

# THEORY OF GRAVITY MACHINES

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## ABSTRACT

This work is a presentation of simple theory of using conservative gravitational field as a fuel. In order to extract energy from conservative field, gravity shield effect is necessary. With proper usage of the shield, variable gravity field should be created in part of a system. Energy can be extracted only if difference in potential exists between two poles. The logic of this theory will also be used to explain two-stage mechanical oscillator of Veljko Milkovic and areas of its improvement.

*Key words: gravity machine, gravity shield, over unity, pendulum.*

## INTRODUCTION

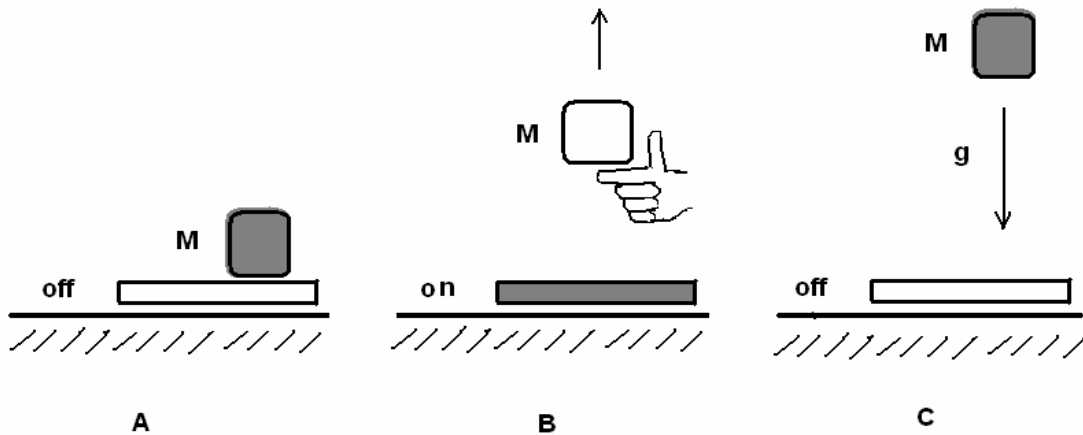
It is obvious fact that energy used in any machine is kinetic energy received directly from other system by transmission or by conversion of some kind of potential energy into kinetic energy. Our quest is the usage of conservative gravitational field as possible fuel for a machine. Gravitational field of a moving planet is already used for acceleration of space ships and is named gravity assist or slingshot. The problem is with conservative gravitational field where its magnitude is the same in any point of the space. Such field can perform work only once, by moving a body from its high position to its low position. In order to repeat the process some outside force must move the body to its high position again. For doing that, the force must perform the same amount of work as the field in question, assuming there was no any friction or other resistance in the system. This is the reason that official science is refusing any idea of using a conservative field as energy source for a machine.

Some time ago author has seen some pictures with an idea of using gravity shield for gravity energy extraction (if the shield was ever invented) in a book written by Mr. Veljko Milkovic. That idea was never again mentioned by Mr. Milkovic because such a shield is not discovered yet. However, author can see similar effect as gravity shield in behavior of a pendulum used in two-stage mechanical oscillator invented by Mr. Milkovic <sup>[1]</sup>. This simple theory is very important to grasp in order to understand any possible gravity machine.

## GRAVITY SHIELD

Here will be analyzed an example of using a hypothetical gravity shield shaped as a plate, see *picture 1* bellow. Initially the shield is turned off and body with mass  $M$  is resting on the shield, see figure A. Turning off could also mean to move the shield aside and turning on to put it bellow the mass.

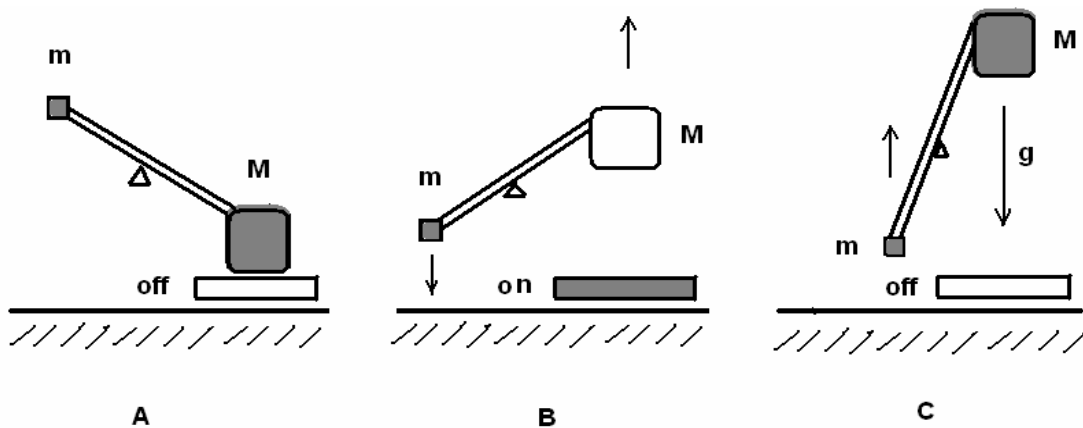
On figure B the shield is turned on and gravity doesn't have influence on mass  $M$ . It is easy to move the mass upward with a finger of the hand. Note that inertia of the mass still exists and some energy is still necessary to invest in order to push the mass in any direction.



