

Multipurpose Agriculture Bicycle for Farmer

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Abstract: All trades of village maker in black-smith carpentry, stones etc. contributed to the design of development of farm tools through makers's ingenuity. Carpenters made the counterpoise to lift the water from wells to irrigated crops. Big size of earthenware was made by potters to store grains for month to be safe from insects and animal punch used whole skins of animals to carry water to irrigate garden crops besides entering dust roads. Farming is the backbone of Indian economy. In this agriculture sector there is a lot of field work, such as weeding, cultivating, sowing etc. The paper deals with multi-purpose agriculture machine for seed feeding, spraying pesticides, insecticide, and fertilizer and cutting. Thus surface way for a more economical and multi-usable equipment for farmer which is also easy to clean and maintain easy to handle and do not require fuel, hence cost gets reduced and helping farmers to a great extent in their fields.

Keywords: icycle, Solarenerg

I. INTRODUCTION

We design such a bicycle in this paper which has perform the task of lifting water. The main purpose for the development of this project is to utilize the human powered bicycle for mobility where electricity is not available Energy generally applied through the use of the arms, hands, and back. This fixed spraying system is made up of a modified nozzle pump tank assembly, tank and adjustable sprayer nozzle can be mounted on any bicycle available in the market or any other cycle. Solar energy is one of the major sources of clean & green energy here no fuel is used in this bicycle. It is include many areas of research and development such as spraying, cultivating, power generation etc. According to survey report average 35% people are travelling from rural to urban area for the many reasons. Resulting in minimum number of people in profession of farming leads to huge height, and due to which our country is suffering from many problems like the problems associated with the farming woks and methods. One study suggests Indian agricultural system should focus on improving rural traditional structure primarily in the form of irrigation and knowledge of uses of seeds. hence as per above information our multipurpose agriculture bicycle is introduce which is reliable and flexible.

Farming has going through the great evolution in last 50 to 60 years. For this evaluation various reasons are involved in the farming or the agricultural area like in the protecting and methods of farming. During the starting days there was only hand spraying which is traditional method for this the people used. After some year gaps there has been development of various method for spraying out chemicals and dust on the crops. So these devices are were more efficient, there is a need of certain changes in old systems. Chemicals and fertilizers which also used for the growth of the plants but this are mainly or widely used for controlling disease, insects. They are capable to save a crop or plants from pest attack and dust only when applied in time. They are commonally applied on plants and in soil in the form of liquid in soil which reduces dust. This chemical used are costly and cant affordable .sometimes nozzles therefore equipment for such great application and effective results is essential. Dusters and sprayers are generally used for applying chemical. The application of fertilizers and chemical and is one of the most frequently used method to protect plants and trees from various diseases and insects in agriculture. In the recent farming system the usage of pesticides is still increasing,the 80% of these pesticides are mostly applied in the form of liquid and mostly by using the pressure achieve from solar or electrical energy sources here in this which also achieve from the dynamo system. By improving the public knowledge about the damage of chemical and introduce solar and electrical inputs in agricultural spraying systems has challenge the industries to develop effective and challenging methods of spraying which will balance environment friendly approach and helpfull to nature which is mainly ecofriendly and reduces working time and efforts of farmer.

II. LITERATURE REVIEW

Here Pump and nozzles connected to back wheel of bicycle are commonly used of lifting water from a clean ground lake water source to a common point of gaining water given with control systems is given but all pump which are connected in cycle used moving parts and are its design to disconnect proper selection of a spraying pump will reduce undesirable counting time and will provide power to the local community to adjust their water sources. Here we use the foot pedal pump and dynamo system, powered by our legs movement instead of arms to lifting the water from a lower range of seven or more meters. From overall history humans, energy has generally been applied through the use of the arms, hands, and any other ways. With minimum exceptions, it was only with the invention of the moving along seat drag frame to and particularly of the agriculture bicycle, Also that pedals are used to be considered as a normal source of generating advanced power from human efforts or strength.

Generally many of the weedkiller are applied as in liquid forms. The liquid form sprays for weedkiller are explained by following either mixed (with water, oil) or directly are applied in small quantity of drop to the crop by different types of sprayers. Usually the liquid formulation, oily or wet able powdered formulations are diluted suitably with water which is a common carrier of weedkiller. In some cases however, oil is used as mixed or carrier of weedkiller. The important factors for spray assembly includes assumptions are: The size of spray liquid required for certain area depends upon the spray assembly and coverage, total fixed area, size of liquid droplet and number of liquid droplets. This observed that use of electrically operated pump for pumping the water. Electrically operated pumps are used to convert rotating kinetic energy to the hydrodynamic energy of the liquid spray. The rotating energy comes from electrical devices like motor. The liquid enters the pump blades along to the rotating axis and is accelerated by the blades, flowing through the pump radial axis.

