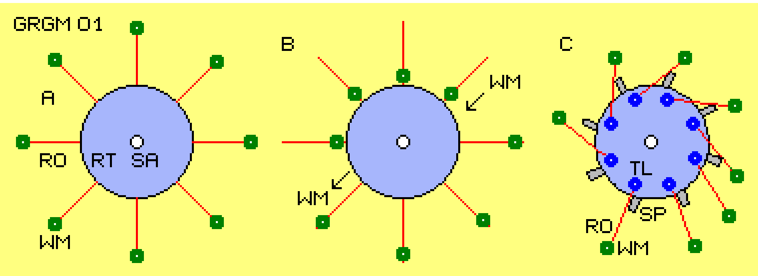
Alfred Evert

Link-Ring - Gravity-Engine
- the Bessler-Wheel -

The Secret
Johann Bessler said: "Rotation, gear! However not a normal gear wheel but one which is turning not really round. It hits." At least a viewer did feel that when promising Bessler to become famous and finally his invention would be honoured. At least this reports Manfred Jelinski at his Remote Viewing Textbook, part 4, pages 184ff (only available in German). In 2012 Bessler´s invention is 300 years old - and thus it´s high time to make good previous premise by building a pure mechanic autonomous turning wheel.

Years ago I reported about Remote-Viewing sessions concerning Bessler (alias Orffyreus), e.g. by chapters Visiting Bessler and Remote-Viewing. Like many other researchers, I made numberless analyses of rotor-systems and developed many conceptions. Dozens of proposals I published at the web (best to find via Index / Sitemap) - which all were rather useless as no real running machine resulted (like other thousands of constructions and experiments were in vain). Nevertheless I dare to offer one more proposal for solving the problem - representing Bessler´s ´uneven-hitting gear-wheel´.

Relentless Lever-Law
At picture GRGM 01 some terms are introduced and two principle solutions are sketched. Generally exists a central shaft as system axis (SA). Parts fix mounted at the shaft here are called rotor-hub (RT, blue, German Rotorträger). Any kind of lever arms represent the rotor (RO, red), at which the effecting masses (WM, green) are mounted fix.



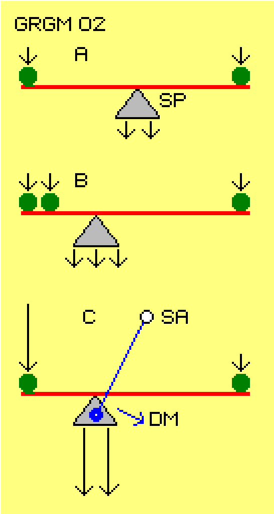
At a free turning wheel (like at A, assumed left-turning all times), at the one hand gravity forces are affecting and at the other hand inertia affects in shape of centrifugal forces. At different phases of turning, resulting force shows into different directions with different strengths. Finally all forces are concentrated at system axis - and in general compensate each other in total (besides weight at bearings of shaft).

At the middle of this picture at B, frequent used principle is sketched, where effective mass at one side is guided outward and at opposite side the mass glides inward (see arrows). No matter which technology is used - no static imbalance comes up. If that sideward motion in addition is supported by any measures, also no energy surplus was achieved up to now.

At this picture right side at C an other often used principle is sketched. Effective mass (WM, dark green) is mounted at pendulum-arms (RO, red), which are turnable around a bearing (TL, dark blue) of rotor-hub (light blue). At upward-phase (right) the pendulum hangs down, so mass is guided upward at relative short lever. At downward-phase (left) the pendulum can swing out. The mass falls down and achieves relative strong kinetic energy. The falling ends, here e.g. when pendulum hits onto a support (SP, grey). The effective mass becomes decelerated and turning momentum is affected at rotor-hub.

By this technology, much more energy is working - however the forces disappear by majority based on impulsive transfer of forces. At upward-phase masses well are positioned at short lever - however there are more masses than at downward-side. While free falling of masses, they merely weight onto rotor-hub. This static imbalance at best is balanced by previous impulse. However, even when for example some spring-elements are integrated - differences of potential energies of height is constant at lifting like at falling masses, unfortunately.

