

# **AUTOMATIC SIDE STAND SLIDER FOR TWO WHEELERS**

**BY**

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# INTRODUCTION

Now a days two wheelers are more common in accidents. This is mainly due to the following reasons.

- Riding the vehicle in high speed.
- Ignore to use the helmet.
- Does not maintain the speed limit.
- Forgot to lift the side stand while driving the vehicle.

About 36% accidents are occurs due to forgot to lift the side stand while driving the vehicle. There is a lot of ideas are used to prevent this problems. But those ideas have their own disadvantages too. The major drawback is it cannot use in all type of two wheelers. So, in order to solve this we thought and designed **AUTOMATIC SIDE STAND SLIDER FOR TWO WHEELERS**. This can be used in all type of two wheelers.

# CONSTRUCTION AND COMPONENTS

Construction of the proposed **AUTOMATIC SIDE STAND SLIDER** consist of the following major components. They are..

- **Axle**
- **Sprocket**
- **Pushing lever**
- **Lifting lever**
- **Ball Bearing**

## ➤ AXLE

It is a metallic rod made up of mild steel which connects the sprocket and pushing lever. A number of splines are provided at one end of the axle in order to connect the sprockets. Thus the axle is rotate with sprockets only when the vehicle is moves in forward direction.

## ➤ SPROCKET

It is the major component of the system.

It is always mesh with the transmission chain.

It is used to transmit the linear motion of the transmission chain to the rotary motion of the rest of parts.

## ➤ **PUSHING LEVER**

Pushing lever is connected at the other end of the axle.

It transmit the motion from axle to lifting lever.

It is keyed to the axle with the help of a sunk key.

## ➤ **LIFTING LEVER**

It is used to transmit the motion from pushing lever to side stand.

It is welded with the side stand by providing an angle of 90 degree.

## ➤ **BALL BEARING**

It is used to support the axle.

It is connected to the chassis through a frame.

# SPECIFICATIONS OF COMPONENTS

## ➤ SPECIFICATIONS OF SPROCKET

Material     High Carbon Steel

Pitch        12.7mm

Teeth        16

## ➤ SPECIFICATIONS OF AXLE

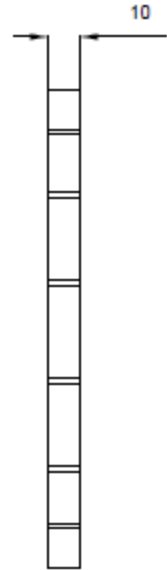
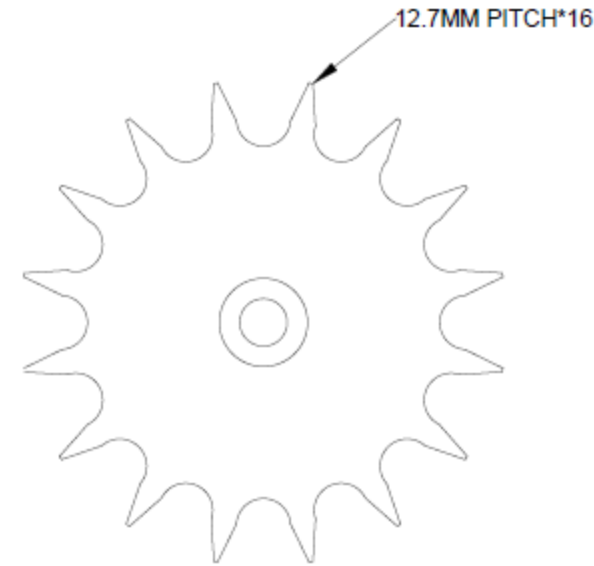
Material        Mild Steel

