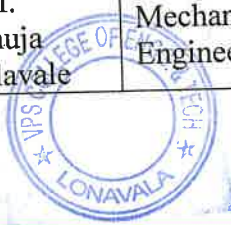


3.2.1.1 Number of Research Papers Publication Per Teacher in Journals notified on UGC Website During the Year

Sr. No	Title of Paper	Name of Author	Department	Name of Journal	Year of Publication	ISSN Number
01	DESIGN AND FABRICATION OF ROBOT USING KLAN MECHANISM	Dr.Harish Harsurkar	Mechanical Engineering	JETIR	2023	2320-2882
02	Design And Fabrication Of Typical Pipe Cutting Machine	Prof. Tanuja Hulavale	Mechanical Engineering	IJCRT	2024	2320-2882
03	PERFORMANCE EVALUATION OF CGLS FOR HMC AT JSW STEEL (STEEL MELTING SHOP) DOLVI	Dr. Harish Harsurkar	Mechanical Engineering	IJRAR	2023	2349-5138
04	PERFORMANCE EVALUATION OF CGLS FOR HMC AT JSW STEEL (STEEL MELTING SHOP) DOLVI	Prof. Hussain Shaikh	Mechanical Engineering	IJRAR	2023	2349-5138
05	USING HYDROXYL GAS (HHO) WITH PRIMARY FUEL LIKE PETROL AND DIESEL	Prof. Hussain Shaikh	Mechanical Engineering	International Research Journal of Modernization in Engineering Technology and Science	2023	2582-5208
06	USING HYDROXYL GAS (HHO) WITH PRIMARY FUEL LIKE PETROL AND DIESEL	Prof. Harish Harsurkar	Mechanical Engineering	International Research Journal of Modernization in Engineering Technology and Science	2023	2582-5208
07	Fabrication of Pneumatic Time Delay Forging	Prof. Tanuja Hulavale	Mechanical Engineering	IJCRT	2024	2320-2882




	Machine					
08	Fabrication of Pneumatic Time Delay Forging Machine	Dr. Harish Harsurkar	Mechanical Engineering	IJCRT	2024	2320-2882
09	DESIGN, CAD MODELING & FABRICATION OF AUTOMATIC HAMMERING MACHINE	Prof. Tanuja Hulavale	Mechanical Engineering	IJCRT	2024	2320-2882
10	DESIGN, CAD MODELING & FABRICATION OF AUTOMATIC HAMMERING MACHINE	Dr. Harish Harsurkar	Mechanical Engineering	IJCRT	2024	2320-2882
11	"MULTI NUT REMOVER"	Prof. Sunil Parge	Mechanical Engineering	IJCRT	2024	2320-2882
12	"MULTI NUT REMOVER"	Prof. Husain Shaikh	Mechanical Engineering	IJCRT	2024	2320-2882
13	Slotting/Milling Attachment to Enhance Features of Lathe	Prof. Tanuja Hulavale	Mechanical Engineering	IJCRT	2024	2320-2882
14	Slotting/Milling Attachment to Enhance Features of Lathe	Dr. Harish Harsurkar	Mechanical Engineering	IJCRT	2024	2320-2882
15	Automatic Side Stand Retrieval System	Prof. Tanuja Hulavale	Mechanical Engineering	IJCRT	2024	2320-2882
16	Automatic Side Stand Retrieval System	Dr. Harish Harsurkar	Mechanical Engineering	IJCRT	2024	2320-2882
17	Pneumatic Auto Feed Punching and Riveting Machine	Prof. Sunil Parge	Mechanical Engineering	IJCRT	2024	2320-2882
18	Pneumatic Auto Feed Punching and Riveting Machine	Prof. Husain Shaikh	Mechanical Engineering	IJCRT	2024	2320-2882
19	DESIGN AND FABRICATION OF QUICK LIFTING JACK WITH BEVEL GEAR ARRANGEMENT	Prof. Sunil Parge	Mechanical Engineering	IJCRT	2024	2320-2882


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	USING DESIGN THINKING APPROACH					
20	DESIGN AND FABRICATION OF QUICK LIFTING JACK WITH BEVEL GEAR ARRANGEMENT USING DESIGN THINKING APPROACH	Prof. Husain Shaikh	Mechanical Engineering	IJCRT	2024	2320-2882
21	The Pedal Powered Mobile Charger	Prof. Tanuja Hulavale	Mechanical Engineering	IJCRT	2024	2320-2882
22	The Pedal Powered Mobile Charger	Dr. Harish Harsurkar	Mechanical Engineering	IJCRT	2024	2320-2882


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The Pedal Powered Mobile Charger

Prof. Tanuja Hulavale¹, Dr. Harish Harsurkar², Rushikesh Pardeshi³, Aniket Manjrekar⁴

¹Asst.Professor Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology
,Lonavala

²HOD Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology ,Lonavala

³Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology
,Lonavala

⁴Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology
,Lonavala

Abstract

This project is based on pedal powered energy. The bicycle pedal is connected with the flywheel with the use of chain drive and belt drive. By applying force (bicycling action) on the pedal will make the flywheel rotate at some speed which is based on human effort. At the end of flywheel assembly, the small type of generator named a dynamo is connected for the generation of power. It generates the DC power which is stored in the battery and to make it useful to charge the mobile, Inverter is mounted in between this. The generation of power is only dependent on human effort. In this no fuel is require for the generation of power. That's why it does not harmful to the environment or any life. The concept of this project, It is also used for pedal hacksaw, pedal pump, pedal grass-cutter and many more. This project is very useful for those people who live in rural area. Ultimately the bicycle is used as fat reducing equipment for human and as travelling vehicle.

