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Portable Electric Ploughing and Levelling Machine

Vinod Kumar N[1], Vasantha Kumar[2], Abubakkar Khan Shired[3], Rasid Shaikh[4], Riyaz Ahmad Pattanad[5], Wahid Ahmed Dindawad[6]

[1]Assistant Professor, Department of Mechanical Engineering, Bearys Institute of Technology, Mangalore, Karnataka, India.

[2] Associate Professor & HOD, Department of Mechanical Engineering, Bearys Institute of Technology, Mangalore, Karnataka, India.

[3,4,5,6] UG Scholars, Department of Mechanical Engineering, Bearys Institute of Technology, Mangalore, Karnataka, India.

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ABSTRACT

This journal paper is primarily based on the layout and fabrication of transportable electric powered ploughing and leveling machine for the operations like ploughing and leveling the farming land and doing away with undesirable weeds from farm and also sand desires to be opened in order that atmospheric air flows thru sand. Our mission is of a single wheel cart that runs thru a motor with battery and established with a ploughing and leveling blades. This device may be operated routinely and manually too. Basic solid aspect software is used to layout our assignment. Based on the studies, carried out the fabrication of portable electric powered ploughing & leveling machine in a manner this is affordable to the small scale farming.

Keywords : Electric plough, electric powered leveling, battery powered, transportable design

I. INTRODUCTION

This machine is designed for small agriculture discipline [1]. This device is portable so that it can be carried everywhere we desired to carry out the ploughing and levelling operations on the land. This machine is green and occasional price compared to the conventional tractors [2]. It is lower priced for farmers folks that can't find the money for conventional tractor to perform the same operations [3]. This machine consists of set of 3 blades for ploughing operation and in the back of that sliding mechanism is established for levelling blade and single wheel is mounted thru a connecting rod onto which is the small angles are welded to hold a gripping contact with the ground and additionally for the loosening of the soil and also to attain uniform rotation with the assist of electric motor [4].

The operation of a transportable electric powered ploughing and levelling device involve strolling behind the device. This machine includes electric powered motor, battery, chain sprocket, wheel angles, bearing, electric & wiring, mounts and joints, assisting frames, screw and fitting, bicycle wheel, the system is pushed by way of electric motor which uses a sprocket chain association to drive the pulling wheel. A battery is used to operate electric motor with forks via soil. The cultivator blades allow for clean and slim ploughing exactly as required for farming. Due to the easy fabrication of machine, the device renovation is very low.

II. LITERATURE REVIEW

Journal papers are referred for the study and understanding cause and additionally to take into account a recent updates inside the place of the portable electric ploughing and levelling machine. Literature survey allows in knowledge of all of the activities undertaken in this topic. It additionally facilitates in implementation of the more automation and upgradation of factors in the research.

III. OBJECTIVES AND METHODOLOGY

The objective of this venture is to present the repute of the cutting-edge traits and implementation of Agricultural and description the capacity for future programs. The important goal is to lessen the human effort within the small agricultural fields via the use of this machine which is used for ploughing the land and levelling the land.

Methodology is a process of project planning where all the major and minor steps of the project either it may be logical or creative fabrication application steps are systematically explained. Methodology is one of the paramount components in project planning where all the possible factors and their results effects are relatively considered for the optimum and effective project management. In the present work, the collections of methods or practices are done as follows:

Working

The machine carries of electrical motor (3000 RPM), batteries (24 V), chain sprocket, connecting rods, and blade mountings and joints and so forth. The machine runs by way of a electric powered motor that's connected to a fly wheel thru a sprocket chain arrangement to drive the pulling wheel. A battery is specifically used to run a motor with blades via soil. The cultivation blades plays a easy and correct ploughing exactly wished for farming. The device is constructed in a form that its miles mild in weight and also it's miles portable, Hence its price is less.