Picture 1

Once the mass come to desired height the shield is turned off again and the mass  $M$  will fall down. Obviously the mass on figure C will transform all its potential energy into kinetic energy once it reaches the soil.

Instead of using hand for raising the mass upwards, simple gravity machine can be made as down on *picture 2*.



Picture 2

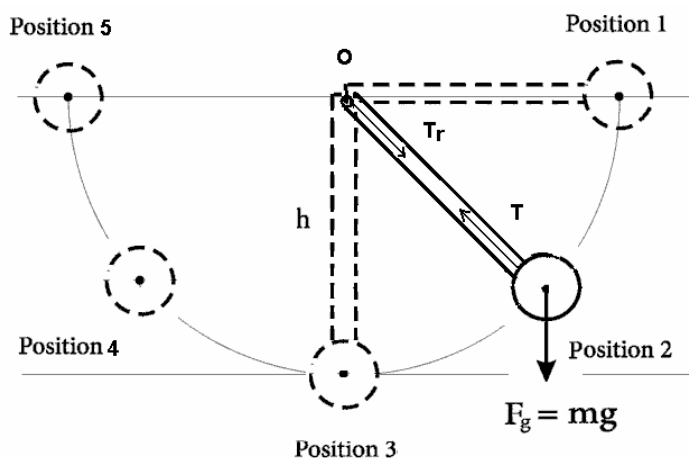
The work of the machine is obvious. After turning on the shield, as on figure B on above picture, the weight of mass  $m$  will be able to overcome inertia and to move bigger mass  $M$  upwards. After some period of time mass  $m$  will go down to its low position and mass  $M$  up to its high position. The shield is turned off again, as on figure C, and mass  $M$  will prevail smaller mass  $m$  and fall down again as on figure A.

The process can be repeated continuously by turning the shield on and off at right times. This way gravity energy can be extracted from conservative field. Of course, we assumed here that energy spent for turning the shield on and off was smaller than energy extracted from gravity field, otherwise the shield would be useless.

### PENDULUM AND GRAVITY SHIELD EFFECT

It is well known fact that so called Faraday's cage will protect anybody inside it from outside electrostatic charges. Ferromagnetic plate will lead magnetism around and serve as protection for nearby electric circuit. Because nobody invented passive gravity shield yet, only solution left is to create similar effect dynamically. One such device is the pendulum, see below *picture 3*.

Potential energy of the pendulum raised to height  $h$  (in position 1) is  $m g h$ . Potential energy would start converting to kinetic energy once the pendulum bob was allowed to fall freely. Conversion is finished when pendulum comes to low position 3. Velocity of the pendulum bob is also greatest in low position 3. In that position tension force  $T$  inside the handle of the pendulum is three times greater than weight of the pendulum and equals to the sum of the weight and Centripetal force. According to third Newton's law equal force of reaction  $Tr$  exists in pivot point of the pendulum  $O$ . Pivot point  $O$  only 'feels' reaction force  $Tr$ .



