IP LICENSING/ SALE PROPOSAL

MECHANISM FOR INSTANTANEOUS ADJUSTMENT OF STAND FOR TWO WHEELERS

Patent Applicant: ASHISH KUMAR

Patent Appl Number: 3009/CHE/2015

TECHNICAL FIELD OF INVENTION

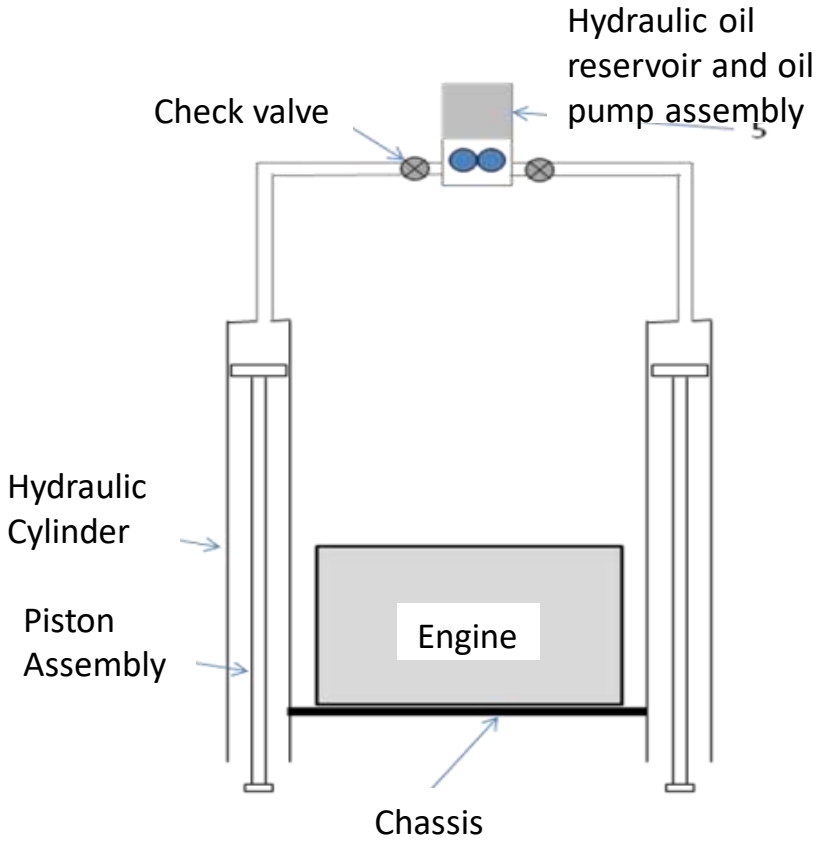
This invention introduces an instantaneous customizable length or angle adjustable two-wheeler stand (side stand or main stand) mechanism for enhancing vehicle stability. Invention also includes a power-assisted stand.

PATENT APPLICATION STATUS

Patent Appl Number: 3009/CHE/2015
Status: Patent pending in India

INTRODUCTION

The present invention aims at providing enhanced stability for a standing 2-wheeler by providing a side stand or main stand whose length or angle will increase or decrease depending on the ground parking condition. This invention also readily allows customization for modifications in two-wheeler as per user requirement and can work in with automatic and manual configuration



MARKET TRENDS

- Sale of two-wheelers in India has grown over the last decade and more, and since 2016/17 is the largest two-wheeler market by volume
- Despite slowdown, sale of two-wheeler in 2019 expected to be around 19 million, doubling in less than a decade
- Indian two-wheeler market is expected to surpass US$ 25 billion by FY2023
- Besides ‘mileage’, buying is determined by consumer-friendly features, such a charging port, height adjustable seat, ‘boot space’ etc.

Source: Team-BHP.com; data presented by Auto Punditz

BACKGROUND OF THE INVENTION

- Parking conditions for two-wheelers vary significantly in India
- Two-wheelers are required to be crammed in a narrow spot, or are required to be parked in inclined, irregular surfaces
- Women driving two-wheelers have increased manifold in India
- At the same time, sale of heavy two-wheelers and two-wheelers without main stand has also seen an increase.
- Ease of handling, including for parking a two-wheeler would provide a much-desired benefit
- Hence, an adjustable two-wheeler stand of various configuration (including manual and automatic) could meet this unmet need of the market.

