

# Water Pumping and Power Generation By using Swing Action

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**Abstract:** This study explains the effect of creating the free energy in the device made of: a) oscillating swing-lever system, b) system for initiating and maintaining the oscillation of the pendulum, and c) system which uses the energy of the device by damping the oscillation of the lever. Serbian inventor Veljko Milkovic has invented, patented and developed series of such machines based on two-stage oscillator for producing energy. The operation of the machine is based on forced oscillation of the pendulum, since the axis of the pendulum affects one of the arms of the two-armed lever by a force which varies periodically. Part of the total oscillation energy of the pendulum-lever system is changed into work for operating a pump, a press, rotor of an electric generator or some other user system. The creation of free energy was proved by a great number of physical models. The effect of creating the free energy is defined in this study as the difference between the energy which is the machine transfers to the user system by the lever and the energy which is input from the environment in order to maintain the oscillation of the pendulum. Appearance of the free energy is not in accordance with the energy conservation law. The effect of creating the free energy results from the difference between the work of the orbital damping forces of the lever and the work of the radial damping force of the pendulum motion. This effect enables increase of the input energy. The coefficient of efficiency of the machine can be more than one..

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## I. INTRODUCTION

New and technically original idea - hand water pump with a pendulum - provides alleviation of work, because it is enough to move the pendulum occasionally with a little finger to pump the water, instead of large swings. Using the minimum of human strength in comparison to present classic hand water pumps enables efficient application in irrigation of smaller lots, for water-wells and extinguishing fires even by old people and children, which was proved by a large number of interested future consumers during the presentations

Hand water pump with a pendulum is a realization of a new, original, and even unbelievable, by very simple solution for pumping water. Work is alleviated because easier, long-lasting and effortless use of the hand water pump has been enabled. Input energy for starting the process of pumping, in form of occasional pushing of the pendulum, is much less than with typical hand pumps. Hand water pump with a pendulum for pumping water out from wells or reservoirs consists of a cylinder with a piston, lever system, a seesaw, a pendulum, a reservoir and output water pipe.

To get the water running out of the pump, the pendulum needs to be out of balance. After that, based on gravitational potential, the piston starts oscillating and the continuous stream of water is coming out of the output pipe. The pendulum should be occasionally pushed, to maintain the amplitude i.e. the stream of water. The pump works well with all sizes of the pendulum, but mainly with the amplitude of 90°. The advantage of this invention compared to present hand pump solutions are: less force to start the pump, less water consumption, both arms can be used to fetch the water. The invention is applicable on other devices that use lever mechanisms, such as a hand press etc.

It is possible to pump out a 1200 litres of water per hour, without any fatigue and continue with the pumping.

Both arms are free for fetching water, and both elderly and children can use it, since maintaining the oscillation of the pendulum does not request any special training or dexterity.

Whereas typical hand pumps require significant effort and an average person can use the pump continuously only for several minutes, the hand water pump needs the minimum of the effort, because it is only necessary to swing the pendulum and maintain the oscillation for several hours, without any fatigue.

## II. WORKING PRINCIPLE

The vertical hold is fabricated holding the hinge axel to create the swing action to the chair held on this axel. So whenever this swing is used i.e. it swings. The horizontal beam is made to rotate clockwise & then anticlockwise this, to one end to his horizontal beam another horizontal beam is fixed at 90° to previous beam at central part. Thus whenever the swing, swings this another horizontal beam moves like a see saw. This motion is given to flexible kind of hikes. These hikes are made up of nylon and strakes. These hikes transfer this motion to a chain, either sides of said horizontal beam is converted with separate flexible hills i.e. in all two hikes are used and each of these flexible hikes a separate chain is connected this. The person is sitting condition the axel held within ball bearing at the sides are swinging the chair displaced from resting equilibrium position is to subjecting to the restoring force due to gravity that will accelerate it back towards the equilibrium position when released, the restoring force combined with the persons mass causes it to the oscillate about the equilibrium position, swing back and front. This action is converted to the mechanism rotate the gear set which is coupled to the generator to generate electricity. Another arm which is fixed to the axel is activating the pump to operate connecting to the water tank to fill pressurized air into the each action.

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Now whenever a child enjoying this types of swing, these swings move horizontal hike like a see saw fashion style. This horizontal like thereby pulls and release flexible link those one connected to chains. These chains run over a free wheel and thereafter are connected to the fever using ring rubber.

In each pull of the flexible link the chain there by is pulled that rotate the free wheel, this free wheel then transmits mechanical energy to the axis of shaft that further delivered this energy to flywheel that rotate the generator that is in direct physical contact with the flywheel thus electricity is produced which can be stored and later on.

In each release the same flexible link the mite then by chain is released and motion is not happened to axis using free wheel. Meanwhile simultaneously the other unlike is pulled thus operation is continued. This is how this project is made and works.