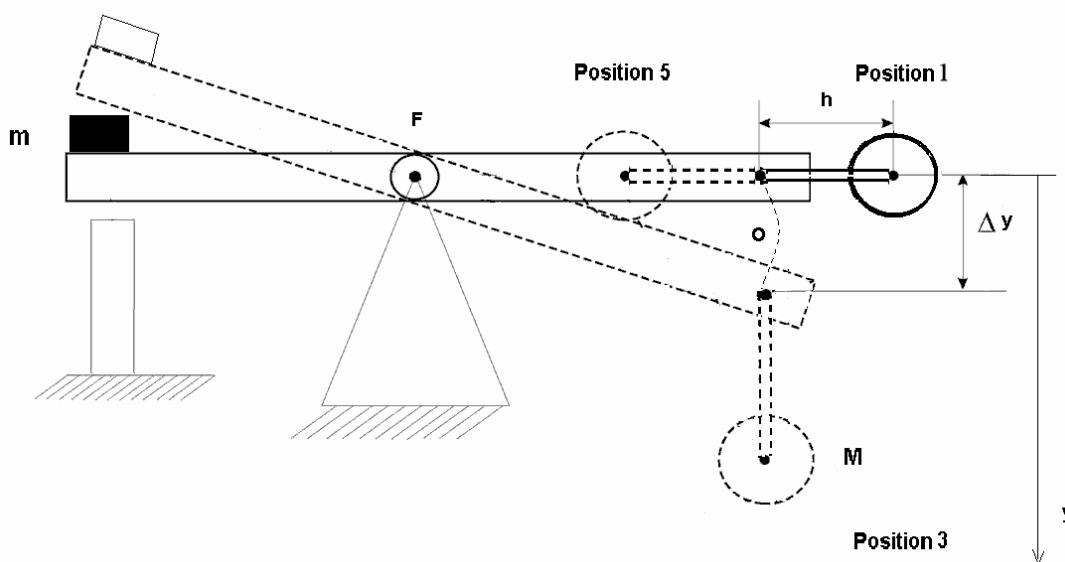
Picture 3

When pendulum start raising up it will start converting some of its kinetic energy to potential energy again and lose some of its velocity. Velocity of the pendulum in position 5 will become zero like in position 1. When velocity becomes zero Centripetal force and its reaction known as Centrifugal force are also zero. Because weight of the pendulum in position 1 and 5 has angle of 90 degrees against the handle, tension force  $T$  and its reaction  $Tr$  are also zero.

This could be strange for some people, but it is easy to test. Take pivot of the pendulum in your hand and swing it from  $90^{\circ}$  to  $-90^{\circ}$ . It is easy to notice that pendulum really lost its weight in position 1 and position 5. However, if position 1 of the pendulum is not  $90^{\circ}$  then reaction force would not be zero in end positions. People interesting in mathematical formula for tension force  $T$  can find it in my other work [2].

Most important thing here is the fact that pivot point  $O$  feels no force in position 1 or position 5. For it, it is the same as if pendulum lost its mass  $m$  or gravity acceleration  $g$  became zero. So, gravity shield effect become real for pivot point  $O$ .

Looking up on *picture 2* again it can be seen that gravity machine from *picture 2* could be created by changing mass  $M$  with pivot point  $O$  of the pendulum from *picture 3*. Turning gravity shield on from *picture 2* would correspond to position 1 or position 5 from *picture 3*. Turning shield off from *picture 2* would correspond to position 2 till position 4, on *picture 3*, because in that area reaction force  $Tr$  would become strong enough to prevail mass  $m$  from *picture 2* and pull it up. Such a machine invented Mr. Veljko Milkovic and named it two-stage mechanical oscillator, see picture below.



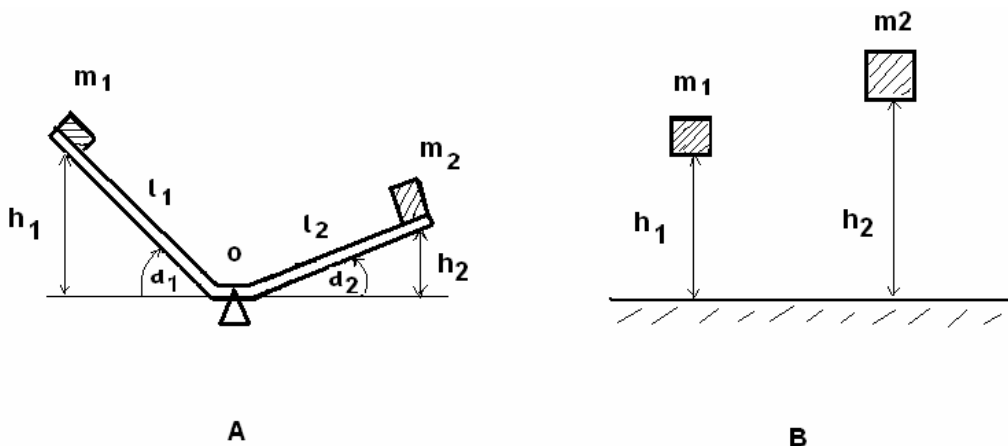
Picture 4

Mass  $m$  in above machine is performing useful work while pivot point  $O$  of the pendulum keeps going up and down like mass  $M$  on *picture 2*. Reaction force  $Tr$  in pendulum handle plays the role of weight of the mass  $M$  from *picture 2*.