Designing

For modelling commercially available solid edge software was used for the designing of system in fashions are produced in exceptional perspectives for the knowledge and accurate layout. The figure1 shows the design of the portable electric ploughing and levelling machine in solid edge software.

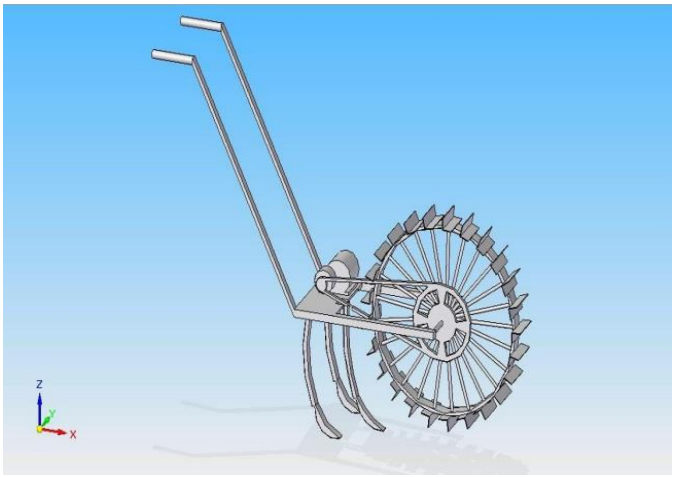

Figure 1. Isometric 3D Mode

Table 1. Represents the design characteristics of portable electric ploughing and levelling machine.

Table 1. Design characteristics

Battery type	Lead acid
Battery specification	2 x 12v, 7ah
Motor type	DC Geared Motor
Motor specification	24v, 3000rpm
Motor power	250Watts
Machine dimension	42x10x42 inches

Components

Electric Motor

Here the motor used is of a 24V and 3000 RPM and it's far 250 watt, here the motor is attached with a gear that is similarly linked to a fly wheel through a series sprockets to pressure a wheel. This motor is pushed by means of 24V batteries.

Figure 2. DC Motor

Battery

The batteries are extended up to 24V (12V batteries), If the batteries are fully charged it is able to run the system up about from 5 to six hours. It is a rechargeable lead ion battery.

Figure 3. Battery

Ploughing and Levelling Blades

Figure 4. Blades

Blades are specifically used for ploughing the ground, loosening the soil and doing away with the waste weeds from the ground. Approximately those blades may be digs up to a few to 4 inches into the ground. These blades are approximately 1 toes lengthy linked to a major body although a nut and bolt mechanism.

Driving Wheel

Driving wheel is set up of small angles which makes a gripping touch with the floor and fly wheel is hooked up to the riding wheel for the rotation, the entire frame is attached to a riding wheel through a connecting rods.

Figure 5. Driving Wheel

Fabricated the Machine

The following up of many research paper, Accumulating a statistics approximately assignment, Collecting of uncooked substances and components, Fabrication of the machine via using the uncooked materials and machine components, Checking the operating of device, Presenting the record and research paper.

Figure 1. Portable Electric Ploughing & Levelling Machine

Advantages

Fully computerized operation, No alternative gas is wanted, therefore the whole device runs on a 24V battery, Easily transportable, clean to perform and renovation is low, Machine is so value-effective, whilst it is compared to the tractor, Reduces a human effort and replaces the animal power, Reduces the ploughing time.

Disadvantages

The major disadvantage of the portable electric powered ploughing and levelling machine is that it cannot be used in large farming area.

IV. FINAL RESULT

Final destination of our assignment is to complete the fabrication system of our machine, transportable electric ploughing and levelling system with the sure operations like ploughing and levelling and to behaviour an indication of machine.

V. CONCLUSION

After a usual study and by way of finding solutions, we have nicely designed a portable electric powered ploughing and levelling machine with a specific operation that's built with use of DC motor of 24V that is of the 3000rpm and the 250watt, which drives the whole device via a driving wheel. Here, the preliminary fee is high and but reduces the human effort and it's far green too.

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