Shape            Cylindrical rod

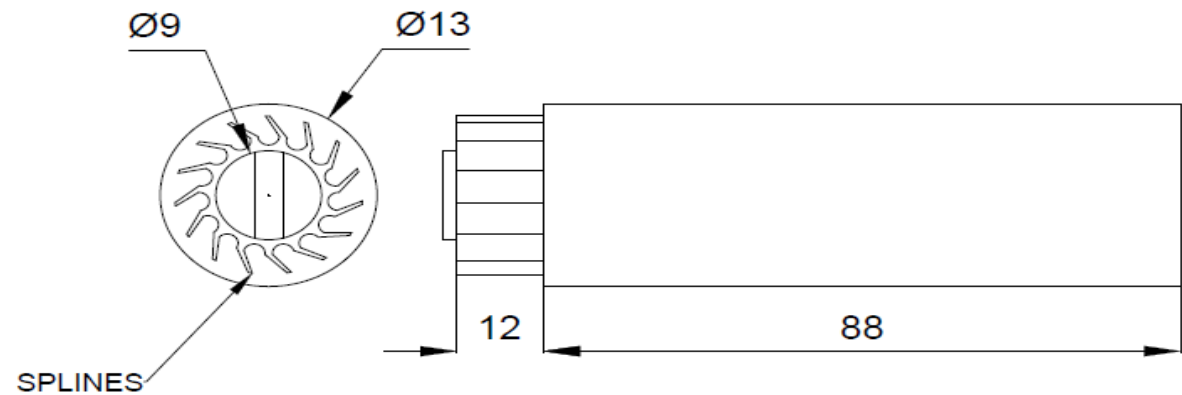
Length           100mm

Diameter        13mm

Length of splines   10mm

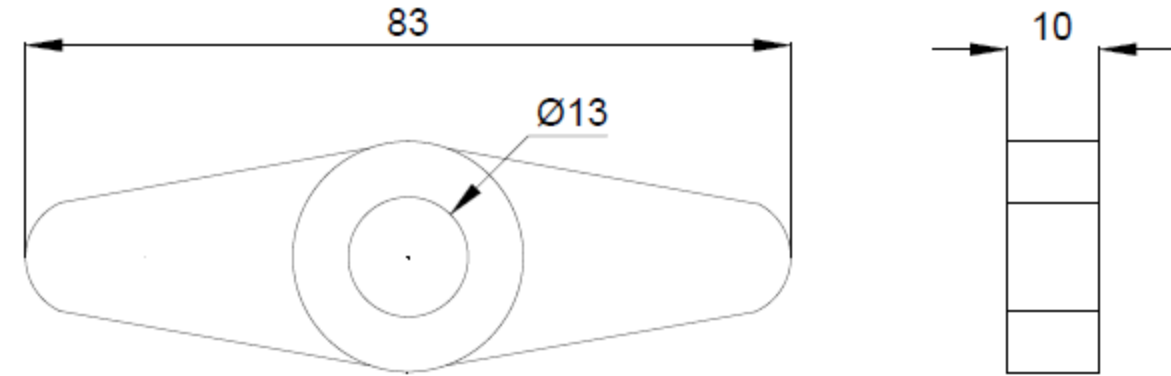


**SPROCKET**



## ➤ SPECIFICATIONS OF PUSHING LEVER

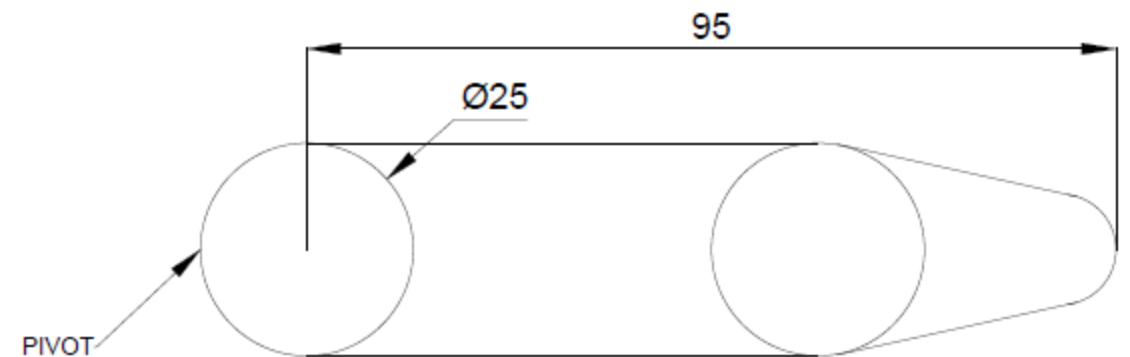
Material	Mild Steel
Length	83mm
Thickness	10mm
Diameter of hole	13mm