Multiple Weight

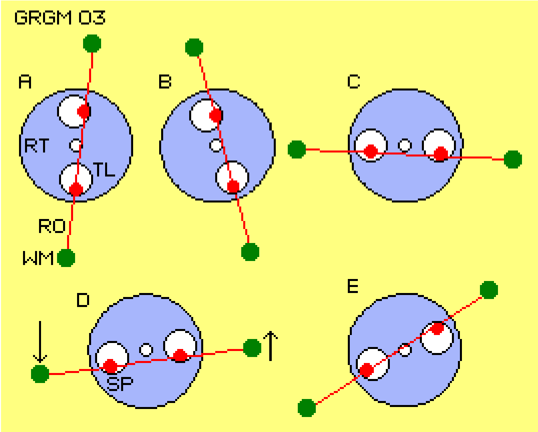


At picture GRGM 02 a simple beam-scale is sketched - demonstrating relentless lever-law at its best. At A same masses (green) are positioned at beam (red) at likely distance to supporting point (SP, grey), so scale is well balanced. Besides weight of scale by itself, weights of both masses affect at ground below scale (see arrows below supporting point SP). At B these distances are 1:2 and the scale is balanced by masses in relation of 2:1. At the ground now three units are weighting.

Strong weight e.g. comes up at simple letter-scale: if a 50-gram-letter from some height falls down at the scale, the pointer shows temporary deflection of some hundred grams. This situation is sketched at this picture at C: if a mass-unit falls down onto that ´seesaw´ at one side, at the other side corresponding mass is pushed upward equivalent - corresponding to strict rules of lever-law.

That scale normally stands at solid ground and so it does not matter, at this very moment a multiple of forces are pressing onto ground (see long arrows) as affecting forces weight double at the supporting point. If that supporting point is installed within a rotor-system aside of system axis (SA), turning momentum results (see arrow DM).

Seesaw-Effect



Already some years ago I described that ´seesaw-effect´ at chapter Mechanical Gravity-Motor, in addition with some other valuable analyses. The general principle of that conception once more is sketched at picture GRGM 03. The rotor-hub (RT, light blue) has two round openings which function as bearings (TL, white). The rotor (RO, red) is a rod and at both ends effective masses (WM, green) are fixed. At this rotor-rod are installed two bolts (dark red), positioned each one within one of previous bearing holes. The distance between both bolts is some longer than distance between centres of both holes.

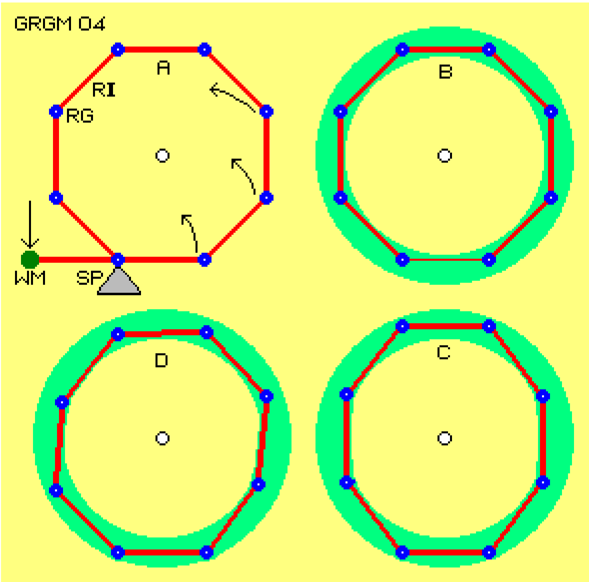
At A the rotor stands within lower hole, where its lower bolt is quite down. The rod stands some diagonal, as its upper bolt leans sideward within upper hole. At B the rotor-hub and rotor-rod did turn little bit, so upper mass now could fall towards left side. Free falling starts slow, so even at position C the bolt still ´floats´ within the opening. Finally at position D that bolt hits down at border of the opening and its relative high speed becomes decelerated. This corresponds to previous seesaw, where now here the bearing-hole functions as supporting point SP. The appearing force-impulse affects turning momentum at the rotor-hub.

Different handicrafts did confirm that seesaw-effect: like shown at E, the right mass immediately is pushed up and thus once more turning momentum is achieved. Unfortunately the mass falls down short time later, destroying previous effect. Indeed, relative strong forces comes up, however energies disappear by impulses into material-tension - so no really running wheel could be build up to now (where probably however the shaft was not weighted sufficiently, see below).

