DESIGN AND FABRICATION OF TELESCOPIC CYLINDER FOR USING RACK AND PINION MECHANISM

ABSTRACT:

A telescopic cylinder jack is a mechanism that lifts heavy objects. Jacks are used frequently in raising cars so that a tire can be changed. A many type of jack is commonly used with cars but is also used in many other ways, including industrial machinery and even airplanes.

The screw has a thread designed to withstand an enormous amount of pressure. This is due to the fact that it is generally holding up heavy objects for an extended amount of time. Once up, they normally self-lock so that they won't fall if the operator lets go, and they hold up well to the wear of repeated use. If they are made with a ball nut, they will last longer because there is less friction created with this type of jack.

The jack can be raised and lowered with a metal bar that is inserted into the jack. The operator turns the bar with his hands in a clockwise direction. This turns the screw inside the jack and makes it go up. The screw lifts the small metal cylinder and platform that are above it. As the jack goes up, whatever is placed above it will raise as well, once the jack makes contact.

Maximum jack lifts low level distance but we have to fabricate this model lift your needed distance, which is contain for rack and pinion drive in inner side of cylinder so, it is lift very high done it possible.

INTRODUCTION:

Telescopic jacks have been around for decades. A recent teardown of a nine-story 1920s building in downtown Los Angeles uncovered an elevator operated by a water hydraulic unit and lifted by a telescopic jack. While such early designs were functional, in many cases, they were more trouble than they were worth. Non-
synchronized telescopic jacks, for instance, had poor ride quality, since each stage acted independently of the other in either direction.

Today’s technology is far more advanced, and modern uses for telescopic jacks are far more versatile in that they satisfy the needs of a changing industry.

Telescopic jacks provide solutions for complicated space requirements, modernization, new construction designs and cylinder replacements, while also possessing intrinsic benefits like contamination reduction. Other advantages include no hole having to be drilled, and no ropes, governors or safeties. In some applications that may require partial embedment into the pit floor, a two-to four-stop hole-less telescopic jack would be recommended.

**WORKING PRINCIPLE:**

The telescopic cylinder jack it is one of the serious cylinder it is called stages. We have fabricate that telescopic cylinder jack three stages having, the rack and pinion connecting separate stages, which is connecting on lead screw for lifting purpose when you need the jack lifting condition drive the lead screw it is going up, by on rack and pinion drive.

Every stages connecting separate rack and pinion, it is serious connection and connecting through on lead screw, when it drives condition step by step going through up in stage by stage.
LAYOUT:

ADVANTAGE:

- Easy lifting on any heavy weight.
- It is connecting through on serious connection so; it will be operating system is easy.
- Simple construction and handled easy.
- More efficiency.
- Weight lifting height distance is more.

APPLICATION:

- Industrial usage.
- Weight lifting purpose.
- Heavy and light vehicle lifting purpose.