Important thing to answer is how much energy should be spent to keep pendulum operating as gravity shield. If the cost was smaller than energy obtained from mass  $m$  than it would be an over unity machine which gives more energy out than it received in. The source of over unity energy in this case wouldn't be any 'zero point' or cosmic aether but gravity field itself.

## ENERGY BALANCE OF GRAVITY MACHINE

Author has seen some pendulums which were able to swing over two hours when their pivot point was fixed and they were initially raised to position 1 and left to swing by their own. Unfortunately they lost most of its energy after a half minute when they were used in two-stage mechanical oscillator. This behavior caused great debate about energy balance of the machine and possibility of using gravity energy as a fuel. Author also has seen several scientific works with a claim that machine can not create energy surplus. However, all of them had serious error concerning description of total energy of the system. Their description would be valid if machine were like a system on *picture 5* bellow.

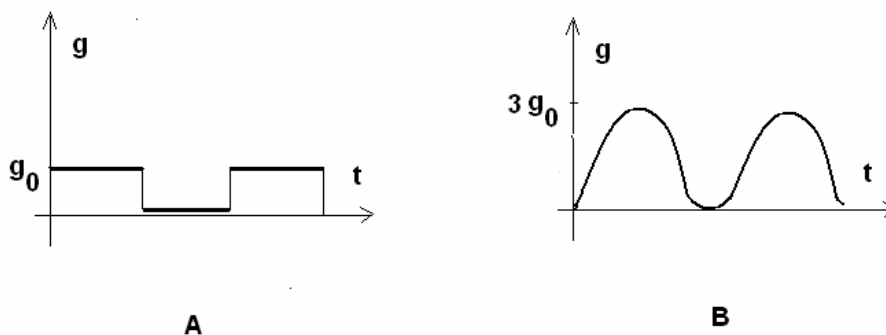


Picture 5

On figure A both masses are connected with levers and therefore their heights and angles are also connected and can easy be calculated as well as their total energy. Total energy of system on figure B is simple summary of individual potential and kinetic energies for both masses.

Two-stage mechanical oscillator from *picture 4* is different. If lever arm with mass  $m$  were pressed against the pillar and stopped to move, the pendulum would continue to swing. Opposite is not valid. So, the pendulum and the lever are connected in one direction only. The same situation is on *picture 2*.

Turning on and off gravity shield would affect masses on *picture 2*, but masses can not affect the shield. In order to make correct mathematical model for two-stage mechanical oscillator, first should be made mathematical model for machine from *picture 2* and then the same logic should be applied for oscillator. Important thing to note is that gravitation field under mass  $M$  on *picture 2* looks like figure A bellow and that reaction force  $Tr$  in pivot point  $O$  on *picture 4* looks like figure B bellow.



Picture 6

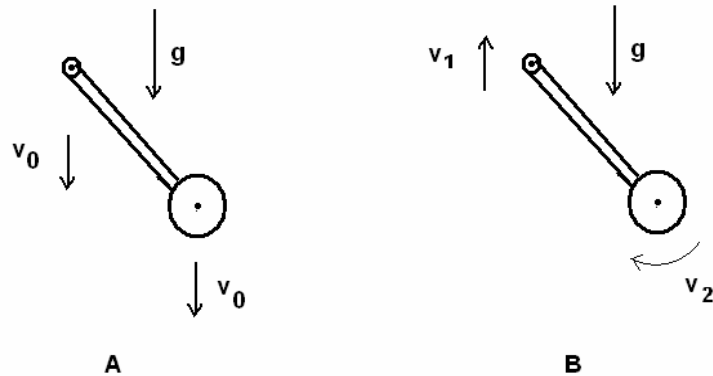
Practically, right half of the system on both pictures has variable gravitation field and not conservative. This is the source of energy surplus. Energy can be extracted only if there is a potential difference in a system.

Taking above in a mind it is important to analyze energy cost for making potential difference in the system or making variable gravitational field effect. If this cost was smaller than energy extracted from gravity, by left side of system from *picture 4*, than two stage oscillator works in over unity mode.