ABOUT THE INVENTION:

In order to ease parking and improve stability of a standing two-wheeler, the present invention provides a side stand or/and main stand for two-wheeler which can be adjusted according to the need of the parking ground. This invention can cater to varying parking conditions by adjusting the length and angle of the stand. The stand is available in various configurations including having provisions to make adjustment manually and automatically to meet requirements of all kinds of two-wheelers and two-wheeler users. This invention also covers a power-assisted mechanism for parking a two-wheeler.

NEED FOR ADJUSTABLE STAND

- Narrow, muddy, sandy, pot-holes, congestion in parking zones, Irregular road conditions leads to difficulty in parking two-wheelers.

- At both low and high ground conditions, two wheeler will bank more or less respectively leading to reduced stability

- This problems will be intensified in the following cases:
  - Bikes / Heavy two wheelers
  - Two wheelers without main stand (eg. Yamaha R15, KTM Duke etc)
  - Two wheelers driven by women

Normal Parking Ground (Plain Surface)

Low Ground Parking Surface

High Ground Parking Surface

HOW TWO-WHEELER USERS IN INDIA ARE CURRENTLY ADJUSTING STAND

- Parking away from destination due to poor road conditions
- Searching for stone support
- Repeated attempts in muddy and sandy roads

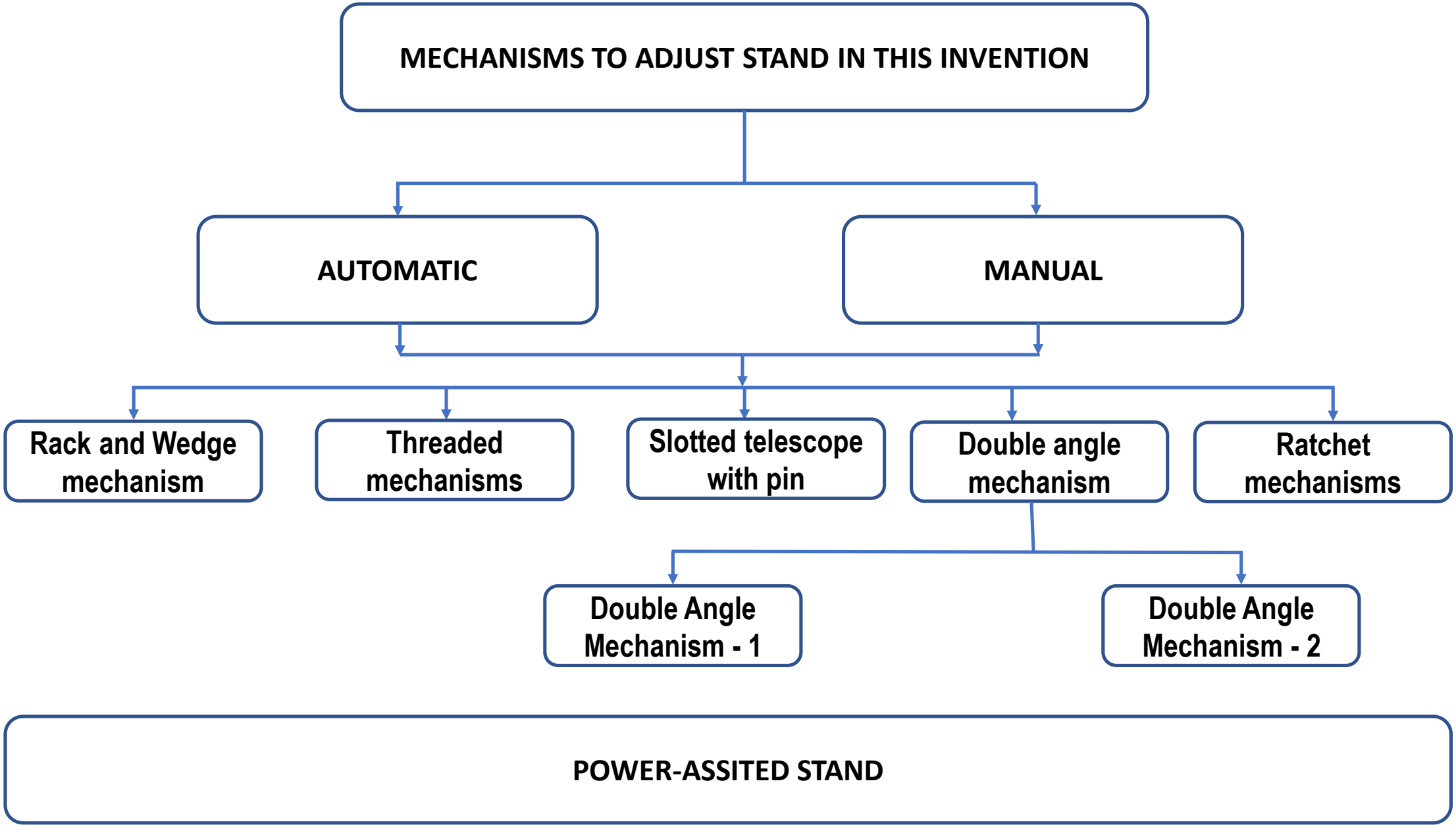
Stone

Muddy

Irregular

Pot-hole

POSSIBLE MECHANISMS OF STAND ADJUSTMENT IN THIS INVENTION

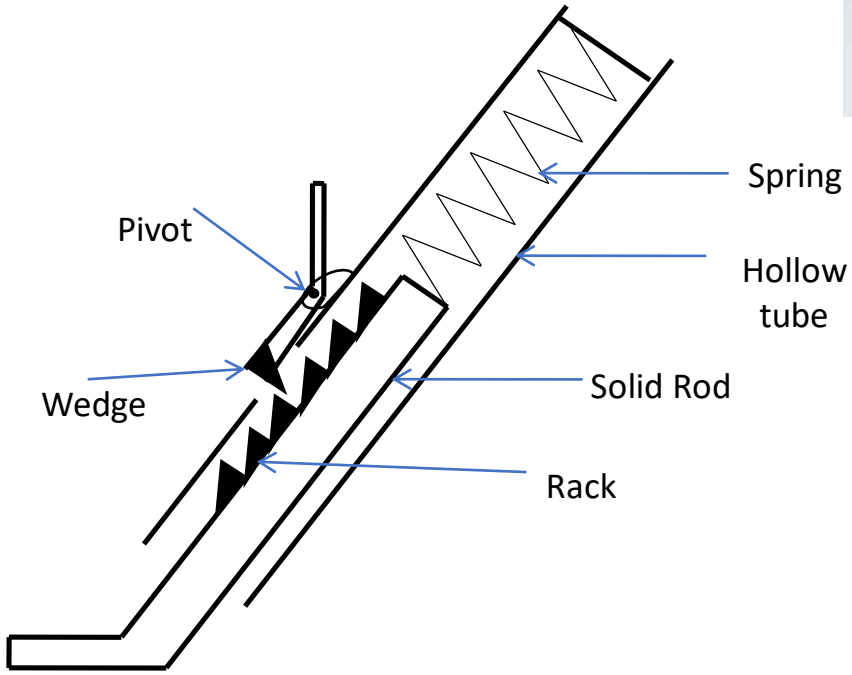


RACK AND WEDGE MECHANISM

Stand length can be increased by pressing the solid rod or reduced by pressing the wedge assembly with leg depending on the road condition.

Advantages:

- Positive deployment
- Easy retraction
- Positive locking
- Automatic retraction can be enabled