#### **ADVANTAGES**

- Avoiding human strain.
- Easy way for pumping water
- Low cost
- More water pumping.
- Population free electricity generation
- simple mechanism
- This power can be stored in battery array so

as to use it further

#### **DISADVANTAGES**

- Require periodic checkup
- Implementation cost is bit higher then overall average production but still manageable bring pollution free
- Would intermittently

#### **3DDIAGRAM**



#### **APPLICATION**

The concept used in this project work can be used following steps:

- Widely used in rural areas.
- Useful for poor people.
- Public places.
- Bus stops.
- Collages etc.
- School
- Nursery
- Playhouse
- Playground
- They are widely used in computer disk drives, tape recorders, CD drives, and other electronic devices.

#### **SCOPE OF DESIGN**

The designed drainage system cleaner has three parts. Problems were encountered powering the system with electricity or any other energy source as it was not ideal. The system is not dependent on electricity or any form of chemicals for power source because these sources could not stand the harshness of the effect of the rain and the running water, thus it's first part is The Propeller which generates energy from action of the running water which it converts to transmits it to The Cleaner which is the second part, the propeller being the power house of the machine also transmits motion to the third part The Pan which takes the waste materials into a safety trash can.

#### **Hand Pump**

Hand pumps are manually operated pumps; they use human power and mechanical advantage to move fluids or air from one place to another. They are widely used in every country in the world for a variety of industrial, marine, irrigation and leisure activities. There are many different types of hand pump available, mainly operating on a piston, diaphragm or rotary vane principle with a check valve on the entry and exit ports to the chamber operating in opposing directions. Most hand pumps have plungers or reciprocating pistons, and are positive displacement.

#### **12 V DRIVE MOTOR**

The blade motor used is a 12-volt electric motor. The blade motor is a permanent magnet motor that operates on the 12-volt battery, which gives the motor enough power to turn the steel blade at high speeds. The design of the blade motor will remain consistent to that of other electric mowers except that the microcontroller with a relay onboard will control it.

#### **SPOCKET**

A sprocket or sprocket-wheel a profiled wheel with teeth, cogs, or even sprockets that mesh with a chain, track or other perforated or indented material. The name 'sprocket'

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applies generally to any wheel upon which are radial projections that engage a chain passing over it. It is distinguished from a gear in that sprockets are never meshed together directly, and differs from a pulley in that sprockets have teeth and pulleys are smooth.

Sprockets are used in bicycles, motorcycles, cars, tracked vehicles, and other machinery either to transmit rotary motion between two shafts where gears are unsuitable or to impart linear motion to a track, tape etc. Perhaps the commonest form of sprocket is found in the bicycle, in which the pedal shaft carries a large sprocket-wheel which drives a chain which in turn drives a small sprocket on the axle of the rear wheel. Early automobiles were also largely driven by sprocket and chain mechanism, a practice largely copied from bicycle

**Bearing**

Bearing is a machine element, which supports another machine element. It permits a relative motion between the contact surfaces, while carrying the load. In this automobile gearbox roller bearings are adopted. The ball or roller bearing consists of an inner race, which is mounted on the shaft or journal, and the outer race, which is carried by the housing or casing. In between the inner and outer race there are balls or rollers. A No. of balls or rollers is used and these are helped at proper distance by retainers so that they do not touch each other. The retainers are this strip and usually in two parts, which are assembled after the ball bearings are used for light loads and roller bearings, are used for heavier loads.

**Shaft**

A shaft is a rotating element, which is used to transmit power from one place to another. The power is delivered to the shaft by some tangential force and the resultant torque or tensional moment set up within the shaft permits the power to be transferred to various machines linked up to the shaft, in order to transfer the power from one shaft to another the various members such as pulleys, gears etc, are installed on it.

**Flywheel**

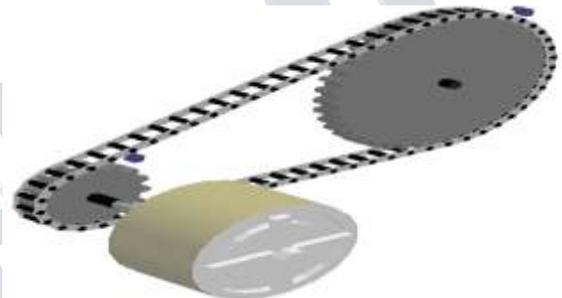
A flywheel is a rotating mechanical device that is used to store rotational energy. Flywheels have a significant moment of inertia and thus resist changes in rotational speed. The amount of energy stored in a flywheel is proportional to the square of its rotational speed. Energy is transferred to a flywheel by applying torque to it, thereby increasing its rotational speed, and hence its stored energy. Conversely, a flywheel releases stored energy by applying torque to a mechanical load, thereby decreasing its rotational speed.