Key words: Pedal Power, Dynamo, Rotary Motion, Flywheel, Bicycle, Mobile

1. INTRODUCTION

The non-renewable sources of energy are at the empty position in future. The idea of human powered generation has been implemented in many different situations like pedal powered hacksaw. Some examples include hand-crank radios, gym equipment, etc. The pedal operated power generator utilizes human energy to produce electricity speedy and more efficiently. The goal of this project is to provide solution to problem of electricity in the rural area. The prototypes are manufactured to generate the energy. Pedal power is used to power farming





DESIGN AND FABRICATION OF QUICK LIFTING JACK WITH BEVEL GEAR ARRANGEMENT USING DESIGN THINKING APPROACH

Prof. Sunil Parge¹, Prof. Husain Shaikh², Akash Aldar³, Anand Aldar⁴

¹Asst.Professor Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology ,Lonavala

²Asst.Professor Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology ,Lonavala

³Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology ,Lonavala

⁴Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology ,Lonavala

ABSTRACT

You can utilise a quick-lifting jack with a bevel gear configuration for lifting. The function of a quick-lifting jack with a bevel gear arrangement is identical to that of a screw jack. It is used to lift the weights back and forth from the bottom to the top. Bevel gears are used in this setup rather of the worm gears that were used in screw jacks. Compared to a screw gauge, this setup has some benefits. The highest load it can support is around 2000 kg. Pneumatic screw jacks, hydraulic screw jacks, and conventional screw jacks are all replaced by this arrangement. The major goals of this setup are to increase screw jacks' load carrying capacity, reduce costs, and get around various other challenges. The challenges with screw jacks are that they are expensive and need constant lubrication. This can be used in lifting cars, trucks, buses, and many other types of vehicles, as well as in industrial settings. As opposed to standard screw jacks, this method doesn't require a lot of physical labour. When compared to standard screw jacks, this setup does not harm the screw threads as quickly. It has the greater lifespan. It can bear a large amount of weight. It doesn't need to be lubricated frequently. Construction-wise, it is fairly straightforward compared to pneumatic and hydraulic systems. Pneumatic systems need air compressors, and hydraulic jacks use cumbersome cylinders and hydraulic fluids. When compared to both systems, it weighs less. The bevel



Pneumatic Auto Feed Punching And Riveting Machine

Prof. Sunil Parge¹, Prof. Husain Shaikh², Sumesh Anil³, Tejas Kore⁴

¹Asst. Professor Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology, Lonavala

²Asst. Professor Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology, Lonavala

³Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology, Lonavala

⁴Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology, Lonavala

ABSTRACT

This fabrication is based on pneumatics which deals with the study and application of pressurized air to produce mechanical motion. Pneumatic jack is a fabricated model which when installed in four wheeler, will ease in the problems arising in the conventional operated jack. This fabricated model consists of a small size reciprocating air compressor which is driven by the battery used in four wheeler, an air tank to store the compressed air, and a pneumatic control valve which regulates the air flow and double acting cylinder used as a jack which performs lifting. Thus the car is lifted using jack and the problem related to tyres such as puncture tyres, tyre replacement and wheel balancing can be resolved with less effort and time.

Keyword: - Compressor, Valves, conventional operated jack etc...

1. INTRODUCTION

Due to the difficulty of operating automobile jacks, various forms of electric jacks have been proffered. With the development of such electric jacks has gradually come an understanding of some of the problems associated therewith. Due to the torque needed to lift something as heavy as most automobiles, as a severe mechanical advantage must be utilized. Jacks that are built into an automobile have not been accepted due to expense and the need to at least lift each side of an auto, if not all corners individually to reduce the human



USING HYDROXYL GAS (HHO) WITH PRIMARY FUEL LIKE PETROL AND DIESEL

**Prof. Hussain Shaikh^{*1}, Mayur Kulkarni^{*2}, Shoaib Sanadi^{*3}, Ranjeet Kumbharkar^{*4},
Atul Shinde^{*5}, Prof. Dr. Harish Harsurkar^{*6}**

^{*1,6}Professor, Mechanical Engineering, V.P.S Engineering College Lonavla, Pune, India.

^{*2,3,4,5}Undergraduate Student, SPPU University, Pune, India.

ABSTRACT

In this paper, we are going to discuss the use hydroxyl gas (HHO) with primary fuel. Using HHO helps in complete combustion of air fuel mixture which decreases the emission of harmful pollutant like HC, CO, NO_x and CO₂. HHO also increases the engine efficiency and reduce fuel consumption. Another crucial benefit of using HHO with primary fuel is that, it reduces the deposition of carbon particle inside the cylinder and lengthen the oil changing period and reduce the maintenance period. Using HHO increases the cooling rate of engine by 10-20% than engine with only primary fuel.

Keywords: HHO, Fuel Consumption, Emission, Maintenance Period, Cooling Rate.

I. INTRODUCTION

The hydroxyl (HHO) gas is produced from water using electrolysis process. Electrolysis process decomposes the water into hydrogen and oxygen. This process uses the two plates dipped into water which is generally made from inert metals like steel or platinum and DC current of 2.3V pass through this plate, which decomposes the hydrogen at cathode and oxygen at anode after production of HHO gas it injects in air after filtration and before carburetor.

II. BODY OF PAPER

The HHO gas is produced using electrolysis of water. Conductivity of pure water is millionth time greater than sea water. So, electrolysis of pure water requires excessive energy. Electrolysis of pure water without excessive energy take place very slowly or not at all. To increase the rate of electrolysis some catalysts are added into pure water they are salt, acid or base. Process of electrolysis use the two electrodes plate generally made up of inert metals like steel or platinum. This electrode plates are dipped into water and DC current of 2.3 V is supplied to electrode then this current decomposes the water into hydrogen and oxygen element. Element of hydrogen are double than the element of oxygen.

Electrolysis reaction takes place as follows.

Electrolysis: $2\text{H}_2\text{O} \rightarrow 2\text{H}_2 + \text{O}_2$

Reduction reaction takes place at negatively charged cathode. Which lost the electrons (e⁻) and become hydrogen ion to produce hydrogen element.

Cathode (Reduction) Reaction: $2\text{H}^+ + 2\text{e}^- \rightarrow \text{H}_2(\text{g})$

Oxidation reaction takes place at positively charged anode which gives the electron to cathode and form oxygen

Anode (Oxidation) Reaction:

$2\text{H}_2\text{O}(\text{l}) \rightarrow \text{O}_2(\text{g}) + 4\text{H}^+(\text{aq}) + 4\text{e}^-$

Overall Reaction: $2\text{H}_2\text{O}(\text{l}) \rightarrow 2\text{H}_2(\text{g}) + \text{O}_2(\text{g})$

The amount of gas produced depends upon mainly three things one is how well the amperage travel through water? Amperage is nothing but flow of electrons. Second thing is how much amperage reaches across the electrode plate? And area of electrode plate.



