

# OSCILLATIONS MORE EFFICIENT THAN ROTATION

## ENERGETIC SUPERIORITY OF A PENDULUM VERSUS A WHEEL IN STATIONARY MACHINES

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The wheel is probably the most important invention of all times, present in almost every machine, and contemporary constructors still rely on all its versions. However, there were big cultures and civilizations in South, Middle and North America which didn't know for the wheel– or the opposite is not confirmed.

Predecessor of the wheel is found in prehistory as a wooden roller, but the shaft was missing for it to be the real wheel.



According to present findings the first pottery wheel was made in Mesopotamia 5,500 years ago. A wheel with spokes was found 4,000 years ago and in the course of the time there will be countless number of fanciful constructions similar to the wheel or wheels. The flywheel, i.e. massive wheel, is used for stabilization and accumulation of mechanical energy, and belts and gears for transmission...

Similar form is accepted as the best solution, widely found in motive devices as turbines in electric power plants.



Pelton's turbine



Francis's turbine



Steam turbine

Last years, duration of rotation was examined for various kinds of wheels, flywheels, disks, gears and belts due to inertia.

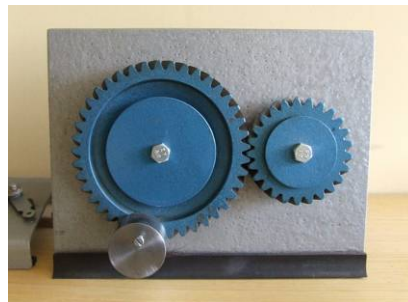


Novi Sad  
Novo naselje



Petrovaradin  
Preradovic street

Water pumps with massive wheel – flywheel from cast iron: rotation lasted 2-3 seconds.



Transmission and reduction gears: rotation lasted 1 -2.5 sec.

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Flywheel with mass of 20 kg: rotation lasted 1 min. – 1 min. 12 sec.

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<http://www.youtube.com/watch?v=6ZfamxrIQgU>



<http://www.youtube.com/watch?v=NW7wKg6OSFg>



<http://www.youtube.com/watch?v=q4Tc1U1Tg34>

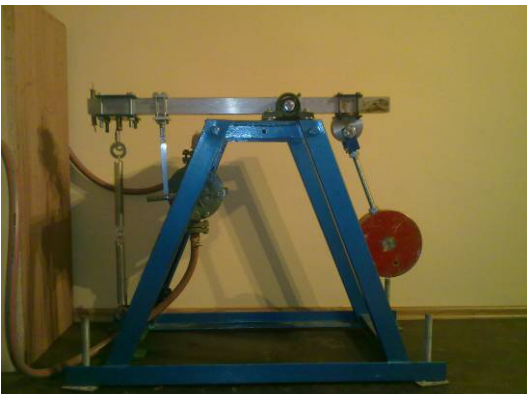
From internet: Various wheels from rollers, motorcycles, and bicycles... with steel and ceramic bearings – rotation lasted from 6 seconds – 8 minutes.

The shape of the wheel should not be accepted as the best solution because oscillations of a pendulum lasts much more time, and we will examine it next.

### Experiments with a Pendulum



Mechanical hammer with a pendulum



Water pump with a pendulum

Pendulum weights 0.4 – 12 kg with steel ball bearings – oscillation has lasted from 20 min. to 2 hours and 10 min.

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Improved models with flat wire 0.5 -1 mm – elastic pendulum

Oscillations lasted from 2 - 9 hours with weight of 0.7 - 1.8 kg.

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Notes for models with a pendulum:

All trials were performed without the usage of new technologies, but mainly by recycling of old materials. Therefore, significantly better results can be expected by the usage of new materials and technologies i.e. ceramic bearings.

The call is open as well as preposition for all interested parties to perform re-examination and expertise of superiority of the pendulum in comparison with the wheel in the case of stationary machines.

Besides that a thesis can be envisaged about filling up emptiness in development of techniques by application of a driving pendulum, new mechanical ideas can accomplish development in other areas of the science and the technology.



Mechanical calculators and mechanical computers from previous centuries are deserved for development of the electronic computers

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