**PUSHING LEVER**

## ➤ SPECIFICATIONS OF LIFTING LEVER

Material	Mild Steel
Length	95mm
Thickness	10mm
Welded Length	13mm



**LIFTING LEVER**

## ➤ SPECIFICATIONS OF BALL BEARING

Ball Material      High Carbon High Chromium Steel

## ➤ SPECIFICATIONS OF RETURN SPRING WITH STAND

No. of coils      32

Outer dia of coil   15mm

Inner dia of coil   13mm

Type      Closed coil

Material      Stainless Steel

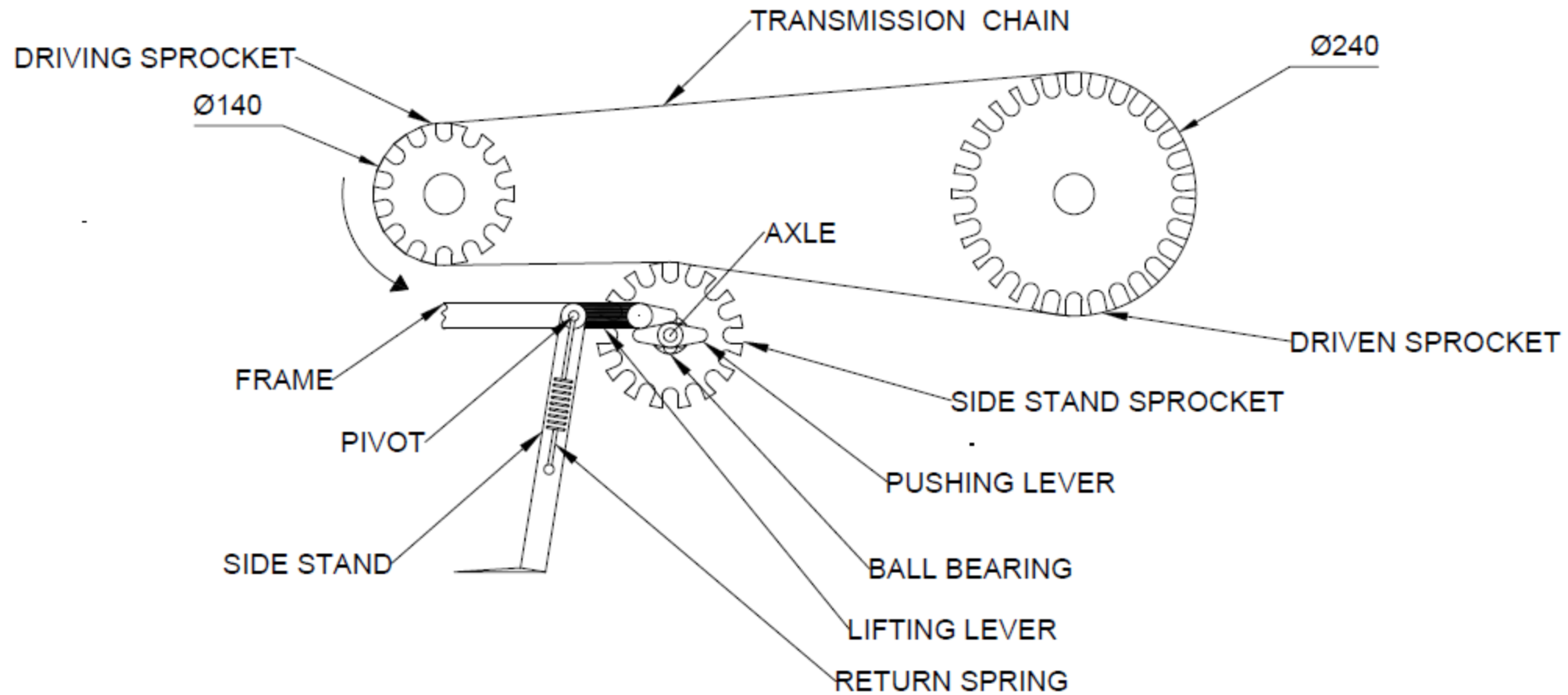


# ASSEMBLING AND ARRANGEMENTS

The components of this system is connected as follows

- The sprocket is connected with the transmission chain
- The axle is connected to the sprocket through splines
- The ball bearing is used to support the axle
- The pushing lever is keyed to the axle
- The lifting lever is connected with the stand

# WORKING PRINCIPLE



## AUTOMATIC SIDE STAND SLIDER

The working of **Automatic Side Stand Slider** can be expressed in 3 stages.