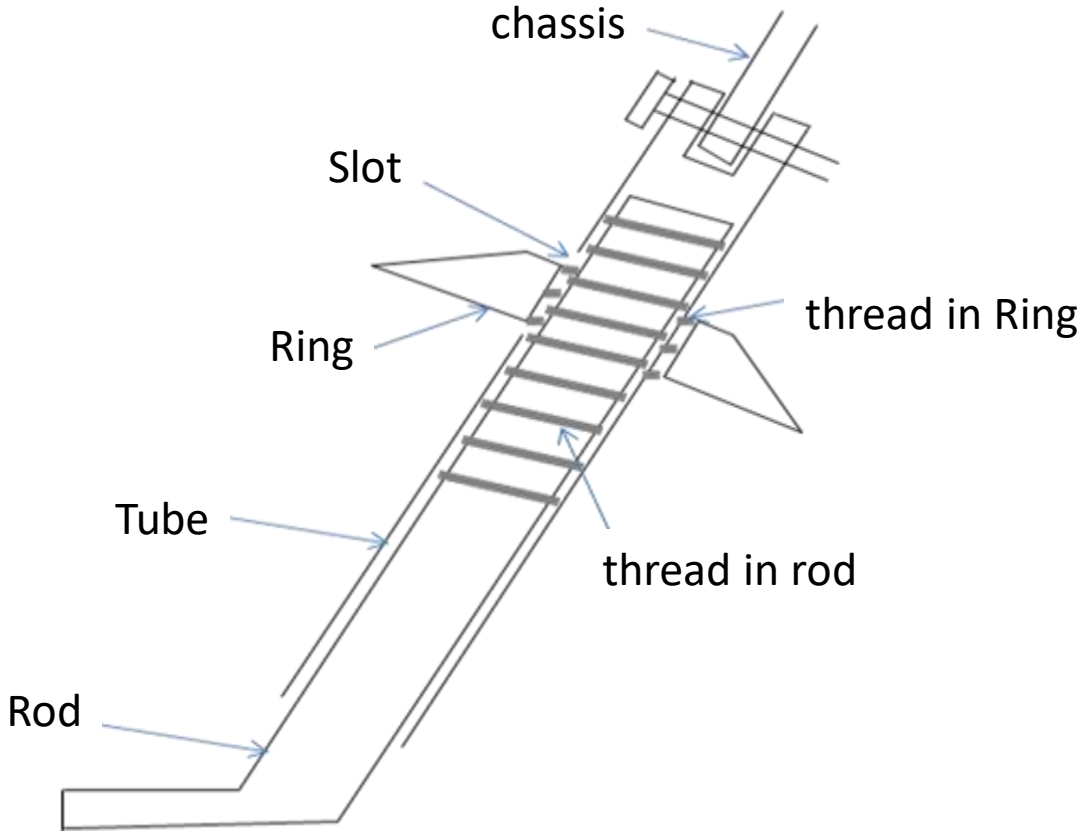


THREADED MECHANISM

Stand height can be increased or reduced by rotating the ring in appropriate direction.

Advantages:

- Positive deployment and retraction
- Easy automation
- Positive locking
- Even small height adjustments are possible