## PENDULUM WITH MOVABLE PIVOT POINT

It already has been said that pendulum with fixed point can swing over two hours and that the same pendulum in two-stage oscillator was able to move lever with mass  $m$  only for half a minute. To extend pendulum swinging for only couple of minutes would create significant over unity behavior of the oscillator.

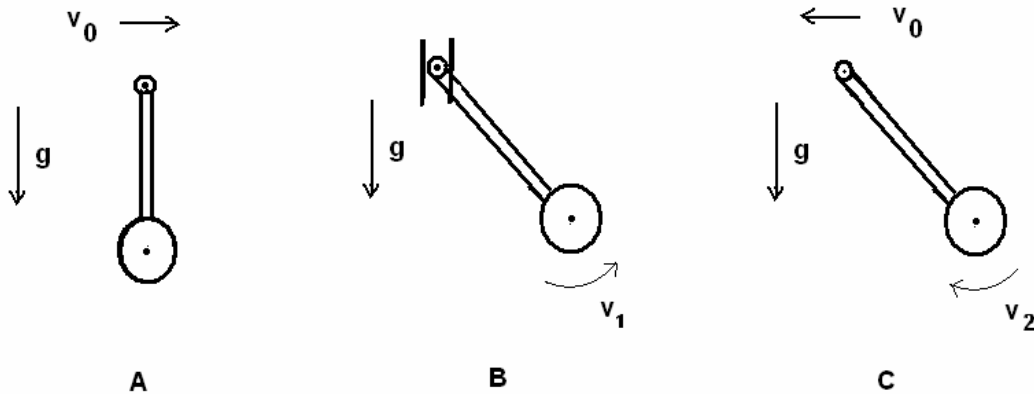
In order to understand the problem with movable pivot point let's look oscillator on *picture 4* again. It can be seen that pivot point  $O$  keeps moving along circular path of the lever with total vertical movement  $\Delta y$ . Horizontal movement also exists, but it is at least double smaller than vertical. To understand importance of these movements, several experiments should be performed as on pictures bellow.



Picture 7

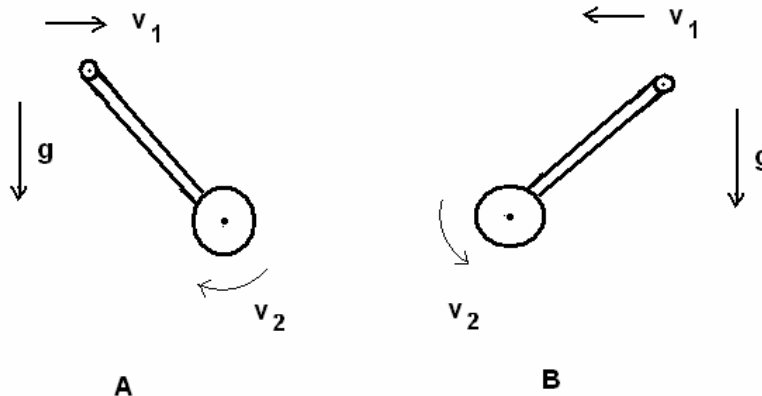
On figure A pendulum is dropped to fall freely in gravity field with acceleration  $g$ . Velocity of pivot point and pendulum bob is the same and pendulum can not swing because bob is not fast enough to go around pivot point. Effect is the same as if pendulum bob was hanged for pivot point in free space where gravity acceleration  $g$  was zero. Practically, acceleration of pendulum was subtracted from acceleration of gravity field and because they were the same effective acceleration was zero. This experiment can be performed by taking pivot point in left hand and pendulum bob in right hand. In the same moment when pendulum bob was released, left hand should be moved downwards fast. It can be noticed easy that pendulum can not swing.

To perform experiment of figure B, left hand should be moved fast upwards in the same moment when pendulum bob was released from right hand. It can be noticed that pendulum will swing much more than if left hand was at rest and pendulum was left to swing by its own weight. The result is the same as if acceleration of the left hand was added to the acceleration of gravity field.



Picture 8

Take pivot point of the pendulum and move it horizontally to the right with some velocity  $v_0$  as on figure A on above picture. Stop movement of the pivot point suddenly as on figure B. Pendulum bob will continue to move by inertia and will have to swing because of restriction of the handle. When pendulum bob start coming back, move pivot point to the left as on figure C and stop suddenly again. The swing will be increased.



Picture 9

Keep moving pivot point in opposite directions of the swing of pendulum bob as on above picture. The swing will be increased much more than in experiment on *picture 8* and pendulum bob will try to make full circle. However, the pendulum has its own period of time to complete full swing and if above opposite movements are not coordinated with the movement of pendulum bob they will stop swinging of the pendulum.

