

“SOLAR SPRAY PUMP”

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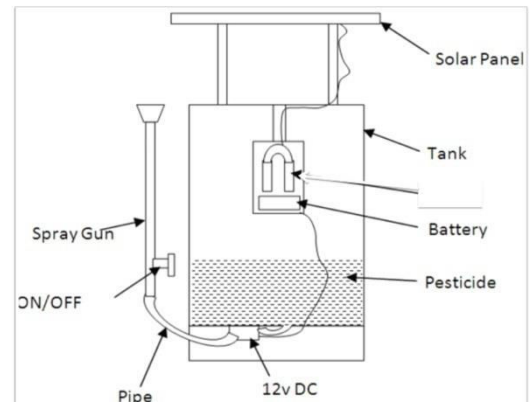
Abstract:

In Indian farms generally two types of spray pumps are used for spraying; handoperated spray pump and fuel operated spray pump. Of which hand operated spray pump is most popular. The main drawback of hand operated spray pump is that the user can't use it for more than 5-6 hours continuously as he gets tired after some hours where as fuel operated spray pump requires fuel which is expensive and availability of fuel is not easy at rural places. At the same time it exhausts carbon dioxide as pollutant which is harmful to our environment. In such situation we should think to move towards some non-conventional energy. Considering it, solar energy would be one of the solutions. This paper emphasizes the spraying of pesticides using solar power as energy. It can be most often used at various locations such as farms, gardens although it can become more popular in rural areas as well. The additional advantage of this project is it can be used as home lighting system as its battery can be used at night too.

Background

- The technique for spraying crops/fertilizer is very ancient .in ancient time the spray pump is hand operated this hand operated pump has one lever and piston cylinder arrangement built in pump to creating pressure in the container for delivering the liquid through nozzle .
- Now a days spray pump is operate on electric motor and these motor operate on electric battery system .these pump have very large delivery capacity ,these pump has limited use because of battery discharge rate is very high that's time consumption is very more and farmer has loss his time to charge battery again and again.
- So we think that these battery pump operate on solar energy with the help of solar plates after that we manufacture a casing for spray pump to hold the solar plate above it .the terminals of these plate connected to input of battery and output terminals of battery connected to drive motor .
- These solar plate absorb the sun radiation and converted it into electric charge and these battery store these electric charge that's why we does not have need to charge battery again and again.

Methods/Process



2VDC spray pump is used for creating the solar operated spray pump. A solar plate with 20W capacity and having approximate 20V output is selected for giving continuous power input to the chargeable battery. An mild steel frame is used to mount the solar plate on the pump. Solar plate serves for dual purpose i.e. gives continuous input and gives shade to the operator while operating in sunny Atmosphere.

Results/Outcomes

Sr. No.	Before	After
1. Working time	3 hrs.	8-10 hrs
2. Outputpressure	Charging Dependent	Constant
3. Operatorcomfort	Less	More

Conclusions/Recommendations

We know 70% of population of our country lives in villages & their main occupation is agriculture. My prominent aim of this paper is to fulfil the tasks like hand spraying, IC engine spraying, and leg pump spraying etc. using non-conventional energy sources. Thus solar operated spray pump will help the farmers of those remote areas of country where fuel is not available easily. They can perform their regular work as well as saves fuel upto large extent. At the same time they reduce environment pollution. Thus saving revenue of government and also most demanded fuel

Acknowledgments

His work is just not an individual contribution till its completion. I take this opportunity to thank all for bringing it close to the conclusion. First of all I would like to thank my guide Prof. Chavan A.M. continuously assessing my work providing great guidance by timely suggestions and discussions at every stage of this work. Thanks to Prof. R.S. Rathod, Head of Department of Mechanical engineering for providing all facilities without which this seminar work would not have been possible. I sincerely thank to Prof. Misal N.D. Principal, SVERI's COE (POLY), Pandharpur.

Project Goals/Objectives

1. Manufacture user-friendly device.
2. Manufacture cost effective and maintenance free device

3. Solve problem of charging of the pump
4. Reduce overhead cost.
5. Reduce problem of pollution.
6. Helpful for rural farmeres

References

1. Book of “Renewable Source Of Energy”
2. www.project.net/