



INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

DESIGN AND FABRICATION OF COMPRESSED AIR VEHICLE

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ABSTRACT

Internal-combustion engines pollute the environment seriously, and consume enormous non-renewable energy. So today the whole world is in search of alternative fuel and there are couples of option of alternative fuel such as solar power, tidal power, geothermal power, etc. and one of them is Compressed Air. The air engine runs on air only, so the need of fossil fuel is completely reduced. This practical study gives a brief description on zero pollution compressed air engine. As we are going to convert the already existing conventional engine into an air powered one, this new technology is easy to adapt and another benefit is that it uses air as fuel which is available abundantly in atmosphere. This technology is cheaper in cost and maintenance and it doesn't cause any kind of harm to the environment. Thus it is surely a revolutionary mode of transport.

Keywords: Driven Engine, petroleum and gasoline

1. INTRODUCTION

Nowadays the need of electricity is will increase, but essentially traditional source of strength is restricted due to that charge of petroleum or gasoline is constantly growing. To satisfy our need change gasoline or electricity is required. But while thinking about exchange gas some elements be considered as like availability, eco-friendly etc. Also, combustion products after the use of them performs a fundamental role in causing international issues, including the greenhouse effect, ozone layer depletion, acid rains and pollutants which might be incredible threat for surroundings and subsequently for the entire existence on planet and additionally has the strength to absolutely destroy the planet at later of its level so it Is essential to govern it on its Initial stage. Due to these factors leading vehicle manufacturers are forced to broaden cars fueled with the aid of alternatives energies. Hybrid automobiles, Fuel cellular powered vehicles, Hydrogen fueled motors can be quickly inside the marketplace as a result of it. One of the viable alternatives is the air powered car

2. CONSTRUCTION

The base reputation consists of engine setup. So it assists the whole work features, engine is coupled by way of gear the gear set up is connected to the wheel, the wheel consists of chain sprocket, chain pressure is used to attach both the gears. Wheel used right here is lively wheel. The compressor is attached to the engine.

3. LITERATURE REVIEW

PRAMOD KUMAR. J - AIR POWERED ENGINE

The environmental pollutants within the metropolitan towns is increasing swiftly on the whole because of the expanded number of fossil fuel powered cars. Many alternative options at the moment are being studied at some stage in the arena. One of the alternative answers may be a compressed air powered car. Main advantage of this engine is that no hydrocarbon gasoline is required which means that no combustion technique is taking place. In this venture, an SI engine is transformed into a compressed air engine. A four stroke single cylinder SI engine is converted to 2 stroke engine which operates using compressed air due to its design simplicity. As we transformed the already current conventional engine into an air powered one, this new generation is easy to adapt. Another benefit is that it makes use of air as gas that's available abundantly in atmosphere.

VISHWAJEET SINGH - COMPRESSED AIR ENGINE

Mankind is continually searching out green and pollutant-loose way of powering their machine. Recent improvement in light and robust fabric has aided us to attain those simpler ways. In gift take a look at a four stroke engine become changed into 2 stroke engine, and become used to run on compressed air generation. Some take a look at was completed on the modified engine to observe the effectiveness of the engine.

SAURABH PATHAK, KONTHAM SWETHA, V. SREEDHAR, V.S.V PRABHAKAR - COMPRESSED AIR VEHICLE: A REVIEW

The state-of-the-art fashion in the automotive enterprise is to broaden light weight vehicles. Every car industry is seeking to lessen the weight of the vehicle because it helps within the higher managing of the car and increases the efficiency of the vehicle. Today, the heavy cars are acknowledged for generating a big amount of dangerous gases like CO₂, SO₂ etc. Which act as the main source for global warming. So studies are going on to find a light weight vehicle which does no longer pollute the surroundings. One of the options is the usage of compressed air to generate power to run a car. Due to the unique and environmental pleasant residences of air, it is considered as one of the destiny fuels so that you can run the motors. So on this paper an effort is made to take a look at the extent of research done and the ability blessings and drawbacks of the compressed air generation.

QIHUI YU, MAOLIN CAI - EXPERIMENTAL ANALYSIS OF A COMPRESSED AIR ENGINE

Nowadays, automobiles consume a large number of fossil fuels. However, the consumption of fossil fuels has brought many serious environmental problems, such as global warming, ozone layer depletion and fine particulate matter. To avoid such environmental problems, renewable energy has been applied to automobiles. In this paper, an air-powered engine of a renewable energy vehicle is introduced. To lay a foundation for the optimization of compressed air engine (CAE), a physical model of compressed air engine (CAE) is established with cam which controls compressed air charge or discharge cylinder. To obtain performance of the CAE, a prototype CAE system is set up. The output torque, power and efficiency are obtained through experimental study. The results show that the prototype of CAE has a good economic performance under low speed and when the supply pressure is 2 MPa, the maximum output power is 1.92 kW; the maximum output torque is 56.55 N·m; and the maximum efficiency is 25%. This research can be referred to in the optimization of air-powered engine.

