

Development of the Design and Fabrication of Shifting, Lifting and Mounting Machine

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Abstract— Forklift is extensively used in lots of industries for distinctive packages along with lifting, secure transport of fabric along with large boxes, Raw materials; cylindrical sections etc. are extensively used Forklift system. It includes Lead screw & Nut arrangement. The forklift system is compact in length can be opportunity for the guide lifting. Small scale industries cant have enough money the large & high-priced fabric managing system so we're designing and production Forklift for small scale industries. In todays life, there's a extensive style of forklifts, from the big heavy loading truck to the only that works amongst slim aisles. Forklifts have come to be one of the simple transportation equipment we use in our lives. With all of the forklifts in existence, we discover that there are a few upgrades that may be made to carry the forklift to a higher performance. Existing forklift layout has its problem in rotation and the shape has ability protection risk. Our new layout has a hundred and eighty tiers rotating forks connected to truck frame on each ends. Also, it has a scissor raise beneathneath the operators cabin which improves the balance. There are subassemblies: scissor raise and lifting fork; there's a complete of 37 components with in side the new layout. Once the layout is conceived, we calculate the mass residences of components and subassemblies to make sure the balance of the forklift. Results display that the truck is secure to apply: its middle of gravity stays with in side the protection triangle and we use this to get the most loading capacity. Then we run pressure evaluation on critical components and subassemblies the usage of finite detail method (FEM). Results display that the new layout is secure to apply be neathneath operating conditions.

Keywords: Scissor Lift, Mechanical Lift, Worm and Worm Wheel

I. INTRODUCTION

The requirement of moving the producing components of any industrial project is one of the basic requirements that required to be accomplishing in order to assure the efficiency of the industry as a whole. There have been different prototypes dedicated completely to the industries transportation of product, components, equipment, totally produce final products. But the thing which does not submit with most of the conveyor belt systems is that they do not cost-efficient. They need a more amount of capital investment which is not something that is reasonable by everyone. Our design for the "LIFTING & SHIFTING MECHANISM" is dedicated to the small scale industries for those who conventional conveyor belt systems are simply or not convenient who do not need such a large scale systems such as in-house as buildings line.

Engineering design practice implies the combination of analysis and synthesis. One cannot analyses something up

to something has been manufactured into reality. Machine design problem needs the development of a technique with particular motion indicate. Lifting and shifting machine use on the motor (electricity) or manually. Motor is operated by the control unit. This machine causes no pollution.

The very crucial attention of layout lifting moving gadget is the safety. In this for the duration of the loading and transferring balance gadget includes three factor of contacts. Front wheel drives and bearing the actual wheel touch axle organized on effectively established Because of the varieties, numerous shapes, unique packing of the goods, loading and unloading has constantly been a heavy process at the same time as transportation. Forklifts had been obviously observed and have become the answer to this problem. It saves area and time. If cargos are being constructed properly, the usage of forklifts with the precise solving will be the quality manner to load and unload, which could make the whole process quick time ingesting and much less hard work intensive.

In addition, forklifts optimize using garage area through removing the want for lots human beings to address the loading and unloading operations and allowing the stack-up of products. The stacking peak of products may be as much as 4~5m, a few even may be as excessive as 10m, which brings up the usage of warehouse through least 40%. Now, maximum of the transportation operations are the use of forklifts. Forklifts fall below the class of lifting and shipping machinery. A forklift has a lifting gadget for loading applications and a cellular gadget for shifting around, like a truck. A forklift is likewise referred to as a forklift truck. It is specially used for loading and unloading not unusual place packaged items. With a few unique attachments, it is able to additionally be used for non-packaged items or untraditional formed good.