A freewheel is a transmission that disengages the driveshaft from the driven shaft when the driven shaft rotates faster than the driveshaft. The simplest freewheel device consist of two saw-toothed, spring-loaded discs pressings against each other with the teeth of the driven disc, making it

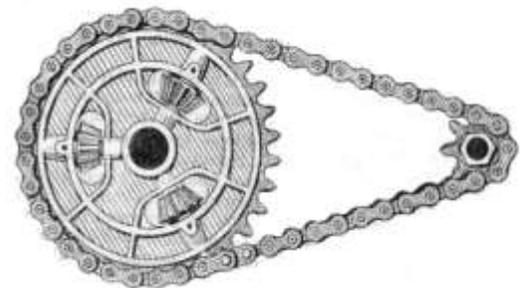
rotate at the same speed. If the drive disc slows down or stops rotating, the teeth of the driven disc slip over the drive disc teeth and continue rotating.

**III. DRIVING MECHANISM**

The driving mechanism is made compact and simple and fitted in the gap between the frame and the wheelchair, making it possible to make a wheelchair of a simple structure providing forward efficiency at low cost. According to this, a wheelchair with an operation lever is provided which makes that is easy to reciprocate for moving the wheelchair forward.



**CHAIN DRIVE**



- Chain drive is a way of transmitting mechanical power from one place to another. It is often used to convey power to the wheels of a vehicle, particularly bicycles and motorcycles. It is also used in a wide variety of machines besides vehicles.

- Most often, the power is conveyed by a roller chain, known as the drive chain or transmission chain, passing over a sprocket gear, with the teeth of the gear meshing with the holes in the links of the chain. The gear is turned, and this pulls the chain putting mechanical force into the system. Another type of drive chain is the Morse chain, invented by the Morse Chain Company of Ithaca, New York, USA. This has

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inverted teeth.

- Sometimes the power is output by simply rotating the chain, which can be used to lift or drag objects. In other situations, a second gear is placed and the power is recovered by attaching shafts or hubs to this gear. Though drive chains are often simple oval loops, they can also go around corners by placing more than two gears along the chain; gears that do not put power into the system or transmit it out are generally known as idler-wheels. By varying the diameter of the input and output gears with respect to each other, the gear ratio can be altered, so that, for example, the pedals of a bicycle can spin all the way around more than once for every rotation of the gear that drives the wheels.

- Rotation of camshafts in an engine may be by gears or by chain turned by the main crank. The disadvantage of using gears is difficulty in alignment, lubrication and disadvantage to wear from foreign materials as well as their increased cost. The disadvantage of chains is the requirement for tensioning and their finite life. Although for large installations this can be very long.

### Battery

Introduction: If you designed a dam for a lake, you could choose to let the water out fast or slow. The faster you let the water out the more power you could create, but the sooner the lake would be empty. On the other hand, the slower you let the water flow through the dam the available power would be less, but the power would last much longer. And so it is with batteries.



The need to release vast amounts of electrical power to enable an electric starter completely dominates the design of the battery. Therefore, batteries fall into 2 categories: those for use with electric starters and those without. Batteries that give up huge amounts of power for an electric starter are physically different from batteries designed for long storage life. This is why you may see so many types of batteries when you go to the battery store

### IV. COST ESTIMATION

S.NO	COMPONENTS	QUANTITY	COST (in Rupees)
1	Gear Motor	1	4500
2	Spur gear & sprocket	4	3000
3	Chain drive	2	1000
4	Bucket & mesh	8	1500
5	Shaft and raw material	2	1200
6	Conveyor	1	1300
7	Battery	2	4000
8	Solar panel	1	3500
<b>Total</b>			<b>20000</b>

### V. CONCLUSION

The project then worked out displays results as expected. The free energy of the machine based on oscillation swing action system, is defined in this study, as a difference between the resulting energy of the machine and the energy input from the environment in the same time interval. Existence of the free energy defined in this way is not in accordance with the energy conservation law, but it has been verified experimentally and it can be explained.

The electricity procedure using swing electricity generation is pollution free. Required manufacturing cost so it can be looked upon as a probable solution for partial fulfillment of energy demands. The future of swing electricity generation appears to be good not only regarding Indian context but the whole world as well.

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**REFERENCES**

1. [www.electricityforum.com/electricity-generation.htm](http://www.electricityforum.com/electricity-generation.htm)
2. [www.omafra.gov.on.ca/english/engineer/facts/03-047.htm](http://www.omafra.gov.on.ca/english/engineer/facts/03-047.htm)
3. [www.powerauthority.on.ca](http://www.powerauthority.on.ca)
4. [www.epa.gov/landfill/docs/generating.pdf](http://www.epa.gov/landfill/docs/generating.pdf)
5. [www.iseis.org/EIA/pdfstart.asp?no=06044](http://www.iseis.org/EIA/pdfstart.asp?no=06044)
6. [www.nzqa.govt.nz/nqfdocs/units/pdf/19325.pdf](http://www.nzqa.govt.nz/nqfdocs/units/pdf/19325.pdf)