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PERFORMANCE EVALUATION OF CGLS FOR HMC AT JSW STEEL (STEEL MELTING SHOP) DOLVI

Dr. Harish Harsurkar¹

Abhishek Ganpat Satpute², Bhosale Shyam Santosh³ Garad Rohan Ramling⁴ Garud Abhijeet Arvind⁵ Prof.Hussian Shaikh⁶

¹ Head of Department, Mechanical Engineering, Vidya Prasarini Sabha's College of Engineering and Technology, Lonavala 411048

² Student, Mechanical Engineering Department, Vidya Prasarini Sabha's College of Engineering and Technology, Lonavala 411048

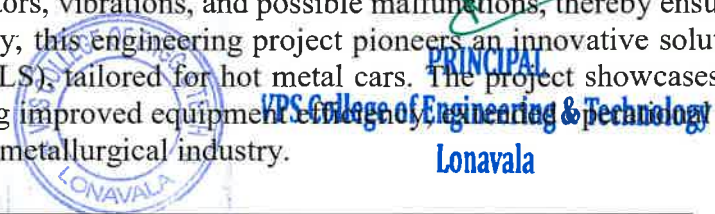
³ Student, Mechanical Engineering Department, Vidya Prasarini Sabha's College of Engineering and Technology, Lonavala 411048

⁴ Student, Mechanical Engineering Department, Vidya Prasarini Sabha's College of Engineering and Technology, Lonavala 411048

⁵ Student, Mechanical Engineering Department, Vidya Prasarini Sabha's College of Engineering and Technology, Lonavala 411048

⁶ Professor, Mechanical Engineering, Vidya Prasarini Sabha's College of Engineering and Technology, Lonavala 411048

Abstract: : Centralized Grease Lubrication System (CGLS) for Hot Metal Cars: Enhancing Efficiency and Ensuring Worker Safety This overview provides insight into the engineering project titled "Centralized Grease Lubrication System (CGLS) for Hot Metal Cars." The fundamental objective of this project is to design a specialized lubrication system that not only optimizes the performance of hot metal transportation in the metallurgical industry but also prioritizes the safety of workers The project aims to create, construct, and integrate a Centralized Grease Lubrication System (CGLS) tailored explicitly for hot metal cars. The CGLS focuses on simplifying and automating the lubrication process, ensuring consistent and appropriate grease application to crucial moving parts. This not only enhances the longevity of the hot metal cars but also minimizes potential risks to the workers. The CGLS addresses prevalent challenges linked to manual lubrication, such as inconsistent grease application, which can lead to equipment damage and shortened operational life. By automating this process, the CGLS intends to maintain adequate lubrication levels, reducing the likelihood of equipment malfunction and promoting the safety of the workers. Furthermore, the project pays meticulous attention to the CGLS design, emphasizing precise grease measurement, efficient distribution mechanisms, and reliable valves in line with safety regulations and industry standards. The system is designed to endure external environmental factors, vibrations, and possible malfunctions, thereby ensuring the safety and well-being of workers In summary, this engineering project pioneers an innovative solution, the Centralized Grease Lubrication System (CGLS), tailored for hot metal cars. The project showcases the advantages of automated lubrication, highlighting improved equipment life, reduced downtime, and a safer work environment for workers in the metallurgical industry.





Design And Fabrication Of Typical Pipe Cutting Machine

Prof. Tanuja Hulavale¹, Dr. Harish Harsurkar², Suraj Yelwande³, Avdhut Ashok Gade⁴

¹Asst. Professor Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and
Technology, Lonavala

²HOD Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology
, Lonavala

³Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology
, Lonavala

⁴Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology
, Lonavala

ABSTRACT

The Machine we designed and fabricated is used for cutting any shape of object like Circular, Rectangular, and Polygon. Hence our project namely Typical Pipe Cutting Machine is a Special type of Machine. According to the type of material to be cut, the cutting tool can be changed. This project gives details of Cutting various shapes and sizes of components. This machine can be widely applied in almost all type of industries. The pipe cutting process is a main part of the all industries. Normally the cutting machine is manually hand operated one for medium and small scale industries. In our project is pneumatically operated "TYPICAL PIPE CUTTING MACHINE". Automation in the modern world is inevitable. Any automatic machine aimed at the economical use of man, machine, and material worth the most. In our project is hand operated D.C valve and flow control valve is used for semi-automation. The pipe cutting machine works with the help of pneumatic double acting cylinder. The piston is connected to the moving cutting tool. It is also used to cut the small size of sheet metal. The machine is portable in size, so easy transportable.

Keywords

Pipe cutting machine, Automation, Pneumatic cylinder. Flow control valve, check valve.





Fabrication Of Pneumatic Time Delay Forging Machine

Prof. Tanuja Hulavale¹, Dr. Harish Harsurkar², Ritik Wagh³, Atul Kharade⁴

¹Asst. Professor Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology, Lonavala

²HOD Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology, Lonavala

³Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology, Lonavala

⁴Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology, Lonavala

ABSTRACT

In this we fabricate the pneumatic circuit with time delay circuit forging machine. It time delay valve has three different times like, low, medium, high. It control by a button and it consist many more electric and electronic components. This circuit run on adapter this adapter provide 12 volt DC current. This pneumatic circuit also have components like, compressor, FRL unit. Pressure gauge, 3/2 solenoid operated direction control valve, double acting cylinder, etc.

Keyword: - pneumatic circuit with time delay circuit forging machine, 12 volt DC adapter, and compressor, solenoid valve, Pressure gauge.