SHUBHAM KUMAR, PANKAJ KUMAR PRADHAN, ZAKEER HUSSAIN KHAN, B. ANIL KUMAR, M. CHAITHANYA - DESIGN AND DEVELOPING OF COMPRESSED AIR ENGINE

Internal combustion engine produces a large amount of harmful gases like CO₂, SO₂ etc. which pollute the environment and causes global warming and it consumes enormous non-renewable energy. So today every country is in search of alternative source of energy and there are couple of alternate source of energy such as solar power, tidal power, geo-thermal power, etc. and one of them is compressed air. The air engine runs on air only, no fossil fuel. The compressed air engine is a modified 100cc conventional engine. The engine is modified from 4-stroke to a 2-stroke engine (suction and exhaust) by modification of cam-gear system. The maximum pressure used is 8 bar. The project was successfully carried out and tested. This technology is

cheaper in cost and maintenance and it does not cause any kind of harm to the environment. Thus the compressed air engine will play vital role in reducing air pollution and also in reducing temperature of earth. Compressed air engine uses air as fuel which is available abundantly in atmosphere.

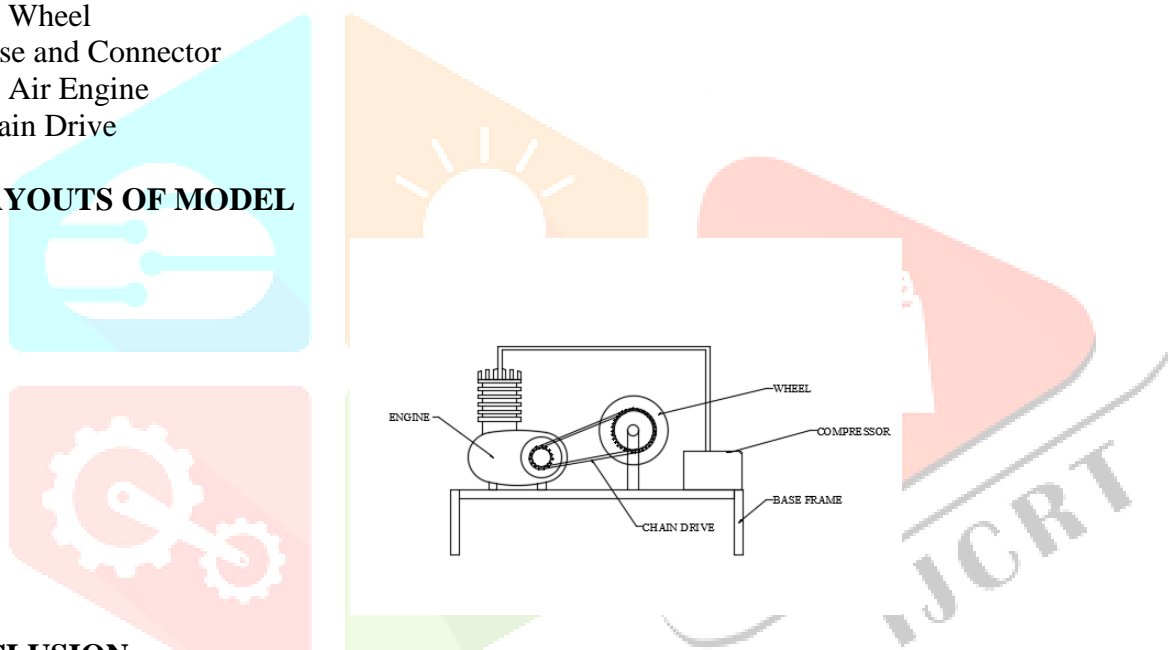
4. WORKING PRINCIPLE

The base body which guide the engine, commonly engines are labored by the use of burnable fluids and gasoline however here air is a gas. Engine wherein customized with inlet valve that allow the air to enter into the engine. A series sprocket is coupled with the engine that is used to transmit the power and the equipment is attached with every other tools this connection is made by means of the usage of chain pressure so the energy transmission is transfer to the wheel. A compressor is hooked up on the frame so that can provide air to the engine. A compressed air which set off the engine to rotate.

5. MAJOR COMPONENTS

- Frame
- Shaft
- Bearing
- Wheel
- Hose and Connector
- Air Engine
- Chain Drive

6. 2D LAYOUTS OF MODEL



7. CONCLUSION

The paper presents the theoretical concept of designing an engine which can run on compressed air technology. Here the theoretical idea was also experimentally proved by using editing a 4-stroke engine right into a 2-stroke engine and jogging the engine through proposed compressed air. Further the experimental result turned into provided which showed the blessings of using CAE. Thus, A CAE give an opportunity to use the limitless useful resource of air as a gas to run the engine. The proposed idea design of CAE facilitates in solving the trouble using a fuel that's renewable and at the same time less expensive in use.

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