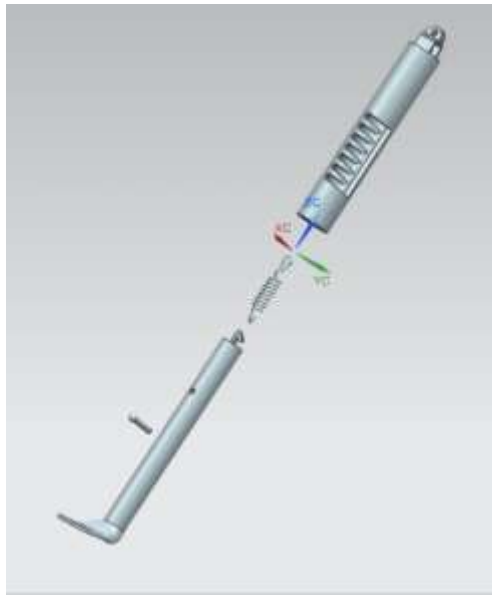


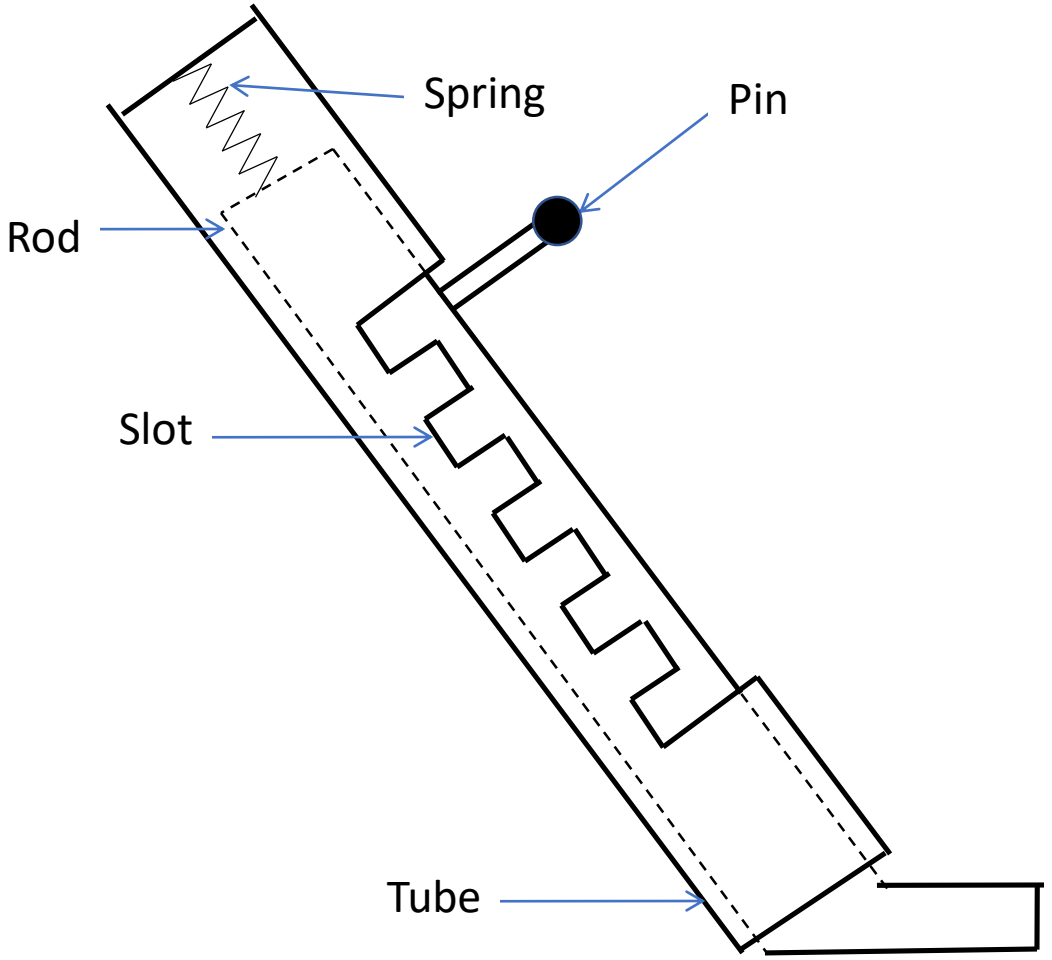
SLOTTED TELESCOPE WITH PIN

Stand height can be increased or reduced by moving the pin into the appropriate slot.

Advantages:

- Less part count
- Rugged construction
- Higher life