Decisive Effect
Nevertheless a self-running wheel is (only) to build by usage of this effect. All known procedures could not overcome the strict lever-law. If part of rotor-mass is allowed to fall free, energy-throughput increases. As long as the forces are transferred by impulses direct onto the rotor-hub, no surplus was ever achieved. If however a ´seesaw´ is used, forces at supporting point are doubled - and thus also surplus of turning momentum should be achieved.

An improved version (opposite to previous conception) may not allow the forces to disappear into material-tension, e.g. the transfer of forces may not be done by impulses. The motion-energy of falling masses may not be blocked but prevailingly must only be redirected. At the other hand at previous machine, the counter-masses were much too light, e.g. because these masses are already moving upward. These masses did lift much too fast, so both bolts within their holes did work like fix connections. Thus forces of that (only partial delayed) impulse-transfer got lost. So now all the masses right side must be guided upward more constant. Instead of impulses an ´elastic´ transmission must be used.

Link-Ring
At picture GRGM 04 an approach of solution with ´elastic elements´ is sketched. At A (at first) is drawn only one effective mass (WM, green) at that phase, where free falling ends when coming to the support-point (SP, grey) of a ´seesaw´.



Now all other masses shall function as counter-weights, which are connected by a ring (RI). The links (red) of that ring are combined by joints (RG, blue). At the position drawn here, the support-point of seesaw is fulcrum for all ring-elements (see curved arrows). This example shows eight elements, however also seven-edge ring might be possible (see below).

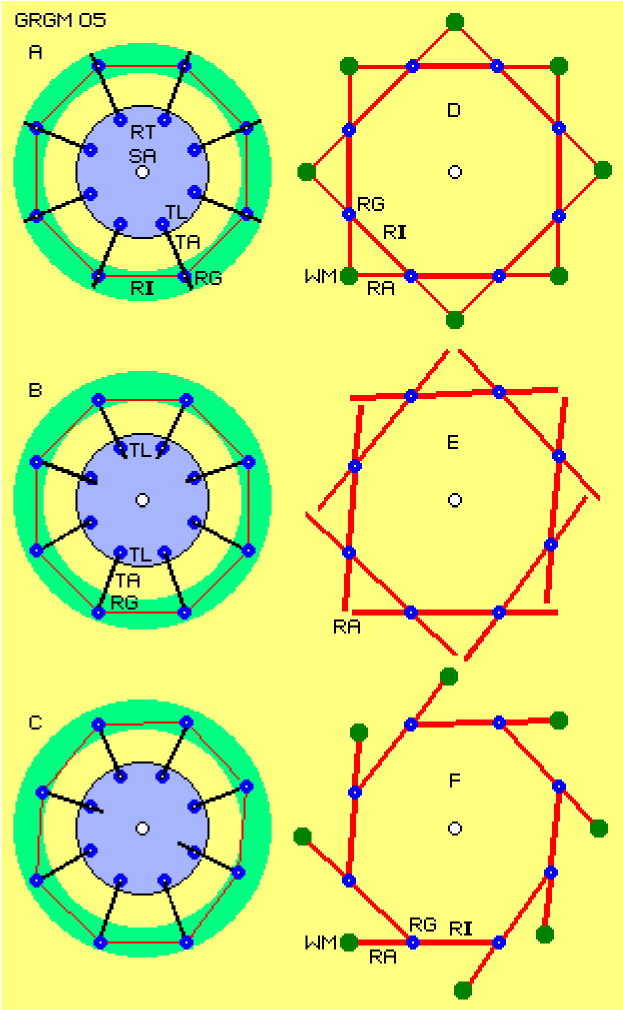
The ring must be elastic, i.e. the elements respective joints must have some space for movement, here at B that area is marked light-green. For example, the ring might be stretched vertical and some compressed horizontal, like sketched at C. The ring can also take irregular contours, for example like sketched at D. While general turning, this shape keeps ´standing´ within space, where e.g. that tip left side below is continuously build by following elements.

Elastic Support
At following picture GRGM 05 left column shows, how that ´elastic´ rotor-ring is connected - again ´elastic´ - with the rotor-hub. At A is drawn a rotor-hub (RT, light blue) and within are arranged eight bearings (TL, dark blue). At each bearing a hub-arm (TA, black) is mounted as movable part.

