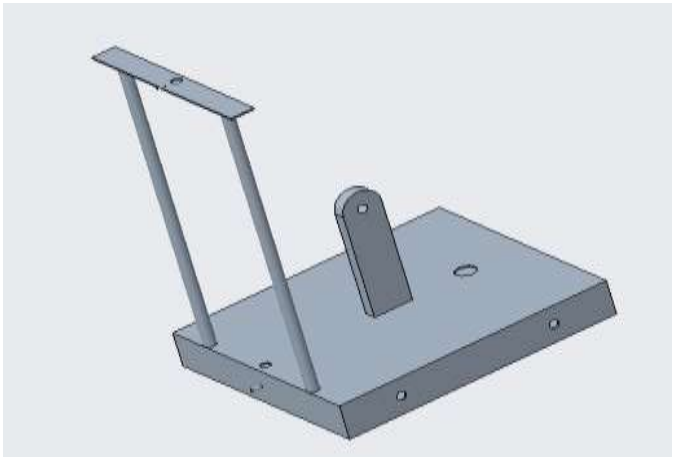

Figure3 Base of Two wheel drive Forklift

5. IMPROVEMENT AS PER REVIEWER COMMENTS

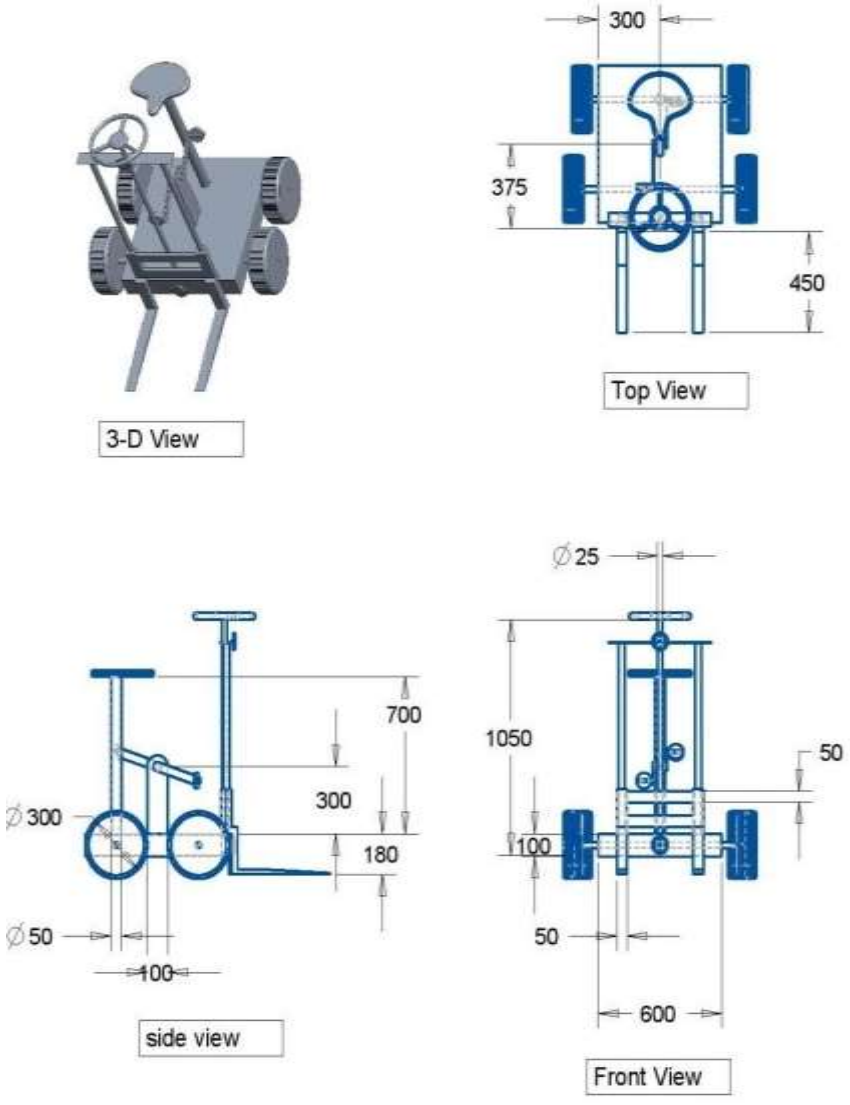

Figure4 Dimensions and Views of Forklift
All dimensions are in mm

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Importance to feed back and Reviews are given. As per feedback and replies we got from our Volunteers, we've made certain changes in Our Design.

- Pedal Mechanism is provided to reduce cost.
- Chain Drive is used instead of Belt drive to make operation safe and reduce slip.
- Steering Mechanism is improved.
- Design of Fork Attachment has been improved.

6. CONCLUSIONS

We can conclude that with using our 'Two Wheel drive Forklift' any worker working in institute or warehouse can effectively Load/ Unload/ Transfer material. Efficiency of material handling capacity will be higher compared to bare hands. There will be less Physical Problem, Specially the 'Spine Problem. Effectiveness and easiness of Certain Operations will be Maintained Easily.

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