1. INTRODUCTION

In this pneumatic system, it is the concept of transmitting or work done using compressed air. It was similar to the hydraulic system. The pneumatic time delay hammering machine consists of cylinders these are DAC mean double-acting cylinder it is used to the force of air to be move in both sides extend and retract strokes. From the double-acting cylinder. They have two-port to allow the air in one for outstroke and one is the in stroke. Then the stroke length for this design is not limited however the piston rod is more remuneration to buckle and bend.



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DESIGN, CAD MODELING & FABRICATION OF AUTOMATIC HAMMERING MACHINE

Prof. Tanuja Hulavale¹, Dr. Harish Harsurkar², Samsher Karande³, Vishal Sutar⁴

¹Asst. Professor Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology
,Lonavala

²HOD Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology ,Lonavala

³Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology ,Lonavala

⁴Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology ,Lonavala

Abstract –

This paper discuss about cad modeling, design and analysis of automatic hammering machine. Our goal for this paper is to design and Fabricate an automatic hammering machine. And for this, we have calculated the maximum torque, impact velocity for hammering, torque force and also shear failure in bolt joint. In our project we are using torque force to perform various manufacturing operation in industries like riveting, upset forging, punching etc. Also time required for operation is less so it is useful in mass production.

In this project we have prepared solid model of project assembly by using CATIA v5R20 software {Computer aided three dimensional interactive application}. The snapshots of every component are attached in the file in design section. The model consists of motor, shaft, hammer, jigs and fixtures. From this we fabricate conceptual model of automatic hammering machine. Automatic portable hammering machine is one of the new techniques proposed in design in order to achieve instant Hammering accurate repetition and impacting, fast Hammering process. It should be user friendly without any risk and worker manual Effort can be used easily automatically. In the past, a labor used hammer for to drive nail, fit parts, break apart and more. It would be used manually with more effort and man power used in process. But now a day it is possible to make it process easy by invented automatic Hammering. There are very clear benefits that the industry sees while using automated systems. These advantages can be very beneficial in the long run. We assure that our products are one of the best and they are long lasting.





INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

“MULTI NUT REMOVER”

Prof. Sunil Parge¹, Prof. Husain Shaikh², Shweta Sarwade³, Rushikesh Patil⁴

¹Asst.Professor Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology ,Lonavala

²Asst.Professor Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology ,Lonavala


³Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology ,Lonavala

⁴Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology ,Lonavala

Abstract

Essentially, Most of cars use four lug nuts to fix wheels on vehicle. The traditional way to change a car's wheel tire is to unscrew the locking lug nuts one by one using a lug wrench. However, sometimes it can be so exhausting and time consuming. In project our aim is to design of 4 wheel nut rotating hand operated tool for tightening and removing of 4 nuts in one stroke. With the increment of number of car on the road, the number of cars problem due to tyre failure has increased. Often, the car is provided with tyre wheel nuts remover for tyre replacement. Due to difficulty in applying torque to remove nut and to save a time. We develop tool having a planetary mechanism. In our project we are tried to focus on the minimization of human effort for fixing all for nuts of 100 mm PCD wheel in one time. The main objective of work is to develop a single tool, which can be made use during assembling of wheels in automobiles. It can be successfully used as standard tool irrespective of the model of the car. It can be used in garages, workshops and service stations. The remover is designed to be ergonomic to be used for easy maintenance, easy storage, easy to handled and able to remove all nuts at once a time. In Automobile industry, Adjustable Unified wheel opener is a special purpose tool made to open and close all the nuts of a wheel in single operation with less effort.




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Slotting/Milling Attachment to Enhance Features of Lathe

Prof. Tanuja Hulavale¹, Dr. Harish Harsurkar², Sumit Bidkar³, Nikesh Avhad⁴

¹Asst.Professor Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology
,Lonavala

²HOD Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology ,Lonavala

³Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology ,Lonavala

⁴Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology ,Lonavala

Abstract –

This paper discusses design and fabrication of “Slotting/ Milling Attachment to Lathe”. It is well known that lathe is considered to be a versatile machine in which several capabilities of machining are inbuilt. To further enhance its versatility, in this research, an attachment is designed and fabricated to add the capability of horizontal milling machine in lathe. A milling cutter is mounted in a cutting arbor, which in turn is mounted between the headstock and the tailstock of a lathe. A work holding device is designed and mounted on the tool post. With this arrangement, it is possible to do keyway cutting in a shaft or milling a plane surface on a work piece. This research is considered to be a milestone in the direction of increasing the capability of the machine tool like lathe.

Keywords – Milling, Slotting, Lathe, Attachment, Enhancement of Lathe Features.

1. INTRODUCTION

Manufacturing processes can be classified into metal removal process, metal forming process, metal joining process and unconventional processes. In metal removal process, the material of a work piece is removed by a single point cutting tool or multi-point cutting tool. Some examples of machine tools, which use single point cutting tool are lathe, shaping machine, etc. Similarly, milling machine, broaching machine, gear hobbling machine, gear shaping machine, etc are some examples of machine tools, which use multi-point cutting tools. So, the shape and size of a work piece are obtained by using such metal removal process. In this type of operation,





Automatic Side Stand Retrieval System

Prof. Tanuja Hulavale¹, Dr. Harish Harsurkar², Ganesh Kadam³, Nilesh Kadam⁴

¹Asst.Professor Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology ,Lonavala

²HOD Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology ,Lonavala

³Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology ,Lonavala

⁴Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology ,Lonavala

Abstract –

Two-wheelers are a very important part of our lives but also responsible for some minor and major accidents because most of the riders forget to stow the side stand to the riding position causing fatal accidents and injuries. About 40 percent of accidents happen due to the parked position of the side stand of the two-wheeler. According to research, there are 2300 two-wheeler accidents reported by over every million people in India. In which every 300 victims die at the site or during the medical proceeding. Forgetting to stow the side stand of the two-wheeler is one of the frequently done mistakes of the two-wheeler riders. These accidents can be prevented by using an automatic side stand retrieval system in two-wheelers. In this, a simple rack and pinion assembly is used to stow the stand when the rider starts the vehicle. The system will monitor the angle of the vehicle from the vertical axis and engine RPM with the help of a gyroscope and a photoelectric sensor. When the angle of vehicle is less than 15 degrees and the engine exceeds 1600 RPM the motor will receive power and the stand will be pushed to its riding position. The design and analysis of rack and pinion is done in Solidworks and Ansys workbench respectively. For manufacturing of rack and pinion and casing EN24 and Aluminum 6061 is used respectively and also achieved FOS of 1.5 for fatigue life cycle of 10^6 hrs. By using this method the rider will never have to worry about the stand ,and this will make sure the safe ride.



