

Weight Lifting Trolley

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Abstract- Trolley is the main transport for human to carry load. Every trolley has different use and specific use. It is limited to do other job than the specified job. There are some disadvantages for common trolleys such as don't have stopper, load easy to fall due to slippery surface only suitable for flat road, hard to cornering, cannot load many things, unstable for heavy duty work, high force needed to push or pull the trolley. To reduce this problem, one new trolley will be development that have multipurpose and has not limited to do another task or job. Nowadays, people use trolley to carry heavy load.

There are many type of trolley in the market like industrial trolley, drum truck trolley and platform truck trolley. Many trolleys has been developed with a specific task or job like shopping trolley which can be use only for shopping, and transporting traytrolley only to carry trays. In the fabrication, there are many process involve to develop the product such as grinding, joining, measuring, gathering material, cutting material, and finishing process. This project is about design and fabricates a new product of trolley that has multi function. The trolley maximum loads must 20 kg, multi use and easy assemble. Its also must reduce the disadvantages of the trolley in the current market like have stopper, and able to lift items up the stairs. Trolley was achieving the objective of this project. The Multipurpose Trolley can function in good condition for example it can support 20 kg load and the Trolley can climb the upstai.

Keywords- frame, supporting rod, supporting cylinder, threaded shaft, gears, stopper wheel, motor, supporting rod for trolley, controlling board, bolt, weight trolley, wheel, ax

I. INTRODUCTION

Trolley is an equipment used to move heavy loads from one place to another. It can reduce the human burden in their daily lives. This device is commonly used by a large number of industries to transport physical products. Trolley is often used by those who organize and stock merchandise in retail stores restock. When used properly, trolley can protect people from having back injuries and other health problems that can result from lifting and carrying heavy loads.

A literature review is a body of text that aims to review the critical points of current knowledge and or methodological approaches on a particular topic. Literature

reviews are secondary sources, and as such, do not report any new or original experimental work.

Most often associated with academic-oriented literature, such as theses, a literature review usually precedes a research proposal and results section. Its ultimate goal is to bring the reader up to date with current literature on a topic and forms the basis for another goal, such as future research that may be needed in the area.

A well-structured literature review is characterized by a logical flow of ideas, current and relevant references with consistent, appropriate referencing style; proper use of terminology; and an unbiased and comprehensive view of the previous research on the topic. The trolley is a mechanism that allowed man to transfer their heavy items such as computers, files and etc to other places. It's help man to do their work without having a problem due to the heavy loading. Its also helps to reduce pain in waist, back, hand and feet. No mater how light the loading is, people usually will suffocate a large pain in their body if lifting the items in many times. So, this is when the people rely upon a trolley that can do items transferring many times with just a little effort. From the statement above conclude that the trolley playing a major role as an items transferring mechanism for people without having a problem of doing that. A trolley also functioned as a helper to people to hold items orderly while transferring between rough lands.



II. MANUFACTURING PROCESS

To give the full knowledge of project it is necessary to give knowledge of manufacturing process.

So we are giving information about manufacturing process

1. frame :- we purchased a m.s. strips and m.s. plate after this we cut them two in desire shape and size.
2. Supporting rod:- we purchased two same m.s. rod from market and weld (arc welding) them on frame.
3. Supporting cylinder :- we purchased two same hollow cylinder from and cut and finish in desire size and weld (arc welding) two axel for wheels.
4. Threaded shaft :- we purchased a single threaded shaft from market and fixed it on frame.
5. Gears :-we purchased pair of bevel gear from market and attached on motor and threaded shaft.
6. Stopper wheel :- we weld it on head of threaded shaft for stop on one its original place.
7. Motor :- we fioked it on frame by bolt it on its stand.
8. Supporting rod for trolley :- we weld two rods one end of them on trolley and another end on supporting rod.
9. Controlling board :- we attached four switches and one 2 pin on wood board by which we can run our motor in both direction.
10. Bolt :- we purchased a m.s. bar internbal thread in this.
11. Weight trolley :- by thin bar of m.s. we made a trolley and weld it on bolt.
12. Axel :- they are easily available in market.