- Positive deployment and retraction
- Positive locking
- Simple mechanism no maintenance
- Easy operation



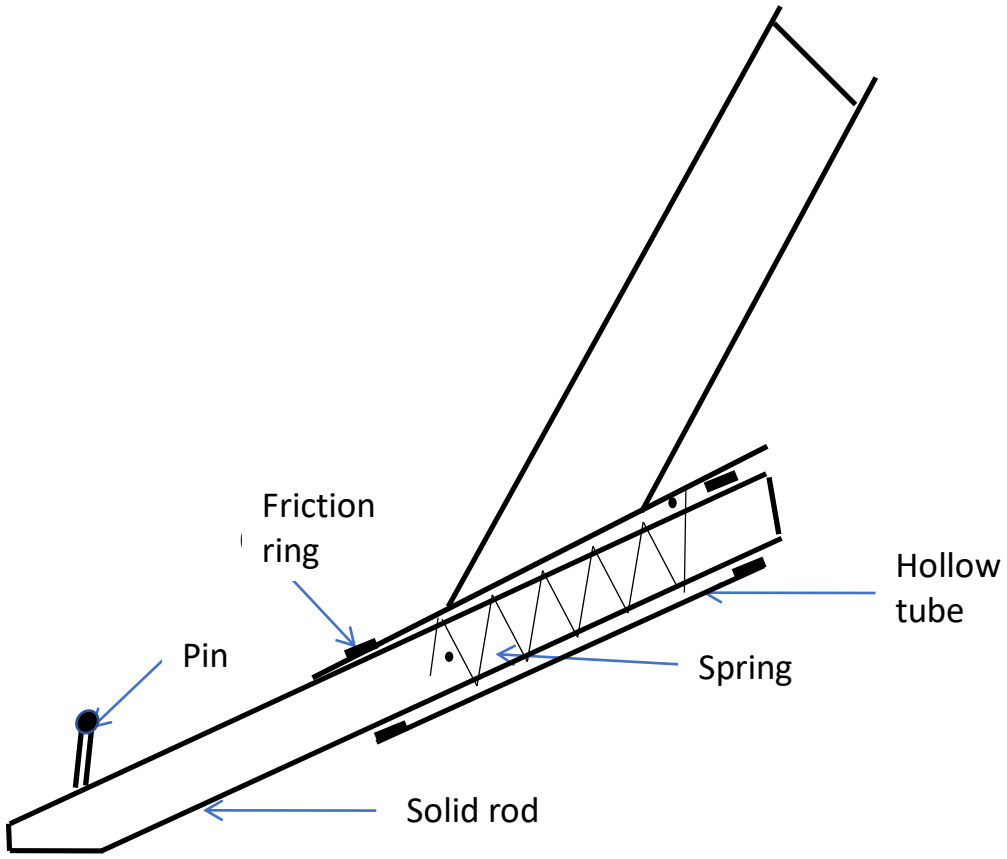


DOUBLE ANGLE MECHANISM -1

Stand height can be increased or reduced by moving the solid rod to the required length against the spring force.