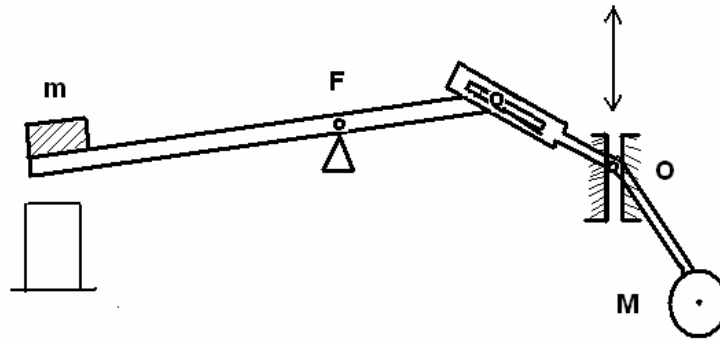
Conclusion for above experiments for vertical and horizontal movements of pivot point is the following: If pivot point moves in the same direction as pendulum bob, the pendulum will not swing until pivot point suddenly stops its movement. If pivot point moves in opposite direction of pendulum bob, the pendulum will rapidly increase its swing if the timing was right and didn't corrupt rhythm of pendulum natural swing, otherwise it will stop the swing.

### Extending the Time of the Swing

In order to improve two-stage mechanical oscillator it is necessary to extend the time of pendulum swing. Because movement of pivot point directly affects the swing it is the place which should be analyzed. Mr. Milkovic found that oscillator has better performance if lever arm on pendulum side was shorter than lever arm on the side with mass  $m$ . It is obvious that shorter lever arm will make shorter movement of pivot point  $O$  and thus less affect the swing. For practical purposes lever arm on pendulum side should be at least double shorter than opposite one, but no shorter than 3.5 times.



Author also tried to fix the problem for a wooden model he made, but found that it is necessary to use precise mechanic devices in order to do that. Details and problems are described in his work <sup>[3]</sup>. It would be the best to go step by step and fix one problem in a time. For example, first should be eliminated horizontal movement of the pivot point by constructing oscillator as down on *picture 10*.



Picture 10

For model on above picture only vertical movements should be analyzed as horizontal ones are eliminated by putting pivot point *O* in a pipe with slits.

For vertical movements two areas are to be investigated. Pendulum from *picture 3* will have enough Centrifugal force and tension in the handle to move pivot point down from position 2 till position 4. Note that from position 2 till position 3 pendulum bob and pivot point are moving downwards, in the same direction, without sudden stop of the pivot point. This will have tendency to stop swing of the pendulum. From position 4 up till position 5 and back till position 4 pendulum will be in weightless state (gravity shield turned on). From experience it is known that pivot point will suddenly go up from position 4 before pendulum comes into position 5. This means that both, pivot point and pendulum bob, are going up in the same direction and that will also have tendency to stop the swing.

It would be very beneficial to use lock system and to lock the pivot point (or the lever) and allow it to go down some time after position 2, but before position 3 because from experience it is known that lever arm and mass *m* have inertia and needs some time to move. Even better would be to lock pivot point and stop it to go up rapidly until pendulum comes into position 5. It will have enough time to go up when pendulum bob starts moving back towards position 4.

## CONCLUSION

Energy can flow only between two poles with different potential. In order to have different potential the poles can not be in constant field of tension like conservative field. Because gravity field on surface of the planet has constant magnitude the difference must be artificially created. Because nobody yet found any physical material to serve as gravity shield, like iron plate against magnetic field, the only way left is to create similar effect. Alternative pull and relaxation of Centrifugal force in pivot point of the pendulum is one way to create similar effect as gravity shield. This logic was applied in two-stage mechanical oscillator invented by Mr. Veljko Milkovic.

Author has discussed logic of this oscillator and pointed out a way to improve its behavior. Shortly, the pivot point should have some lag before moving up or down until pendulum comes in position that its pivot point and its bob move in opposite directions.

Unfortunately author alone wasn't able to close feedback loop because of the problems described in his above mentioned work <sup>[3]</sup>. The reason was lack of sophisticated devices to lock and release the lever arm in appropriate time when pendulum bob comes in right position. The usage of simple springs and levers with some manual interferences wasn't good enough to control behavior of the oscillator. Author left to enthusiastic people, who have better tools and devices on their disposal, to finish the job and improve oscillator.

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