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Design and Fabrication of Robot Using Klan Mechanism

Dr Harish Harsurkar¹, Anuj Alok², Khan Mohd Wasim Suleman³, Mukadam Taukir Parvez⁴

¹Professor Husain Shaikh, Mechanical Engineering, V.P.S Engineering College Lonavala Pune, India²Second Author Department & College

²³⁴⁵Undergraduate Student, SPPU University, Pune, India

Abstract -In this paper, discuss the spider mechanism (Klan's mechanism) for any random movements, whenever the transformation by wheel is not possible. In these aspects, the proposed assembled spider mechanism (Klan's mechanism) for any random movements in hectic places. It can step over curbs, climb stairs or travel areas that are currently not accessible with wheels. It is very useful to the patrolling purpose in army. The most important benefit of this mechanism is to deduct the complicated areas easily with the mechanisms. In this mechanism links are connected by pivoted joints and convert the rotating motion of the crank into the oscillatory motion absence of others

Key Words: Torque , Motor Speed, Length , Gravity, Force Coefficient of friction

1.INTRODUCTION

The remote control spider mover robot is based on Klan's mechanism. The Klan mechanism is a planar mechanism designed to simulate the movement of legged animal and replace the wheel rotating motion. The linkage consists of the frame, crank, two pivoted rockers, and two couplers all connected by pivot joints. It has 6 links per leg 180 degrees of crank rotation per stride. The 2 legs will rotate by a wheel in clockwise rotation of crank. The step height is achieved by rotating the connecting arm which is attached to the crank on one end and the middle of the leg on the other. It pivots on a grounded rocker. The proportions of each of the links in the mechanism are defined to optimize the linearity of the foot for one-half of the rotation of the crank..

2. Body of Paper

The Klan mechanism is a planar mechanism designed to simulate the movement of legged animal and replace the wheel rotating motion. The linkage consists of the frame, crank, two pivoted rockers, and two couplers all connected by pivot joints. It has 6 links per leg 180 degrees of crank rotation per stride. The 2 legs will rotate by a wheel in clockwise rotation of crank. The step height is achieved by rotating the connecting arm which is attached to the crank on one end and the middle of the leg on the other. It pivots on a grounded rocker. The proportions of each of the links in the mechanism are defined to optimize the linearity of the foot for one-half of the rotation of the crank. The remaining rotation of the crank allows the foot to be raised to a predetermined height before returning to the starting position and repeating the cycle. Two of these linkages coupled together at the crank and one-half cycle out of phase with each other will allow the frame of a vehicle to travel parallel to the ground. The Klan linkage provides many of the benefits of more advanced walking vehicles without some of their limitations. It can step over curbs, climb stairs, or travel into areas that are currently not accessible with wheels but do not require microprocessor control or multitudes of actuator mechanisms. It fits into the technological space between these walking devices and axle-driven wheels. The scientific study of legged locomotion began just very a century ago when Leland Stanford, then governor of California, commissioned Edward Muybridge to find out whether or not a trotting horse left the ground with all four feet at the same time. The Stanford had wagered that it never did. After Muybridge proved him wrong with a set of stop motion photographs that appeared in Scientific American in 1878, Muybridge went on to document the walking and running behaviour of over 40 mammals, including humans. His photographic data are still of considerable value and survive as a landmark in locomotion research. The principle of machines that walk also had its origin in Muybridge's time. An early walking model appeared in about 1870. It used a linkage to

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PERFORMANCE EVALUATION OF CGLS FOR HMC AT JSW STEEL (STEEL MELTING SHOP) DOLVI

Dr. Harish Harsurkar¹

Abhishek Ganpat Satpute², Bhosale Shyam Santosh³ Garad Rohan Ramling⁴ Garud Abhijeet Arvind⁵ Prof.Hussian Shaikh⁶

¹ Head of Department, Mechanical Engineering, Vidya Prasarini Sabha's College of Engineering and Technology, Lonavala 411048

² Student, Mechanical Engineering Department, Vidya Prasarini Sabha's College of Engineering and Technology, Lonavala 411048

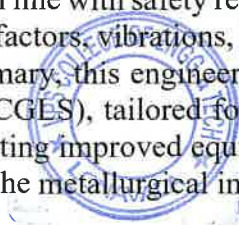
³ Student, Mechanical Engineering Department, Vidya Prasarini Sabha's College of Engineering and Technology, Lonavala 411048

⁴ Student, Mechanical Engineering Department, Vidya Prasarini Sabha's College of Engineering and Technology, Lonavala 411048

⁵ Student, Mechanical Engineering Department, Vidya Prasarini Sabha's College of Engineering and Technology, Lonavala 411048

⁶ Professor, Mechanical Engineering, Vidya Prasarini Sabha's College of Engineering and Technology, Lonavala 411048

Abstract: : Centralized Grease Lubrication System (CGLS) for Hot Metal Cars: Enhancing Efficiency and Ensuring Worker Safety This overview provides insight into the engineering project titled "Centralized Grease Lubrication System (CGLS) for Hot Metal Cars." The fundamental objective of this project is to design a specialized lubrication system that not only optimizes the performance of hot metal transportation in the metallurgical industry but also prioritizes the safety of workers. The project aims to create, construct, and integrate a Centralized Grease Lubrication System (CGLS) tailored explicitly for hot metal cars. The CGLS focuses on simplifying and automating the lubrication process, ensuring consistent and appropriate grease application to crucial moving parts. This not only enhances the longevity of the hot metal cars but also minimizes potential risks to the workers. The CGLS addresses prevalent challenges linked to manual lubrication, such as inconsistent grease application, which can lead to equipment damage and shortened operational life. By automating this process, the CGLS intends to maintain adequate lubrication levels, reducing the likelihood of equipment malfunction and promoting the safety of the workers. Furthermore, the project pays meticulous attention to the CGLS design, emphasizing precise grease measurement, efficient distribution mechanisms, and reliable valves in line with safety regulations and industry standards. The system is designed to endure external environmental factors, vibrations, and possible malfunctions, thereby ensuring the safety and well-being of workers. In summary, this engineering project pioneers an innovative solution, the Centralized Grease Lubrication System (CGLS), tailored for hot metal cars. The project showcases the advantages of automated lubrication, highlighting improved equipment efficiency, extended operational life, and a safer work environment for workers in the metallurgical industry.