At the other end, these arms are beard within joints of ring (RG, blue) and thus build the connection between rotor-hub and rotor-ring (RI, red). As the ring needs space to move (within area marked light-green), the hub-arms must be allowed to shift within a bearing (thus within TL or RG, like sketched here). The demanded variable length could also be achieved, when arms build telescopes with certain distance.

Upside left at A the ring is drawn concentric around system axis (SA, black). As the shaft is arranged horizontal, the wheel stands vertical within space and all masses thus will take positions most deep. This situation is sketched at B.

The hub-arms (TA, black) below are maximum stretched and the ring hangs only at both bottom hub-arms respective the ring stands on its both bottom ring-joints (RG, blue). All other hub-arms take no weighted. Here these hub-arms are sketched shiftable within hub-bearings (TL), so upside the arms reach some inward into the rotor-hub.



As mentioned upside, the ring must not show symmetric shape. When system is turning, contour will come up where ring is some extended left side below and at other parts the ring will be some nearer to system axis. This normal-shape of running mode is sketched at C.

Finally that shape shows, distances between hub-bearing and according ring-joint is variable (respective telescope-hub-arms must show variable lengths). In addition, the hub-arms show into different directions, thus must be movable within all bearings by certain degree (possibly limited by any stop-part).

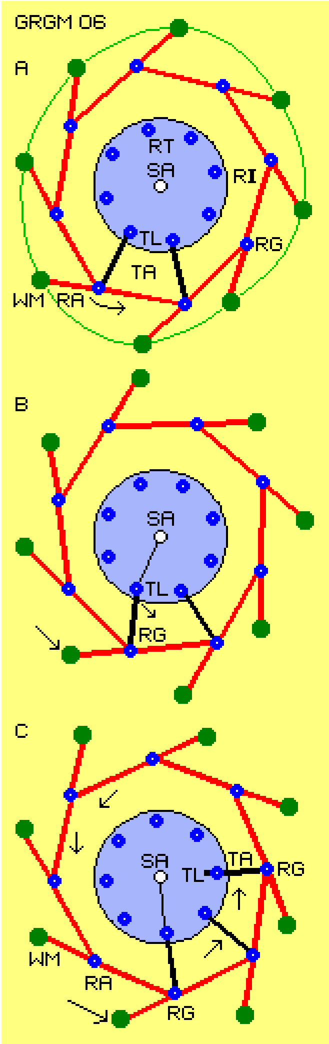
Essential is the fact, the ring all times weights only at the both hub-arms below. Other hub-arms hold the ring only right angle to shaft respective they limit space for motions and thus the deformation of ring by their maximum / minimum lengths (what also could be achieved by limitation of angles between ring-elements).

One- or Two-armed Rotor
Right column of this picture GRGM 05 now shows possible arrangements of effective masses (WM, dark green) at rotor-ring (RI, red). Each ring-element is only a part of rotor-arm (RA, red). At both sides of rotor-joints (RG, blue) the rotor reaches further out and at each end an effective mass is installed. As a whole a star-shaped arrangement comes up, like shown at D.

However this is a stiff constellation allowing no deformation of ring. At E an uneven contour of ring is sketched where the ends of two rotor-arms do not meet at one location. Probably Bessler really did use a ´star-shaped gear-wheel´. If this should take variable shape, distances between ring-joints must be variable (one joint must be fix at rotor-arm and the other must be shiftable, see below). Such an arrangement would allow the wheel to work left- and right-turning - and Bessler liked to demonstrate astonished audience. However it´s told, Bessler did also build wheels working only one sense and more effective. Above this, an one-sense working machine demands much easier construction like sketched at picture below right side at F.

Each ring-element (RI) is extended only backward (in turning sense), beyond rotor-joint (RG), building an one-armed rotor (RA, red), and at its backside end the effective mass (WM, green) is mounted. This examples shows an eight-edge ring is build by eight rotor-arms. They can take different angles based on the rotor-joints. Depending on deformation of ring, the masses reach out more or less far into space.

Motion-Phases
At picture GRGM 06 now all parts are drawn: rotor-hub (RT, light blue) is turning around system axis (SA). Eight hub-bearings (TL, dark blue) are installed at rotor-hub. However all times, only both bearings and hub-arms (TA, black) most below are weighted. Instead of eight, here only these two downward showing hub-arms are drawn.



