PRECISE MEASURING OF INPUT AND OUTPUT ENERGY IN THE TWO STAGE MECHANICAL OSCILLATOR OF VELJKO MILKOVIC

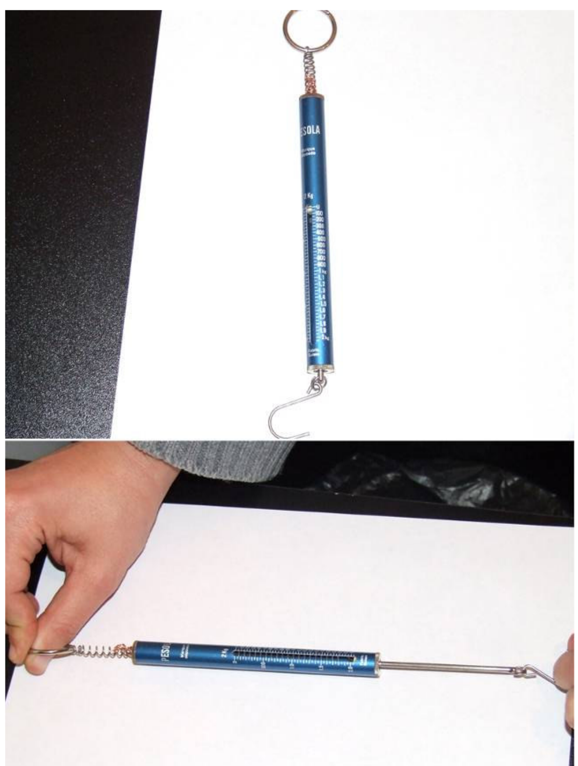
Introduction

This is the first experiment where the calculated energy surplus of Veljko Milkovic's two-stage mechanical oscillator has been precisely calculated (www.veljkomilkovic.com).

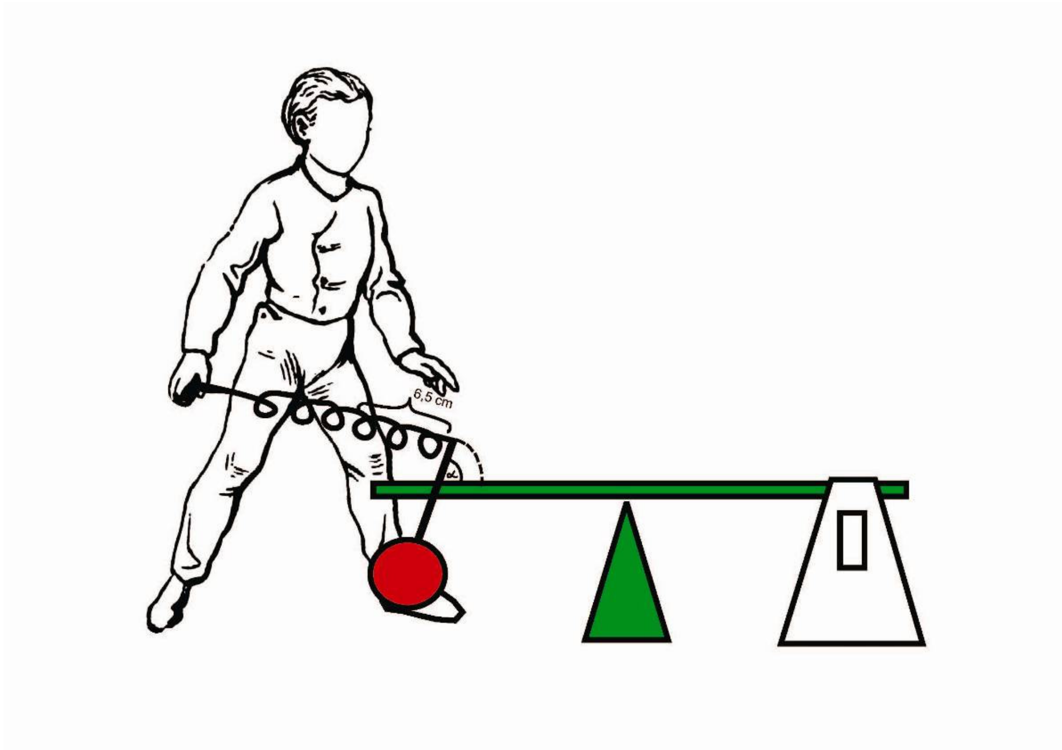
I put an adaptive device connecting to a generator on the second arm of the lever of the oscillator. I measured the power in the generator created by the lever arm.

I kept the oscillation of the lever arm by manually influencing the pendulum with a fish scale (dynamometer) connected to the handle of the pendulum.

I kept pulling the fish scale along horizontal axis. Then I calculated energy spent on oscillation of the pendulum by calculating coefficient of elasticity of the spring (in the fish scale) and by measuring the horizontal path of the pendulum extension, connected to the fish scale. At the end, I calculated the quotient of the input and output energy in the unit of the time (quotient of the input and output power).



Picture 1. Dynamometer or fish scale used in this experiment



Picture 2. The process of execution of the experiment.

Experiment

In this experiment I measured the quotient of input and output energy in the two stage mechanical oscillator of Veljko Milkovic.