Advantages:

- No locking mechanism
- Less part count
- Automatic retraction

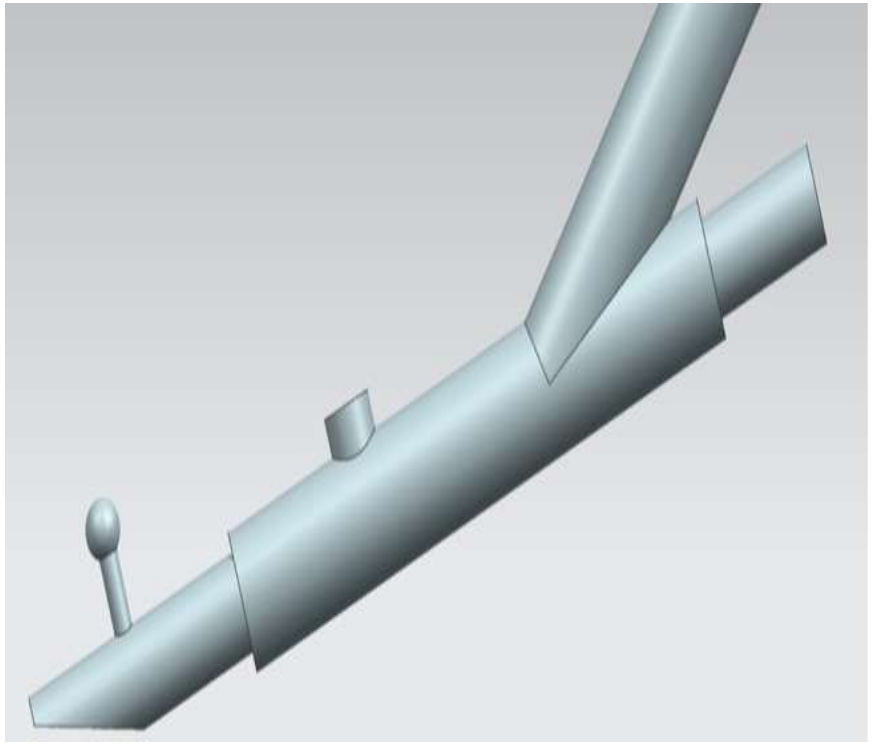


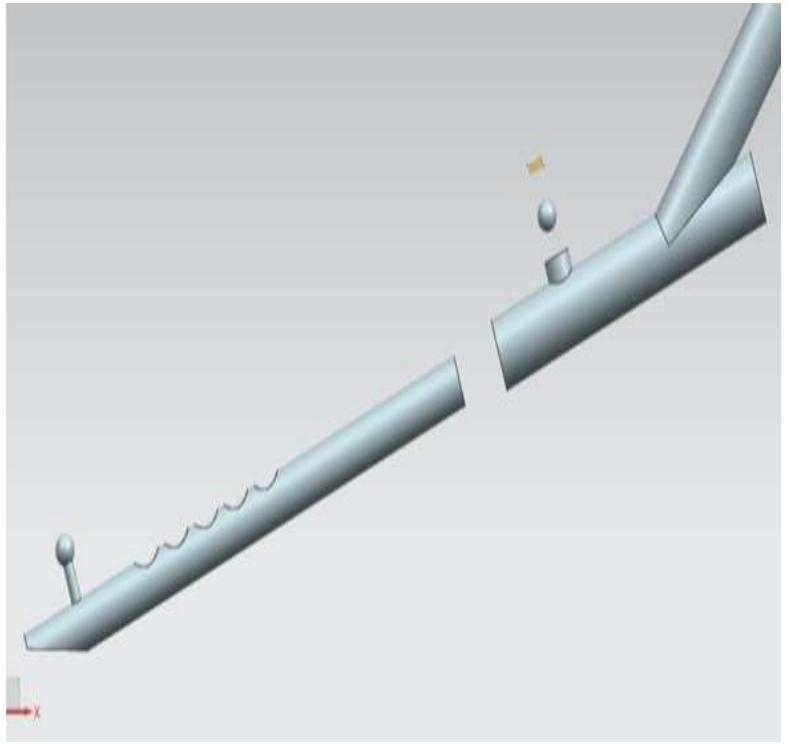
DOUBLE ANGLE MECHANISM - 2

Stand height can be increased or reduced by moving the solid rod to the required length against the ball locking force.