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USING HYDROXYL GAS (HHO) WITH PRIMARY FUEL LIKE PETROL AND DIESEL

**Prof. Hussain Shaikh^{*1}, Mayur Kulkarni^{*2}, Shoaib Sanadi^{*3}, Ranjeet Kumbharkar^{*4},
Atul Shinde^{*5}, Prof. Dr. Harish Harsurkar^{*6}**

^{*1,6}Professor, Mechanical Engineering, V.P.S Engineering College Lonavla, Pune, India.

^{*2,3,4,5}Undergraduate Student, SPPU University, Pune, India.

ABSTRACT

In this paper, we are going to discuss the use hydroxyl gas (HHO) with primary fuel. Using HHO helps in complete combustion of air fuel mixture which decreases the emission of harmful pollutant like HC, CO, NO_x and CO₂. HHO also increases the engine efficiency and reduce fuel consumption. Another crucial benefit of using HHO with primary fuel is that, it reduces the deposition of carbon particle inside the cylinder and lengthen the oil changing period and reduce the maintenance period. Using HHO increases the cooling rate of engine by 10-20% than engine with only primary fuel.

Keywords: HHO, Fuel Consumption, Emission, Maintenance Period, Cooling Rate.

I. INTRODUCTION

The hydroxyl (HHO) gas is produced from water using electrolysis process. Electrolysis process decomposes the water into hydrogen and oxygen. This process uses the two plates dipped into water which is generally made from inert metals like steel or platinum and DC current of 2.3V pass through this plate, which decomposes the hydrogen at cathode and oxygen at anode after production of HHO gas it injects in air after filtration and before carburetor.

II. BODY OF PAPER

The HHO gas is produced using electrolysis of water. Conductivity of pure water is millionth time greater than sea water. So, electrolysis of pure water requires excessive energy. Electrolysis of pure water without excessive energy take place very slowly or not at all. To increase the rate of electrolysis some catalysts are added into pure water they are salt, acid or base. Process of electrolysis use the two electrodes plate generally made up of inert metals like steel or platinum. This electrode plates are dipped into water and DC current of 2.3 V is supplied to electrode then this current decomposes the water into hydrogen and oxygen element. Element of hydrogen are double than the element of oxygen.

Electrolysis reaction takes place as follows.

Electrolysis: $2 \text{H}_2\text{O} \rightarrow 2 \text{H}_2 + \text{O}_2$

Reduction reaction takes place at negatively charged cathode. Which lost the electrons (e⁻) and become hydrogen ion to produce hydrogen element.

Cathode (Reduction) Reaction: $2\text{H}^+ + 2\text{e}^- \rightarrow \text{H}_2 (\text{g})$

Oxidation reaction takes place at positively charged anode which gives the electron to cathode and form oxygen


Anode (Oxidation) Reaction:

$2\text{H}_2\text{O} (\text{l}) \rightarrow \text{O}_2 (\text{g}) + 4\text{H}^+ (\text{aq}) + 4\text{e}^-$

Overall Reaction: $2\text{H}_2\text{O} (\text{l}) \rightarrow 2\text{H}_2 (\text{g}) + \text{O}_2 (\text{g})$

The amount of gas produced depends upon mainly three things one is how well the amperage travel through water? Amperage is nothing but flow of electrons. Second thing is how much amperage reaches across the electrode plate? And area of electrode plate.



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AUTOMATIC HEAD LIGHT CONTROLLING SYSTEM WITH STEERING WHEEL

**Dr. Harish Harsurkar¹, Prof. Husain Shaikh², Shridhar Arvind Deshpande³,
Rohitkumar Kushwah⁴**

¹HOD Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and
Technology, Lonavala

²Asst. Professor Mechanical Engineering Vidya Prasarini Sabha's College of Engineering
and Technology, Lonavala

³Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and
Technology, Lonavala

⁴Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and
Technology, Lonavala

ABSTRACT

The design here is all about Front wheel steering system with the modern electronics technology with moving headlights. The objective is to design and build a control system based on an electronically operated automatic head light controller called the "Automatic Head Light Dim / Bright Controller" by using LDR circuit. "The automatic head light dim / bright controller and headlight alignment according to steering wheel "consists of the LDR sensor circuit, control unit, headlight with gear rack and pinion setup. The sensor is used to identify the pathway on the opposite side vehicle (Light Beam). There is some obstacle on the road, the sensor detects the obstacle (Light Beam) and gives the Dim / bright Light as the output signals.

KEYWORDS: Headlight, Rack & Pinion Gear, LDR Circuit.



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Design And Development Of Pneumatic Scissor Lift

Dr.Harish Harsurkar¹, Prof.Husain Shaikh², Amay Sonar³, Shreeram Giri⁴

¹HOD Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology ,Lonavala

²Asst.Professor Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology
,Lonavala

³Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology
,Lonavala

⁴Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology
,Lonavala

Abstract - The Scissor lifts are a type of mechanism that allows for vertical displacement of some load, through the use of linked and folding supports in a crisscross "X" pattern, referred to as a pantograph or simply a Scissor Mechanism. Scissor lifts are widely used in industrial applications and also a staple design element in competitive robotics. Each arm of the crosses is called a 'scissor arm' or 'scissor member' The upward motion is produced by the application of force by some actuators usually Hydraulic, Pneumatic or mechanical

Keywords: Low-cost application¹, Scissor Lift², Pneumatics³, Actuator⁴, Mechanical Advantage⁵

1.INTRODUCTION

Lift is a very simple device or mechanism used for raising any elements or objects or load from ground level to a specific height to perform a particular task or work with maximum possible load carrying capacity and minimum efforts of a workman. To get this, we required material with higher strength, hydraulic components such as wheels, hydraulics cylinders, etc. all the researchers attempt to optimize all these parameters according to the all requirements. In this project and research, we tried to think about lots of different research papers containing the research & analysis made on scissor lift mechanism evaluated the design and analysis of these Scissor Lift.



