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Flat Tyre Puller Booster for Bike and Car

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ABSTRACT: This project focuses on design and implementation of Flat tyre puller booster, which aim to ease the pulling or moving of a vehicle with a flat tyre .This consists of a steel frame measuring 320mm length and 150mm width constructed by welding and cutting thick Galvanized iron sheets and 5 non-abrasive wheels. The frame is designed with a foldable mechanism which helps it to carry anywhere without much space needed. Additionally a fifth wheel is provided at the front of the frame for easing the movement and also the turning of handle on turns. The project seeks to address the demands of cheap, fast and easy solution for flats tires situation. By providing a foldable frame it is easy to carry anywhere there by reducing the cost of calling for towing your bike or reducing the efforts to pull or move it.

KEYWORDS: Flat Tyre Puller, Foldable Frame

I. INTRODUCTION

With rapid evolution of society there comes construction of roads and buildings which leaves nails and other objects which could be a probable reason for puncturing tyres of your vehicle. But also there are 'n' number of reasons which could cause this issue With environment saturated with these issues there are only mostly two solution available which are, towing your vehicle or pulling it till the garage to repair it.

These solutions are costly, require more effort and are time taking. This project addresses these issues and creates a cheap, less time and effort taking solution. The purposed solution employs a rectangular and foldable frame which accommodates the flat tire of your vehicle and makes it easy to pull it. Also when the puncture is at the front tire you can easily drive your vehicle to the mechanic The frame is designed with a foldable mechanism which helps it to carry anywhere without much space needed. Additionally a fifth wheel is provided at the front of the frame for easing the movement and also the turning of handle on turns

The traditional method for flat tire situation relies on calling for tow or pull you vehicle to the garage. Which are either costly or effort and time taking processes. This project seeks to address these shortcomings by introducing a frame which designed with a thick iron sheet and foldable mechanism which helps it to carry anywhere without much space needed and is tough to carry the load of your vehicle.

This comes with five nonabrasive wheels and the fifth wheel is provided at the front of the frame for easing the movement and also the turning of handle on turns. This product can not only be used for flat tyre but also in situation like vehicle not working or starting and with no petrol in your vehicle

Objectives

The aim of this project is to design and construct an effective solution for a flat tyre, no petrol and vehicle not starting issue which is cheap and less effort and less time taking.

The objectives of the project are as follows:

- To build a durable steel frame that securely holds the wheel of the vehicle
- To integrate five wheel which make your vehicle easy to pull and turn



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- To implement a foldable mechanism which makes it easy to carry anywhere with less space required.
- The project aims to address the demands of cheap, fast and easy solution for flats tyres situation. By providing a foldable frame it is easy to carry anywhere there by reducing the cost of calling for towing your bike or reducing the efforts to pull or move it.

II. METHODOLOGY





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III. CONSTRUCTION & WORKING

Construction

3.1 Galvanized Iron metal sheet:

The properties of galvanized iron help us to give our product durability, strength, corrosion resistance, easy fabrication and cost effectiveness. We have performed cutting and bending on the sheet to get the accurate shape according to the design of the frame. Metal Sheets shown in figure. 2.1.



Fig 2.1: Galvanized iron sheet

3.2 Non Abrasive Wheels:

There are total five wheels in this frame two at the back, two at the front and one at the centre front of the frame. The fifth wheel is provided for easing the turns while pulling or driving. These wheels are provided for mobility and reducing the efforts needed. These wheels are strong durable and provided with smooth bearing



Fig 2.2: Non Abrasive Wheels

3.3 Nuts and bolts:

Nuts and Bolts are used for fastening the wheels to the frame and the frame structure together avoiding the breakage of the frame and providing durability and strength to the frame.█



Figure 2.3: Nuts and Bolts



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3.4 Steel Pipes

These are provided for safe guarding the bolts as shaft in the frame and acting as guard. They are also used in the front bolt for providing the structural integrity to the fifth tyre which is important for taking turns.



Figure 3.2.4 Steel pipes

3.5 Washer:

These are provided in order to prevent looseness and provide protection. This also prevents the bolt head and nut from damaging the surfaces of the two fastened parts.



Figure 3.2.5: Washer

Working

Flat Tyre Puller Booster For Bike :

This project focuses on design and implementation of Flat tyre puller booster, which aim to ease the pulling or moving of a vehicle with a flat tyre .This consists of a steel frame measuring 320mm length and 150mm width constructed by bending and cutting thick steel plates and 5 non-abrasive wheels. The frame is designed with a foldable mechanism which helps it to carry anywhere without much space needed. Additionally a fifth wheel is provided at the front of the frame for easing the movement and also the turning of handle on turns. The project seeks to address the demands of cheap, fast and easy solution for flats tires situation. By providing a foldable frame it is easy to carry anywhere there by reducing the cost of calling for towing your bike or reducing the efforts to pull or move it.



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Flat Tyre Puller Booster For Car :

We made a revised product for car by copying the mechanisms used in the flat tyer puller booster for bikes but by doing some minute but important changes like increasing the dimension according to the car tyer dimension, further changing the bolt with MS steel shaft with increased dimensions to hold the weight of the car, we also increased the thickness of the metal plates and hollow pipes to withstand the stresses for further reducing the damage



Procedure To Use :

To use this product you just need to lift your vehicle up bike on double stand support and car with a jack . After this you just need to put this product beneath your tyer and adjust it to fit and you are ready to use it either by driving your car or bike, or by easily pushing it

IV. ADVANTAGES

1. Portable, can be easily carried anywhere you go inside you bag.
2. Compact in Size, because of its foldable frame its size gets reduced.
3. Cheap less costly than the other options available in market.
4. Durable, can last long due to strong frame without corrosion because of stainless steel.
5. Durable
6. Low maintenance
7. Independence from grid
8. Easy installation



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V. CONCLUSION

In conclusion, the development of the Flat tyre puller booster represents a significant advancement in Flat tyre solution. By integrating Foldable Frame with Five wheels, this project introduces an innovative solution for every other person who uses two wheeler in there day to day life for transportation. The ability to fold the frame reduces the size of the product which makes it easy to carry anywhere while travelling. The success of the project has shown that the transportation of a flat tyre vehicle can be done without the need of too much effort and time, allowing the user to reducing the cost of transportation by toe. As more people use two wheelers seek to affordable and faster option with less efforts, the flat tyre puller booster stands out as a promising option, blending creativity with engineering.

VI. FUTURE SCOPE

The future scope of the Flat tyre puller booster project is extensive, with numerous possibilities for enhancements and applications. To avoid rigidity on bumpy roads suspension can be added to make it easy to carry on roads. One more notable direction is the integration of advanced technologies such as electrical motors so that whenever the rear tyre gets puncture it can be driven by the power of the motor so there is no need of using the force for moving the vehicle.

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