Advantages:

- Smooth operation
- No locking



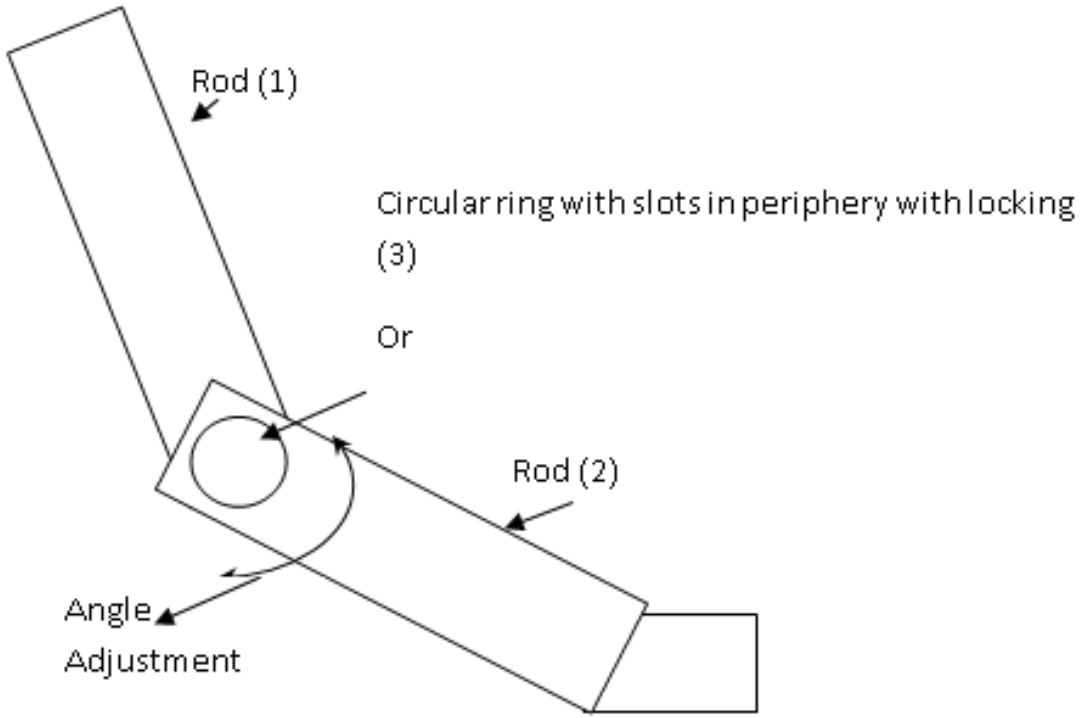


RATCHET MECHANISM

Stand height can be increased to the required bank angle by rotating the solid rod (2) over rod (1) and gets locked by ratchet. Rod (2) can be retracted by disengaging the ratchet.

Advantages:

- Controlled bank angle adjustment
- Easy retraction



WHY POWER ASSISTED STAND

Problems faced

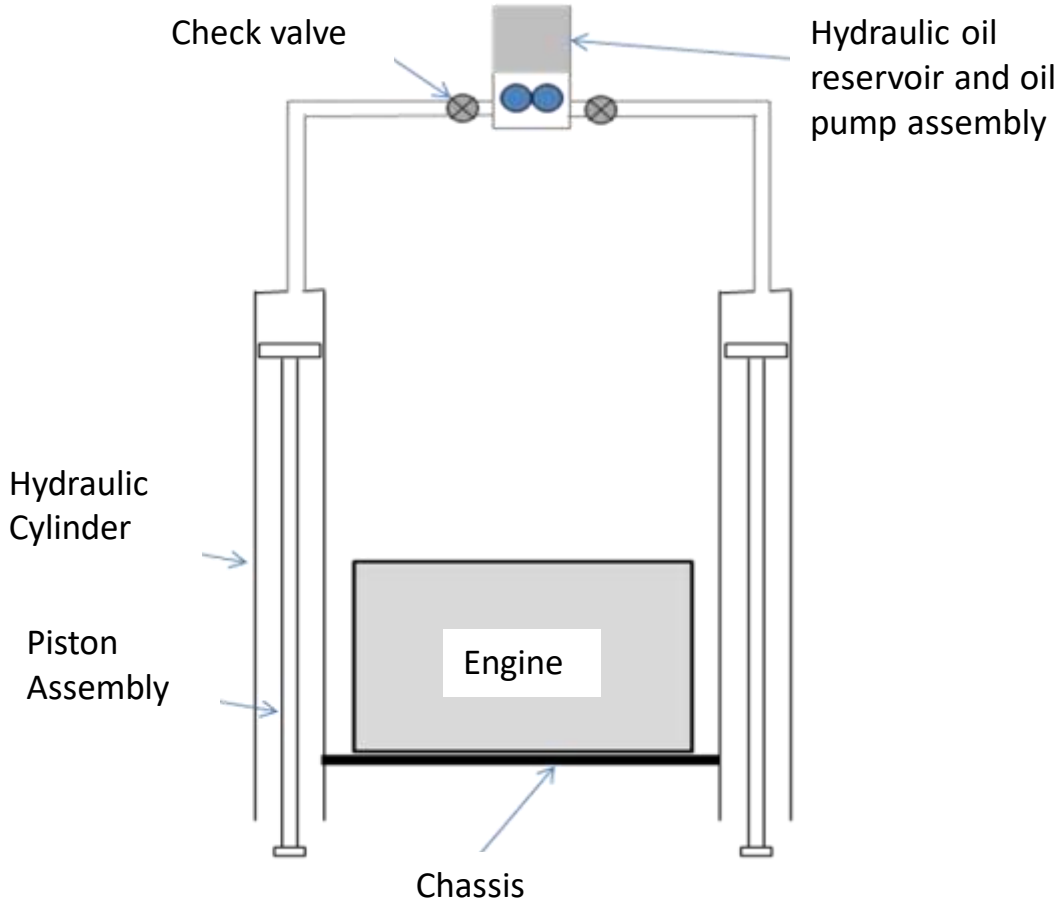
- Difficulties faced by women:
  - Parking vehicle on main stand is difficult for women
  - Difficulty while deploying side stand when wearing saree
- Uneven ground conditions prohibit deployment of main stand
- Difficult to deploy main stand for Heavy bike

Advantages with present invention

- Deployment of side-stands by press of a button
- Retraction by conventional method – hitting the side stand by leg
- Very convenient for ladies in particular
- Power supply required only during deployment
- Fail-safe Operation
- Mechanical/manual override possible
- Simple and easily realisable.

MECHANISM OF POWER ASSISTED MAIN STAND

The conventional center stand is replaced in this mechanism by two hydraulic cylinders with piston assembly whose extension acts as stand, placed either side of engine and attached to chassis. The hydraulic cylinders receive pressurized fluid from hydraulic fluid reservoir pressurized by pump. Towards extension of stand, the hydraulic fluid is pumped into cylinders and the pistons extend downwards, once the adequate height or load on stand is attained, the check valves close thereby locking the piston assembly in its extended position. Towards retracting the stand, the fluid in cylinders will be pumped back to the reservoir. The center stand deployment or retraction is governed by the hydraulic pump which may be driven by electrical motor. The motor shall be operated by switch in the console. The switch can have three positions; viz. retracted position, parked position and lifted position.



ABOUT THE INVENTOR AND THE TEAM

INNOVATIVE SCIENCE RESEARCH FOUNDATION

- Innovative Science Research Foundation (ISRF) is a partnership firm registered in India
- ISRF creates simple innovative solutions to improve day to day life
- ISRF has innovations ranging from simple kitchenware to aerospace products like helicopters.
- ISRF incubate ideas, claim IPR, and share with prospective companies
- ISRF has more than 30 potential ideas which include new designs, products, business structure etc.
- The team ISRF consists of well qualified engineers, scientists, academicians and students to think out of the box.
- ISRF provides a complete package solution considering requirements, marketability and cost thus ensuring potential business growth of ISRF customers

EXPECTATIONS

- Patent Applicant is interested in sale of IP
- Patent Applicant wishes to offer non-exclusive Licensing Rights.

CONTACT DETAILS

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