1. Resting condition
2. Vehicle is tends to move forward
3. Vehicle is tends to move backward

### ➤ **RESTING CONDITION**

At resting condition we put the side stand manually. At this time the lifting lever is comes in contact with pushing lever. All other parts are remain stationary.

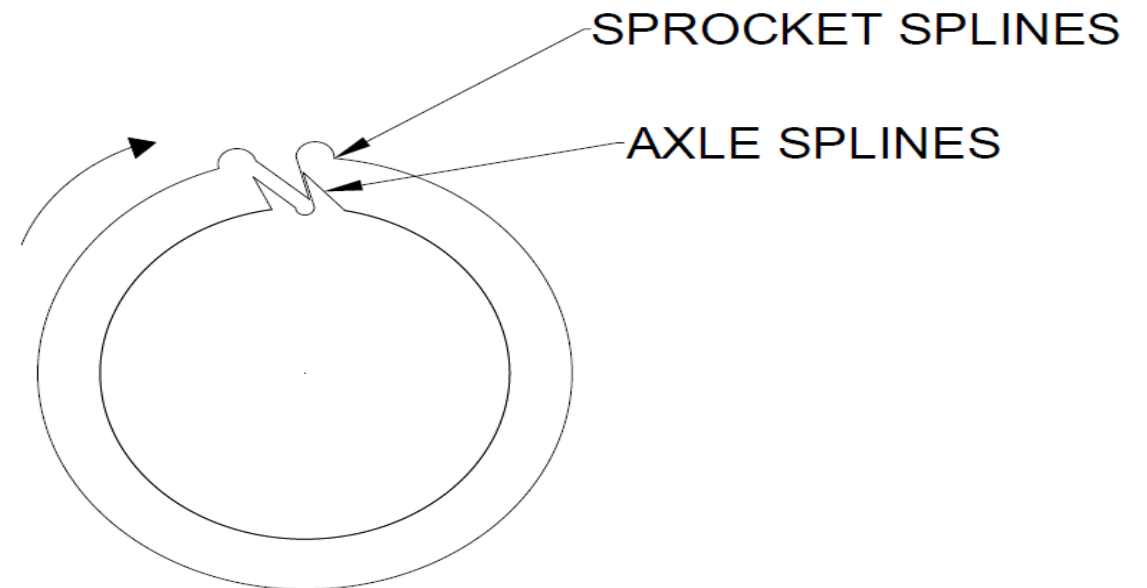
## ➤ VEHICLE IS TENDS TO MOVE FORWARD

When the vehicle is tends to move forward direction the main sprocket is starts to rotate in anticlockwise direction. This rotation is transmitted to the chain, causes the chain to move. This motion will rotates the sprocket of the side stand in clockwise direction. At this time the splines of the axle is locked with sprocket. Thus it will starts to rotate in the same direction. This causes the pushing lever to rotate. Thus it pushes the lifting lever upwards. It causes the side stand to retrieve. The return spring is also helps to the complete retrieval of the side stand.

## ➤ VEHICLE IS TENDS TO MOVE BACKWARD

When the vehicle is tends to move backward, the splines of the axle is not lock with the sprocket. As a result of this the sprocket is rotates freely on the axle.

There is no transmission of motion is takes place from the sprocket to the rest of moving parts.



# COST ANALYSIS

Sprocket	350rs
MS rod(axle, lifting and pushing lever)	175rs
Safe guard	120rs
Machining Cost	100rs
Total Cost	745rs

## ➤ ADVANTAGES

- There is no electrical devices in this system. So the system is working even when the power is not available.
- This system does not require additional power supply for working.
- The design and construction is simple. And there is no complication in working.
- It can be used in all types of two wheelers.
- The manufacturing cost is less as compared to other existing models.

## ➤ DISADVANTAGES

- If the chain is kept loose, it affects the functioning of sprocket.
- The presence of dust, mud causes incomplete retrieval of side stand.
- Proper maintenance required.

# CONCLUSION

**AUTOMATIC SIDE STAND SLIDER** will definitely good retrieve system. Since the setup is compact it does not affect the performance of the vehicle, because of the power obtained from chain drive. Definitely this system could be used in all type of two wheelers for retrieving the side stand. And this will be the major system to control the accidents due to side stand problem and protect the careless driver. While compared to the other system this will be the life saver

THANK

YOU