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Multi Nozzel Wheel Spary Pump

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A B S T R A C T

The project used observation based on the currently used manual method using poisoning by various parasites. The goal of this project is to develop a device that can produce a more efficient pesticide sprayer for use on small or rural farms. In addition, this project defined several research areas that deal with the production and development of ergonomic wheel sprayers. To shorten spraying times in vegetable gardens or orchards and increase spraying efficiency by having more than one nozzle when spraying. All of this is aimed at solving some of the problems that arise when using existing methods, including the ineffectiveness of existing sprays and the need for additional spraying time. The material for this project also requires special properties that will not rust or harm plants. According to the literature research conducted, stainless steel is the most suitable for this project. During component development process, research methods are applied to the design and manufacturing process, using flowcharts to guide production planning and design testing. This completed the entire project with additional time savings compared to traditional methods. Based on these results, the results of the analyzes and discussions, it can be concluded that the spray wheel achieved its intended goals. In addition, it has been shown that this tool can save time, which is different from the traditional method.

Keywords: Spray pump, Mechanization, slider crank mechanism.

1. Introduction

Farmers use the same methods and equipment to plant seeds, spraying pesticides. The method used by gardeners perform the process of spraying pesticides and herbicides. Gardeners need to cover their gardens with pesticides and pesticides to ensure that no shrubs grow and are used free of insects, caterpillars, and other pests. While gardeners will use a Knapsack manual sprayer to spray their garden, this may take a long time to finish spraying their garden. In addition, this manual Knapsack sprayer uses only one nozzle. There is a need for the development of effective spraying and weeding machines to increase productivity. Small farmers are particularly interested in manually operated backpack sprayers because of their flexibility, cost, and design. With a wheel spray pump combined with wheels and easier to move makes the working system very easy. This one trolley system by using this we can reduce the maximum effort required to spray pesticides as well as we can spray pesticides in any direction or around the plant at crop height. This paper shows a model of a wheeled spray pump that will perform spraying at the maximum rate in the minimum time.

1.1 Working

• Motion transmission by chain and sprockets arrangement.

• Slider cranks mechanism.

• Rotary motion converted into reciprocating motion.

The operator grabs the handle and pushes the bike forward as the bike moves forward and the wheel rotates. When the wheel rotates, the gear mounted on the wheel also rotates at the same speed. The chain drive transmits the movement from sprocket to sprocket. THE The

gear and crank are mounted on either side of the same shaft. The rotational motion of the shaft is converted into reciprocating motion by the crank mechanism and connecting rod. The connecting rod is also connected to the lever so that the lever swings at the pivot point.A piston connected to the pivot causes a back and forth movement in the cylinder and the required pressure is achieved. The pesticide from the tank is sucked into the cylinder and the piston forces the pesticide to flow through the tube. A series of nozzles are connected to spray the pesticide.

The pressure required for spraying can be adjusted using a special system that changes the length of the crank by creating a slot in the crank. By slightly adjusting the connection of the connecting rod and lever, free rotation of the crank or a neutral position can be achieved. At this setting, pumping stops and the impeller rotates freely when pesticide spraying is not necessary. You can adjust the height, position and angle of the nozzle.

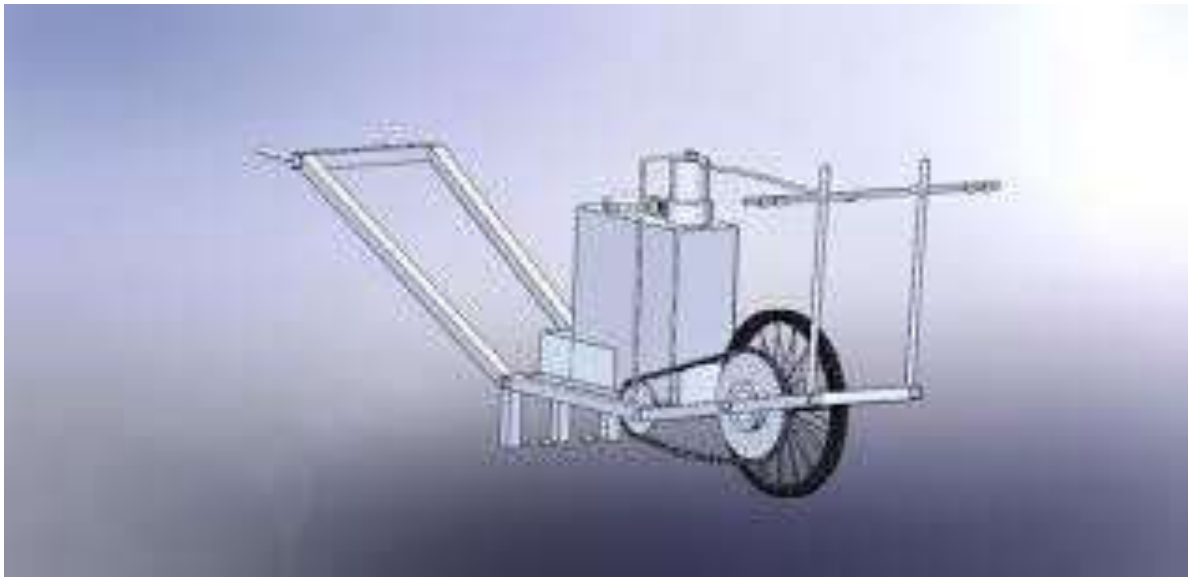

Fig. 1 - (a) 3 MULTI NOZZEL WHEEL SPAEY PUMP

1.2 Problem Statement

• Existed spray is unable to spray effectively and need extra time for spraying.

• Prolonged use has detrimental effect on the body of the user because the sprayer is heavy and may causes back pain if used in a long time.

1.3 Components of machine

1. Sprockeat
2. Chain
3. Crank
4. Connecting rod
5. Pump
6. Nozzel ,Pipe
7. Wheel
8. Frem

2. Illustrations

2.1 Mechanism

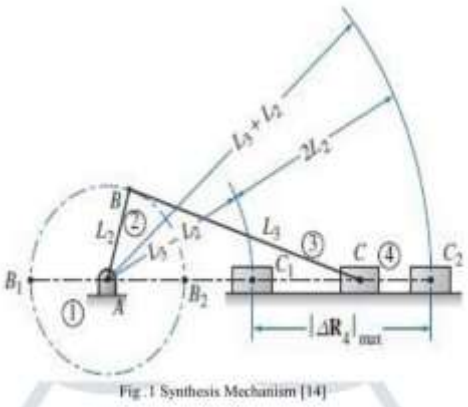

Fig .1 Synthesis Mechanism [14]

3. Applications

1) Its major use in agriculture to spray fertilizer.

2) In city and urban area, it can use for spraying water on lawn.

3) It may be exercise device at morning during utilize in lawn.

4) Use from spray chemical Pesticide in plants in farm

4. Conclusion

The wheel sprayer proves that the spraying time is faster and more efficient than a normal hand sprayer. In addition, this wheel sprayer can spray pesticides and herbicides in large quantities as it is equipped with two nozzles unlike the existing sprayer which only uses one nozzle.

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