

Design and Modification of Side Stand Lifting Mechanism

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Abstract - An automobile industry is changing everyday and always accepting a new innovation and trying to increase a safety standards. Especially in two wheelers the safety is the main issue, so as to achieve a safety in two wheelers, the riders also need to be aware of the things and rules of the driving. In most of the cases people start their bike and forgot to lift their side stand, this can increase the number of accidents in day to day, in a normal bike there is a beam indicter which shows a colored light when side stand is not lifted but it is not effective as it seems to be, around 36% of bike accidents in India occurs due to side stand during 2012-2016. Our proposed mechanism is to lift the stand automatically even if rider forgot to lift it. This mechanism is easy to apply and it doesn't even cost much.



Fig. side stand spring

Key Words: side stand, side stand spring, metallic wire, 4 inch metallic plate, screw and nut assembly.

1. INTRODUCTION

Fatalities and injuries resulting from road traffic accidents are a major and growing public health problem in India. Every week nearly 2,650 people get killed and 9,000 get injured due to traffic accidents. In 2013, latest year for which data is available, 137,423 people died and 469,900 people got injured due to road accidents in India.

Many more of the accidents are triggered because of the unawareness of the riders to lift the side stand.

A *side stand* style kickstand is a single leg that simply flips out to one side, usually the left side, and the bike then leans against it. Side stands can be mounted to the chain stays right behind the bottom bracket or to a chain and seat stay near the rear hub. Side stands mounted right behind the bottom bracket can be bolted on, either clamping the chain stays, or to the bracket between them, or welded into place as an integral part of the frame.

1.1 Spring

Springs are the chief element that locks the side stand in the place either up or down. The centre spring used in side stand. This spring is called as helical or centre spring.

2. Literature Review

If the rider may forget to retract the side stand before riding, Then undistracted stand hitting the ground and affected the rider control during the turn and this will caused to unwanted troubles

The analysis shows that during the last ten years, road accidental fatalities in India have increased at the rate of 5% per year while the population of the country has increased only at the rate of 1.4% per year. Due to this, fatality risk, road accidental deaths per 100,000 people, has increased from 7.9 in 2003 to 11.2 in 2013. Fatality risk in India is not only quadruple than that in some of the developed countries such as United Kingdom and Sweden but also still increasing rapidly. It is also found that the distribution of road accidental deaths and injuries varies according to age, gender, month and time. Among people of all age groups, people of economically active age group of 30-59 years is the most vulnerable. However, if we compare gender-wise fatalities and accidents, we found that the males accounted for 85.2% of all fatalities and 82.1% of all injuries in 2013.

3. Construction

A stainless steel washer is welded below gear lever of the bike. a washer used in this system is a small one, which have inner diameter 10mm and outer diameter 20mm.

A 5 inch rectangular metal plate is welded on a side stand with an arc welding. A small hole of 5mm diameter is drilled on this metal plate. The non drilled end is welded on the side stand horizontal direction. This rectangular plate is made of mild steel.



Fig. Demonstration of the system

A thin metal wire of required strength is selected, its one end is attached to rectangular plate by passing through the drilled hole and fixing it there with a nut, the other end of this wire is attached to the wire welded to the gear lever in the same way.

4. Working

When rider starts the bike and forgot to lift side stand, at this moment rider will downshift to engage the gear. Now, the constructed mechanism comes into action as rider downshifts to engage gear, the mechanism quickly lifts the side stand as rider shifts gear.

With the help of thin wire, this system works quickly. It pulls the side stand as rider shifts a gear.

This mechanism does not require any type of outer source of energy, it's a fully mechanical system.

5. Advantages

- It is simple in installation.
- It is economical and cost-effective.
- No need for the extra power source.
- It increases the safety measures of riders.

3. CONCLUSIONS

This system is cheap in installation, does not require any external energy source. This is a compact system, does not affect any main components of the bike. In future, it is applicable to all types of vehicle whether it is costly or cheaper bike to increase safety standards.

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