Driver gear
Driven gear
Electric motor
Bolt
Wheels
Angels
Grease Castrol
Round shaft
Switches
Oil paint
Electric motor nut bolt
Electric wire
Wheels shaft
Wheels pin
Bearing (roller)
Wheel head
Trolley bolt
Trolley
Guide shaft
Switches board
Switches board pin

Table1: COMPARISION

Sl. No	Weight lifting trolley	Human work
1	No extra effort to using.	Full human power are using transform.
2	Easily handling.	Full concentrate on the work.
3	Long distance travel in this machine through	Man power are not traveled by long distance.
4	Money consume in thie machine through.	More money are paying for the labour
5	Electricity through its are working.	Human power are using in this machine.
6	Load carrying capacity is very high.	Load carrying capacity is normal
7	In this machine are using through continous weight transform.	Not using continuously.
8	Save time in this machine through.	More time are consuming human power through.

III. COMPONENTS USED;-

1. MAIN COMPONENT:-

1.1 Frame:-

1. It's main part for every type of the structure. mainly this type of the frame are used all the components easily mounted on them. frame are also main part its the structure are simply and also be a provided for strength.



1.2 MOTOR:-

Motor are using in this weight lifting trolley easily transform for the weight one place to another place. In this type of motor are easily rotating on a clockwise direction and anticlockwise direction so in this case I'm choosing on a washing machine motor because in this case are very critically so only washing machine type of the motor are used in this type of the motor. I'm selected on motor & fitted speed regulate meter bcz this motor are speed very high so controlled on this motor very difficult so I'm using on a speed ragualte meter. motor are front side mounting on a bevel gear and the down side are fittrd on a same gear and both are attachment simple bevel gear through and bith the gear are friction reason create a smple linear vertical motion are weigh are transform for the one place to the another place using on a electricity supplying.



1.3 SPECIFICATIONS:

In this weigh lifting trolley through a problem of weight transfer for this large industries have load lifting machines which very much costly for small industry.

So small industries the workers are doing this work due to this work which in suitable for their economical limit.

2. Threaded shaft:-

Threaded shaft are using on the help of the bevel gear through easily friction through weight transform, one place to another place without any problem. It's are the very strongest shaft because this is the main shaft. The weight lifting trolley are totally dependent on the this shaft. So it's a weight transform are totally dependent their height.



3. Bevel Gear:- there are two bevel gear are using on this weight lifting machine are always work in perform on the two gears through create a simle vertical motion through weight transform one place to another place easily weight transform for using this bevel gear through. Bevel gear means a two gear are working in a simple opposite direction on a same speed are a working in a 100% efficiency output provided. Only bevel gear through easily working transform from one place to another place. Threaded shaft is a main role acting on them. It's a main role provided because both gear are dependent on a threaded shaft is a mde of a mild steel. vertinonlinear magnetic phenomena.



4. supporting rod:- supporting rod are the main oart for transform weight from one place to another place son in this type of the frame are a solid type of the rod are always using are the both are end suprted on the two frames end are the welded. This type of the rod are supported on the both end in this through main supporter on this frame. Every frame or a machine supporting rod are always placed. In this type of the suorting are made of mild steel so it's a strength is good and also be a using on a all the type of frame. So always using increase the strength in this machine part in this through.



5. Weight trolley:-

Weight trolley is the best part of the carrying on a one place to another place. Its also be easily load carrying and easily transforming one stage to another stage all the in this type of the load carrying weight trolley uses on the easily weight transforming on the simple working through. mainly trolley are the working on a open box type and the uses are easily weight transforming for a one lace to another place so at that time in this trolley are a maximum capacity are depending on a weight lifting trolley. This trolley are always .



IV. DESIGN ANALYSIS

Field calculation of a safe load capacity:-

Assume a situation where a fouklift truck that has a 20 kg capacity had a 12 inch load centre needs to handle a load whose centre is 6 inch from the front face of the of the four in the horizontal direction the first thing to recognize is that actual load centre distance of 28 inch exceed the standard load centre distance 24 inch on which the 20 kg capacity Is based so the safe load is capacity is actually less than 20kg.

$$9\text{in} / 12\text{in} \times 20\text{kg} = 15\text{kg} \text{ (appro. Safe load capacity)}$$

V. CONCLUSSION

The prepared project “weight lifting trolley” is useful proiduct for small industrial purpose.

The man aim behind this project was completely meet and fulfill with group effort and cost effective measures to make out a popular and useful product.

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