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A SYSTEMATIC LITERATURE REVIEW ON PEDAL OPERATED MECHANISM

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Abstract

India is the second most populous nation in the world. Like many other countries where agriculture is the main source of income. Around 85.49 percent of Indian villages are electrified and Many will not be electrified. Our project is focus on area where electrification is not possible. We design and develop pedal operated mechanism. We consider the social, cultural and environmental factor as well as in many rural operation utilizing unskilled worker and in vidarbha region there is more problem of electricity. Such as dam, ponds, shallow well, boreholl, etc.

1. INTRODUCTION

Water is a very essential commodity for the survival of mankind. Apart from being used for drinking, it is also used as a source of energy and as a mode of transport. Unfortunately, it is not always readily available. While almost 70% of the earth's surface is covered by water, fresh water accounts only for 2.5% with the rest being ocean based and saline. Add to this the fact that of the 2.5% fresh water, only 1% is easily accessible in the form of rivers and other fresh water source.

A pedal powered pump is one of these mechanisms as it enables us to draw water from shallow wells, especially in areas where electricity is either non-existent or is too costly to afford. While considering manpower or human energy we must focus on human comfort which is one of the major factors contributing to the success of any manual process.

To convert human energy pedal operated technology is commonly used which is either hand operated or foot operated. Foot operated technology is more efficient compared to hand operated as we get four time more power.

2. LITERATURE REVIEW

[1] David Gardon Wilson, this paper deals with the understanding of pedal power. A person can generate four timer more power (1/4 horse power (hp)) by pedaling than by hand-cranking. The power levels that a human being can produce through pedaling depend on how strong the peddler is and on how long he or she needs to pedal. If the task to be powered will continue for hours at a time, 75 watts mechanical power.

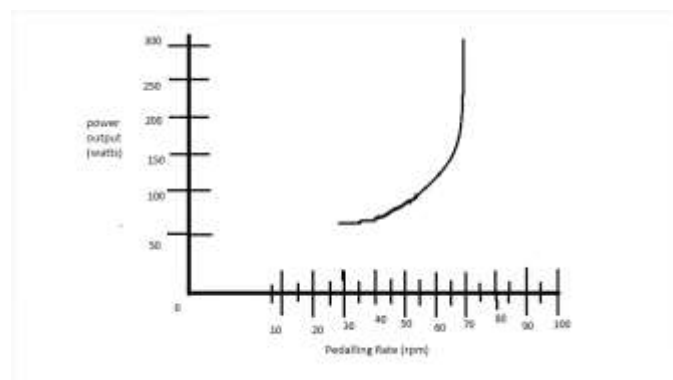


Fig.2.1. The optimum pedaling rate to direct power output.

[2] K.S. Zakiuddin, state the importance of human power from earliest time to the present and its necessity to different machine with future scope. They categorized human powered machine with its different example according to its type.

Provided information about Dynapods. Finally this paper explains the human powered Flywheel motor concept with line diagram which contain Bicycle, Chain, Gear pair, Flywheel. Recently this concept they used in Chaff Cutter.

pedal operated mechanism instead of hand operated mechanism, because energy output is more in pedal operated mechanism.

[3] J.P. Modak In this paper , human power bricks making machine has been designed and development. machine consist of three sub system i.e. 1.energy unit 2. appropriate transmission 3. process unit. The machine and specification of major part of machine. They have used gear pair for torque amplification and other one for speed increasing and connected with spiral jaw clutch.

[7] Ademola Samuel Akinwonmi, “Pedal Powered Centrifugal Pump Purified Water Supply Device” The design of a pedal powered purified water supply device to be used by local dwellers. It works on the compression & sudden release of tube by creating negative pressure in the tube & this vacuum created draws water from the sump into the pump where roller push the water through to the filter where adsorption takes place to purify the water.

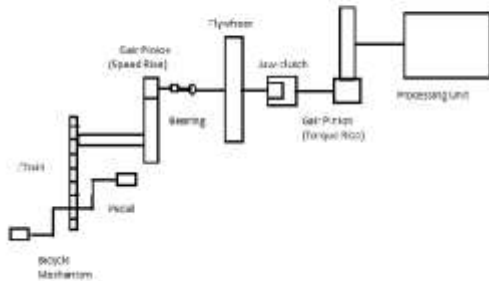


Fig.2.3. Human powered flywheel concept.

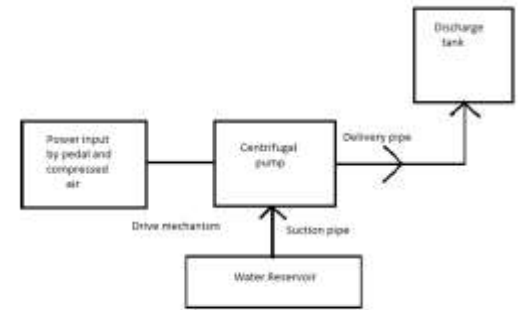


Fig.2.7. Pedal and compressed air powered centrifugal pump.

[4] Sermaraj. Explain different water lifting pump and state the importance of cycle operated water pump which works on rotation of bicycle wheel.

[8] J. O. Olaoye. The manually powered butter mixer was design constructed and tested the mixer was constructed to effectively mix shea nut with litter effort and at minimum initial capital. It has a conical shape inside a hemispherical mixing bowl, it gives mixing efficiently.

[5] Adarsh Ranjan. state that, the easily and readily available scrap parts in daily life. It is a machine which generates power through human pedalling and with the drive mechanism, converts the pedalling motion into required rotary motion of the drum. simple design, very low repairing and maintenance cost. Washing machine is a completely new concept, which is its one laundry cycle dose washing, rinsing and drying of clothes similar to that of an automatic washing machine available in the market.

4. CONCLUSION

As per the study over the pedal operated mechanism is a very advantageous especially for rural areas. The problem of energy is very big in India and in many rural area We know that electricity is still one of the major problem in rural area from the India. The maintains is very easily. cost is low, simple construction and working.

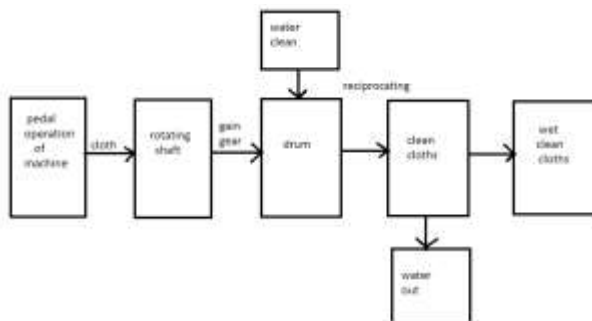


Fig.2.5. pedal operated washing machine

5. REFERANCES

[6] Atul P. Ganorkar, “Development of pedal operated water pump” and his term provided excellent literature to understand fundamental of pedal operated mechanism, and select the

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[3] J. P. Modak 1982. Manufacturing of lime fly ash sand bricks using a manually driven brick making machine. Project sponsored by Maharashtra Housing and Area Development Authority (MHADA), Bombay, India.

[4] Sermarj., fabrication of pedal operated reciprocating water pump (IOSR-JMCE).

[5] Adarsh Ranjan “Pedal Powered Washing Machine” give the knowledge about pedal powered mechanism “international journal of scientific and technology research volume issue 11, November 2014.

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[8] J. O. Olaoye, “Development and Testing of a Milled Shea Nut Mixer. ” Journal Food Science Technology, Vol. 38 N. 5 pp. 471-475, 2001.