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Design And Development Of Pneumatic Scissor Lift

Dr.Harish Harsurkar¹, Prof.Husain Shaikh², Amay Sonar³, Shreeram Giri⁴

¹HOD Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology ,Lonavala

²Asst.Professor Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology
,Lonavala

³Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology
,Lonavala

⁴Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology
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Design And Development Of Pneumatic Scissor Lift

Dr.Harish Harsurkar¹, Prof.Husain Shaikh², Amay Sonar³, Shreeram Giri⁴

¹HOD Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology ,Lonavala

²Asst.Professor Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology
,Lonavala

³Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology
,Lonavala

⁴Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology
,Lonavala

Abstract - The Scissor lifts are a type of mechanism that allows for vertical displacement of some load, through the use of linked and folding supports in a crisscross "X" pattern, referred to as a pantograph or simply a Scissor Mechanism. Scissor lifts are widely used in industrial applications and also a staple design element in competitive robotics. Each arm of the cross is called a 'scissor arm' or 'scissor member'. The upward motion is produced by the application of force by some actuators usually Hydraulic, Pneumatic or mechanical

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1. INTRODUCTION

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Design And Fabrication Of Emergency Braking System In Four-Wheeler

Dr.Harish Harsurkar¹, Prof.Husain Shaikh², Suraj Prakashrao Chavhan³, Shailesh Hariba Naik⁴

¹HOD Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology
,Lonavala

²Asst.Professor Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and
Technology ,Lonavala

³Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology
,Lonavala

⁴Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology
,Lonavala

Abstract –

IC engines are so advanced that their speed becomes a major disaster. The advanced braking system improves braking techniques in cars. It replaces complete braking systems for cars and deals with the concept of Automatic Braking System that provides a solution. The project is built with an ultrasonic transmitter, ultrasonic receiver, Arduino UNO R3 board with PIC microcontroller, DC gear motor, Servomotor, and mechanical brake arrangement. The ultrasonic sensor produces a frequency signal (0.020-20)KHZ. It is transmitted via an ultrasonic transmitter. The ultrasonic receiver is used to receive the pre-displayed wavelength of the vehicle. Then the reflected waves are fed to the generator unit of the ultrasonic wave, where the incoming wave is amplified and compared to the reference signals to maintain a constant rate. This signal is supplied to a microcontroller, and when operating a DC gear motor and Servomotor may be present, leading to the use of brakes. The model was designed to demonstrate expertise and was tested according to the simulated scenarios. In the future, a real model can be built depending on its availability.

Key Words: Emergency braking system, ABS



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AUTOMATIC DOUBLE AXIS WELDING MACHINE

**Dr. Harish Harsurkar¹, Prof. Husain Shaikh², Sandesh Suresh Jadhav³, Sourav Vasant
Jadhav⁴**

¹HOD Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology
,Lonavala

²Asst. Professor Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and
Technology ,Lonavala

³Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology
,Lonavala

⁴Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology
,Lonavala

ABSTRACT:

In our research titled double axis welding machine is being with an introduction to welding the various components automatically. Three-pneumatic cylinder and solenoid valve are provided. One cylinder is for the up and down movement, another one for arm lifting and one for the rotary motion.

KEYWORDS: *Double axis welding machine, pneumatic chamber, solenoid valve.*

I. INTRODUCTION

Automation can be achieved through computers, hydraulics, pneumatics, robotics, etc., of these sources, pneumatics form an attractive medium for low cost automation. Automation plays an important role in automobile.

Nowadays almost all the machines are being automated in order to product the human being. The automobile vehicle is being automated for the following reasons.



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Multi Charging Electric Vehicle using Wind Energy

Prof. Sunil Parge¹, Prof. Husain Shaikh², Vikas Iste³, Ganesh Pedate⁴

¹Asst.Professor Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology ,Lonavala

²Asst.Professor Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology ,Lonavala

³Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology ,Lonavala

⁴Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology ,Lonavala

ABSTRACT

Multi Charging Electric Vehicle Using Wind Energy is a very useful and innovative method for charging the batteries of an electric vehicle. The common problem of charging in EV's is battery efficiency, mileage, charging station, bulky heavy battery charger and wall socket. Now this all problem can solve by using new innovative method of charging system. The conversion of wind energy here acts as a charger, as the vehicle is in motion. The PWM (Pulse Width Modulation) fans are having coin shape magnets mounted on their blades. As the wind strikes or drop on the blades of fan the magnetic force will convert into magnetic motion, as a result the fan start rotating and develop a power of 3.96 to 4 volts. Since this power is generated from a single fan. And the power develop from 25 fans will be 98 volt without considering losses. A Charge controller is installed between fan and battery which control the voltage and allow the suitable voltage pass to the respective load. Here load is Brushless Direct Current Motor (BLDC).

Key words: - battery efficiency, bulky heavy battery charger, charging station, mileage, wall sockets.



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AUTOMATIC TYRE PRESSURE INFLATION SYSTEM

Prof. Sunil Parge¹, Prof. Husain Shaikh², Abhishek Mishra³, Sourabh Kute⁴

¹Asst. Professor Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology, Lonavala

²Asst. Professor Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology, Lonavala

³Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology, Lonavala

⁴Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology, Lonavala

Abstract –

Project is concerned about and to develop an “automatic tyre pressure inflation system”. As we are aware that by drop of few pressure units in vehicle its results in the reduction in mileage, tyre life, safety and performance. This system can be placed in every in automobile under any operating condition, this will not only maintain the correct tyre pressure but also increase tyre life, mileage and safety so we have fabricated this system to inflate and deflate the tyre automatically by using control units. This system is named automatic because it checks the tyre pressure continuously using built control device and accordingly gives alert signals to the driver about the tyre condition.