III. CONSTRUCTION

COMPONENTS OF MULTIPURPOSE AGRO EQUIPMENT

- SPRAYING FLUID TANK
- SPRAYING PIPE
- SOLAR PANEL
- BATTERIES
- PUMP
- MOTOR
 - SWITCH & TOGGLE
- FRAME
- AXIS ATTACHMENTS
- CHARGING CIRCUIT
- CONICAL PLASTIC FLASK

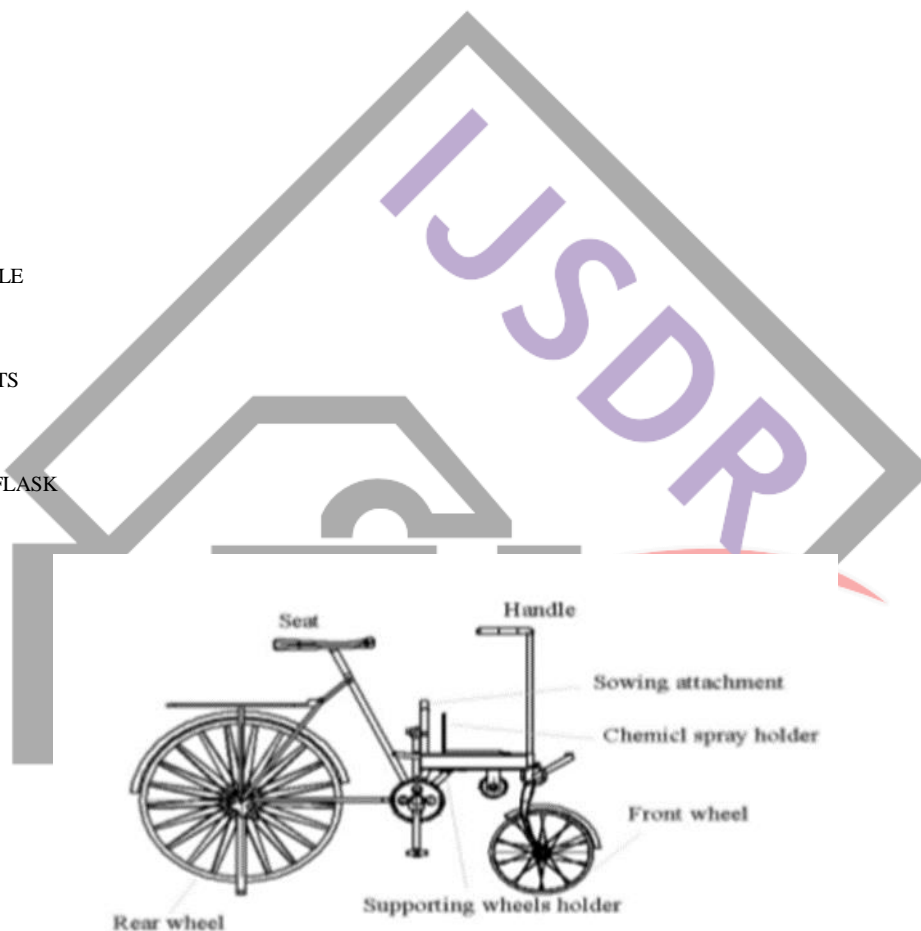


Fig:-Bicycle assembly

IV. WORKING

A. Conical plastic flask

It is mainly used for the seeding purpose here we used different types of seeds of crops. In this first the flask is adjusted at front wheel of bicycle and then the seeds of about amount of the 4 to 5 kg are poured in that so there are cables are used by which these seeds are pour in soil.

B. Cultivation System

It is used for leveling of Soil, crushing of clods, and collection of uprooted weeds and aeration of soil. It is a long handled tool and this tool can connect as per the work requirement, welded to a T shaped frame made from joining three pieces of angle to connect with iron body by nut bolts.

C. Spraying and fluid tank

Designing technique of spraying system which is driven by the chain and sprocket by the front wheel of the unit. The hand sprayer tank have small capacity pneumatic sprayer. It consists of plastic tank having a capacity of 0.8 to 5 liters (have more capacity size) which is pressurized by a centrifugal pump or motor.



COST ESTIMATION

Component	Cost(Rs)
Bicycle	3000
Cultivation Equipment	2000
Water Pump	1500
Conical(Seeding) Flask	200
Solar Panel	4000
Motor	5000
Total Cost	15700/-

Table: Costing Analysis



Fig. Actual Modelling of Project

VI. ADVANTAGES

1. Easy to carry anywhere.
2. No external energy required for its work that is no fuel is used.
3. Quality of work because adjustable system is used.
4. easy to transportation farmer from house to farm and vice versa.
5. This bicycle able to do work in day and night.
6. Easy in construction and easy to handle.

VII. DISADVANTAGES

1. Sunlight is not always available especially at night, so it cannot always provide the sufficient amount of power.
2. As its adjustable system due to improper adjustable damage of device may occur.
3. It may have heavy weighted.

VIII. APPLICATIONS

1. Mobility of farmer from house to farm or vice versa
2. Main application in farm work by using new method rather than traditional method.

CONCLUSION

In this paper, we design such different type of agriculture bicycle which is fabricated with different equipment and the mechanism. Agriculture bicycle is more suitable for farming work over the traditional methods. This bicycle can reduced the cost of spraying, speed farming and cultivation work. By using adjustable system we can easily used this cycle as per the requirement of farming work and also for mobility of farmer.

FUTURE SCOPE

The multipurpose agriculture bicycle is the new innovation in the world of farming work agriculture field. Currently bicycle are available in market are used for only transportation but this bicycle have more uses farming work like seeding, spraying, cultivation.

This cycle has bright future because of now day world turns towards the use of given technology. In this people will aware about the given technology and motivated to use of renewable energy source such as solar. As this cycle is doesn't required the any kind of fuel so it's caused as ecofriendly and working is easy for former by this cycle.

RESULT

Sr No	Equipment	capacity	Area (sq. fit)	Time Required
1	Water tank	5 (ltr)	20*20	30 min
2	Conical flask	5 (Kg)	30*20	3 hrs.
3	Cultivation tool	-	20*20	up to requirement
4	Single plough	-	20*20	up to requirement
5	Solar panel	24(volt)	-	3 hrs.

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