Forklifts are produced through loads of agencies everywhere in the world. According to the facts approximately elevate truck sales, received through Worldwide Industrial Truck Statistics organization, Europe, North America, Japan and China are a number of the largest gamers in the marketplace Industries Corporation is No. 1 amongst all of the commercial elevate truck suppliers. It has eleven classes of forklifts, from hand pallet vehicles to counterbalanced vehicles, from digital to engine powered, such as extra than 50 distinctive kinds of forklifts. Each one in all them may be ordered with distinctive ability and loading variety to satisfy distinctive needs. The loading ability is from 0.75 ~ eight.5t. The most lifting top may be as much as 14.8 meter

II. PROBLEM STATEMENT

According to the marketplace elevate machine, essentially the elevate machines these days are furnished the usage of the hydraulic gadget and different complicated gadget. What we

strive to do on this assignment is try and expand elevate machines that now no longer use the hydraulic gadget however extra to the traditional gadget. The gadget in an effort to use is simplest use the pulley gadget to raise the material.

The trouble statements as follows:

- 1) The emplacement of forklift now no longer transportable due to the fact tough to transport and now no longer adjustable
- 2) Many product (elevate machine) designing in a huge variety of load.
- 3) The preservation of forklift is excessive fee and takes time.
- 4) The gadget of different forklift is complicated and tough to Maintenance.

III. LITERATURE REVIEW

Sampath S S, Dr. M. Chithirai Pon Selvan, in the present day, with the revolution in the materials and mechanical elements, applied technologies perceives folded growth.

Ye HUANG, Changsheng LIU, A butterfly valve has a simple structure, is convenient to operate, allows good flow regulation, and provides a good seal, and is widely used in petroleum, chemical, shipbuilding, metallurgy.

M. Antony Maria Thomas Benny, A hydraulic cylinder is a complicated mechanical system that are used to provide linear force action and motion. Hydraulic cylinders are powered from externally pressurized hydraulic fluid.

Ramesh.S, S. Denis Ashok, A Regenerative circuit is used to speed up the extension stroke of a double- acting single rod cylinder. Allowing fluid to flow into both the ports of a single rod cylinder to make it expand or at least try to expand as areas of contradictory sides of the piston are inadequate, the piston end of the cylinder has more force than the rod side.

P. Shelke concludes that bullock drawn planters are becoming necessity for sowing as the skilled workers for sowing are almost diminishing. Planting distance and plant population are crucial factors in maximizing the yields of crops.

Singh (1971) revealed that by using a seed drill for wheat crop there was an increase in yield by 13.025 percent when compared with the conventional method, it also revealed that by using a seed drill for wheat crop, a saving of 69.96 per cent in man-hours and 55.17 percent in hulioc hours were achieved when compared, with the conventional method.

Umed Ali Soomro at al. In Pakistan has evaluated three sowing methods and seed rate in a four replicated RCB method and concluded that drilling method of sowing at seed rate 125 kg/ha is optimal for yield and quality of wheat grains, because the said sowing method and seed rate distribute seed uniformly and desired depth which provide appropriate depth for seed germination and crop establishment.

From the title that has been given, the development of this project must include how to design the mechanical part of machine and how to fabricate the system of this mechanical part.

Before develop the lift machine (using cable and pulley), it must compare with other product in market. It is because to study the customer need and to create a new design with new feature.

Basically, the purpose of development of lift machine is too used to lift and transport a material to other place. Lift machine also called a forklift, lift truck, a high/low, a stracker-truck or a side loader.

This is an individual task and must do by ourselves. This is also one of opportunity to student to show or to apply their knowledge also skill in using manufacturing process and mechanical design software in complete this project.

The modern in lift machine was developed in the 1920s. The lift machine has since become an indispensable of equipment in manufacturing and warehousing operation.

Time management and a good planning also important to make sure the entire plan are in their way. Lastly, discipline needed to complete this project.

IV. CONCLUSION

The project carried out by us made an inspiring errand within the field of generation and fabrication industries. It is very useful for having the object or specimen vehicle. This project will diminish the cost included within the concern. Project has been designed to perform the whole prerequisite errand at the more brief time available.

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