Key Words: Vehicle Performance, Vehicle Efficiency, Vehicle Safety, Pressure switch, Solenoid Valve.



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Lonavala



Design And Development Of Pneumatic Cutting Machine

Prof. Tanuja Hulavale¹, Dr. Harish Harsurkar², Rahul Hadke³, Sandesh Bodake⁴

¹Asst. Professor Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology
, Lonavala

²HOD Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology ,Lonavala

³Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology ,Lonavala

⁴Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology ,Lonavala

Abstract –

The pipe cutting process is a main part of all industries. Normally the pipe cutting machine is manually hand operated one for medium and small scale industries. Automation in the modern world is inevitable. Any automatic machine aims at the economical use of man, machine, and material worth the most. In our project a solenoid valve and control timing unit is used for automation. The pipe cutting machine works with the help of a pneumatic double acting single cylinder. The piston is connected to the moving cutting tool. It is used to cut the small size of the pipe. The machine is portable in size, so easy transportable. A compressed air from a compressor is used as the force medium for this operation. There are pneumatic double acting cylinders, solenoid valve, flow control valve and timer unit is used. The air from the compressor enters to the flow control valve. The control air from the flow control valve enters to the solenoid valve. The function of solenoid valves is to allow air at correct time intervals. The 5/2 solenoid valve is used. In one position air enters to the cylinder and pushes the piston so that the cutting stroke is obtained. The next position air enters to the other side of cylinder and pushes the piston return back, so that the remaining stroke is obtained. The speed of cutting releasing stroke is varying by the timer control unit circuit.

Index Terms – Automation, Compressor, Solenoid valve, Pneumatic.



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Design And Fabrication Of Pedal Operated Reciprocating Water Pump And Filtering System

Prof. Sunil Parge¹, Prof. Husain Shaikh², Sourabh daithankar³, Gunjan Badhe⁴

¹Asst. Professor Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology, Lonavala

²Asst. Professor Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology, Lonavala

³Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology, Lonavala

⁴Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology, Lonavala

Abstract:

The development of an improved pedal powered water pump machine was undertaken with the intention of providing a simple cost solution to the problem of delivery of ground water with relatively less effort. This project analyzes the development of an improved pedal powered water pump for rural use. This development was prompted due to the need for pumping systems that does not use electricity as its power source in under developed area the system is composed of a reciprocating pump powered by pedaling it can be used for irrigation and drinking water purposes. It is more productive operated pumping system and is time saving this mechanism is operated mechanically by pedaling therefore it's economical and healthy. A pedal operated water filtration system is a water filtering apparatus which can filter water by using human muscle power via a pedal operated mechanism. This apparatus is preferably mounted on a supporting frame for increased portability. It will be specifically designed to perform three important functions storing water, filtering it and transporting it to the final destination. The aim of this project is to solve purifying drinking water by creating a durable apparatus which is cheap to manufacture and to by which can last for long time in rural conditions and which can be detachable so that it can be mounted on any frame. The system works on the sprocket chain system.

Keywords: Reciprocating pump. Filter. Chain drive, Sprocket.



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DESIGN AND MODIFICATION OF CAM OPERATED SPRING VALVE SYSTEM IN IC ENGINE

Prof. Tanuja Hulavale¹, Dr. Harish Harsurkar², Omkar Thorve³, Palan Keval⁴

¹Asst.Professor Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology ,Lonavala

²HOD Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology ,Lonavala

³Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology ,Lonavala

⁴Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology ,Lonavala

ABSTRACT

This paper stands for spring less valve system for IC Engine valve. Conventional valve system uses one valve for opening of cam and closing of cam totally depends upon spring, but spring less valve system uses two cams for its operation. In this work we are going to design spring less valve system. Model analysis of opening and closing cam of spring less valve system is done. For different material we have done harmonic analysis to know about failure of closing and opening cam. Harmonic analysis represents when resonance will occur. This new system improves the performance of IC Engine. This new system uses less power for its working.

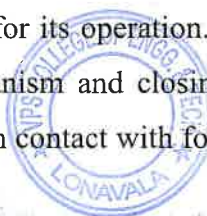
Keywords: Spring less valve, Closing cam, Opening cam, Modal analysis, Harmonic analysis

1. INTRODUCTION

In IC Engine two types of valves are used for its operation. In conventional valve system opening of valve is done by cam and follower mechanism and closing of valve is done by restoring force of spring. When raised portion of cam comes in contact with follower of conventional valve system valve

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Digital Fuel Level Indicator system

Prof. Sunil Parge¹, Prof. Husain Shaikh², Rahul Tilekar³, Shubham Hembade⁴

¹Asst.Professor Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology
,Lonavala

²Asst.Professor Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology
,Lonavala

³Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology ,Lonavala

⁴Student Mechanical Engineering Vidya Prasarini Sabha's College of Engineering and Technology ,Lonavala

Abstract:

In today's rapidly changing world and rise in demand of fuel especially in developing nation we perpetually hear about the increasing fuel prices. This topic has become a major issue. As the increasing demand and increase prices there has been need to developed a digital fuel indicator to know the better about the fuel present and added to the vehicle. Fuel theft by petrol pump owner is also leading the common man to be cheated as the petrol pump are tempered such that it displays the amount as entered by the provider but the quantity of fuel that is filled in the customer's fuel tank is much lesser than the displayed value. As analogy meter does not show exact amount, we can't cross check the fuel added and thus people are helpless despite of knowing the fraud by petrol pump owners which make them earn fortune. Fuel theft while parking is also a disturbing fact all over the world. The main objective of our project is to present a proper solution for indicating the exact availability of fuel in the tank digitally which will calibrate the exact amount of fuel contained in the vehicles tank as well as flowing into the fuel tank with the help of an ultrasonic sensor. In our endeavour to make it more digital, we will also demonstrate the measure of fuel in a vehicle when it gets stolen.

Keywords: Fuel Level Indicator




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