The invested energy which kept the pendulum in oscillation has been calculated by using the coefficient of elasticity of the spring in the fish scale and output energy has been measured by using a generator.

This experiment consists of three parts:

1) **Measuring the coefficient of elasticity of the spring**

Because the scale of the dynamometer was linear, it can be assumed that the force of tension of the spring was also linear.

$$F = kx$$

Weight of mass of 1.65 kg had extended the fish scale for 5cm. Because of that

$$k = \frac{F}{x}$$

$$k = \frac{mg}{x} = 1.65 \cdot \frac{9.81}{0.05} = 323.73$$

2) Measuring of input power

As has been stated, the dynamometer has been connected to an extension of the pendulum's arm. The oscillation of the pendulum has been maintained by extension of the spring to its maximum length.

Once the spring had been extended to its maximum length of $x = 6.5\ cm$, extension of pendulum handle had moved from point 1 to point 2 and passed the distance of $y = 2x$.

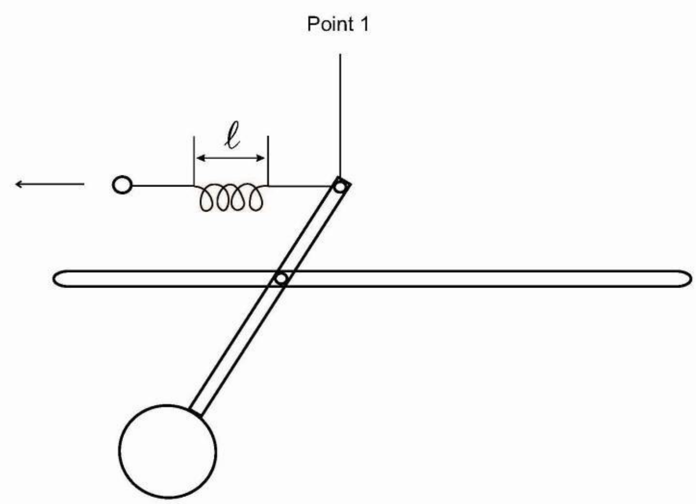


figure 1

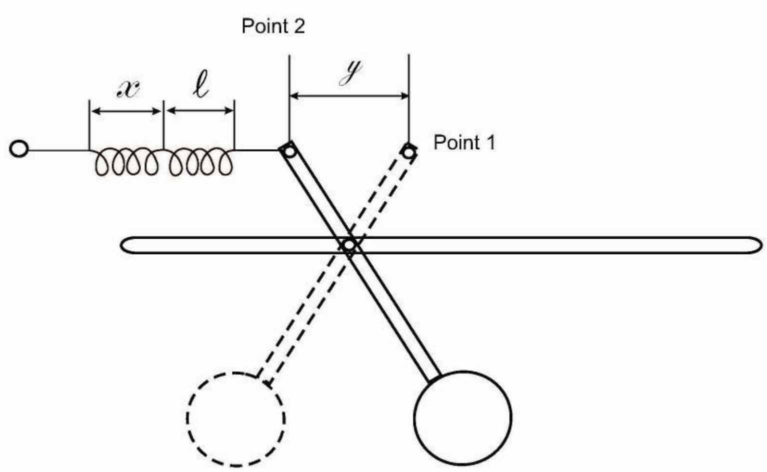


figure 2

The work of force $F = kx$ along the path y is:

$$A = \int_0^y F(x)dy = 2\int_0^x kxdx = 2k\frac{x^2}{2}\Big|_0^{6.5cm} = kx^2 = 1.368J$$

The spring was being extended to its maximum length once per second on average.

Therefore the input power was:

$$P = 1.368 \ W$$

3) **Measuring of output power**

In the same time that the pendulum was kept swinging, I measured the average voltage on the generator of $U = 5\ V$. A load was connected to the generator with a resistance of $R=8\ ohm$. Therefore average power obtained on the generator was:

$$P_{out} = \frac{U^2}{R} = 3.125 \ W$$

Taking into account everything said above, the conclusion is that:

THE QUOTIENT OF INPUT AND OUTPUT POWER (AND ENERGY) IS:

3.125 / 1.368 = 2.284

Important note:

In order that the applied force on fish scale should influence the pendulum maximally, it is necessary that the force always have the same direction, which is tangential to the extension of the pendulum handle. It can be seen in the picture that I didn't do that in order to make the calculation and measuring simpler. I pulled the fish scale in a straight line horizontally and in this way, the influence of the applied force has been diminished. This means that the real quotient of input and output energy was bigger than that which was calculated.

Conclusion

This is one of the most convincing proofs that energy surplus exists in the two stage oscillator, invented by Veljko Milkovic. The only point where validity of this experiment could be denied is in the precision of the measurements of the distance that the handle extension passed, because it has not been recorded on camera. I had estimated the distance visually, but in order to increase objectivity of the experiment, I increased the distance two times.

Therefore, the distance between point 1 and point 2 passed by the extension of the pendulum handle was approximately $y = x$. This means that real quotient of input and output energy could be doubly bigger than given above.

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Jovan Bebić

e-mail: bebic.jovan@yahoo.com