The rotor-ring (RI, red) hangs within hub-arms with its both downside rotor-joints (RG, blue) respective whole rotor stands upside of that (labile) basis. Each rotor-arm (RA, red) shows back in turning sense and at each outer end the effective masses (WM, green) are mounted.

At A, the light-green curve marks the track of effective masses. Left side, masses fall down (see increasing distances between masses). This relative free falling ends at position left below, where left hub-arm is extended to its maximum length.

Mass of this rotor-arm now becomes swinging around the rotor-joint (see arrow). Previous seesaw-effect comes up: at the one hand this mass is swinging around the new fulcrum, at the other side (right) the ring-elements (inclusive their rotor-arms and masses) are pushed upward, thus double weights press onto support-point.

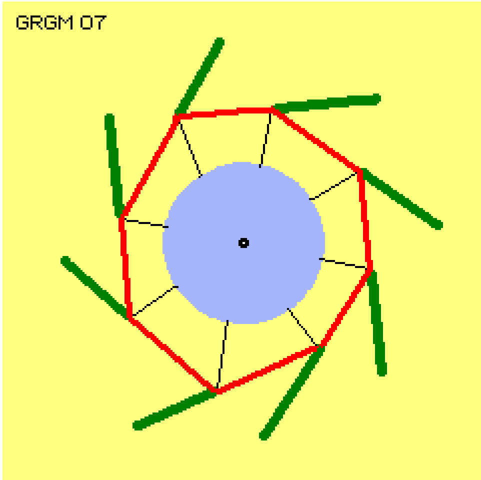
At B the situation is sketched after some further turning. The rotor-hub and shaft did turn, some faster however still that mass left-below is moving (the arrow shows the way it did go). Also the rotor-arm and that ring-joint (RG) are ahead general turning. This support-point thus stands not fix within space, but swerves to the right.

So no abrupt stop of falling motion occurs (with energy-loss based on short impulse), but motions in general become only redirected somehow. At this phase, the weight does not simply hang radial to shaft, but hub-arms show some ahead (see angle between SA - TL - RG). The weight thus is directed some forward, resulting turning momentum at rotor-hub. Finally some later the weight hangs radial to system axis, like sketched at C. Stretching previous angle again affects turning momentum for the system.

Track of effective Mass
At this phase already ends free falling of following effective mass (WM) with its swinging around its ring-joint (RG) respective around support-point of next hub-arm. Again results the upward motions right side. However, at first only the ring-elements are pushed up (see arrows right side at C) and their masses follow some later. These masses won´t swing out far towards right side, but these rotor-arms hang down relative vertical and thus masses are guided upward near system axis (see short distance at right hub-arm).

Opposite, the masses falling down left side are pulling (via ring-elements and ring-joints) the following masses upside towards left and some later downward (see arrows left at C). In addition, as the hub-arm is moving to right side, it is ´under-running´ the rotor-ring as a whole. That ´free turning´ rotor-wheel does not follow that right-motion in total, but its upside part falls forward-down (like one climbs up stairs and slips off one step), and at the following hits onto next support-point. Centre of gravity of that rotor is shifted left, this wheel practically ´balances´ all times upside of support-point left side below.

At following animation the effective masses are represented only by green part of rotor-arms (realiter the effective masses can be shaped as one likes it, preferably however the mass should be installed at rotor-arm some back in turning sense, see below). One can see the procedure of motions respective it´s hard to recognize why what how is moving. This animation is build by only few pictures (one after turning each five degree). However also at real procedure only left side will show relative calm falling of effective mass, followed by fast swing to right, ending finally right side below, merging into lift by curved tracks with changing bends. Upside, the mass is pushed up astonishing high, hesitant starting and increasingly faster falling down again. Most interesting are descriptions - partly most precise - of Remote Viewers, see previous mentioned chapters.



Redirection and Brake
Important once more is the fact, the fall-motion is not stopped and transmission of force does not occur by short impulse involving heavy losses. Fall-motion is only redirected, so kinetic energy of rotor-ring as a whole keeps constant. Usable turning momentum is not drawn-off motion of falling mass, but only the counter-pressure of support-point (of seesaw) is transmitted into usable momentum.

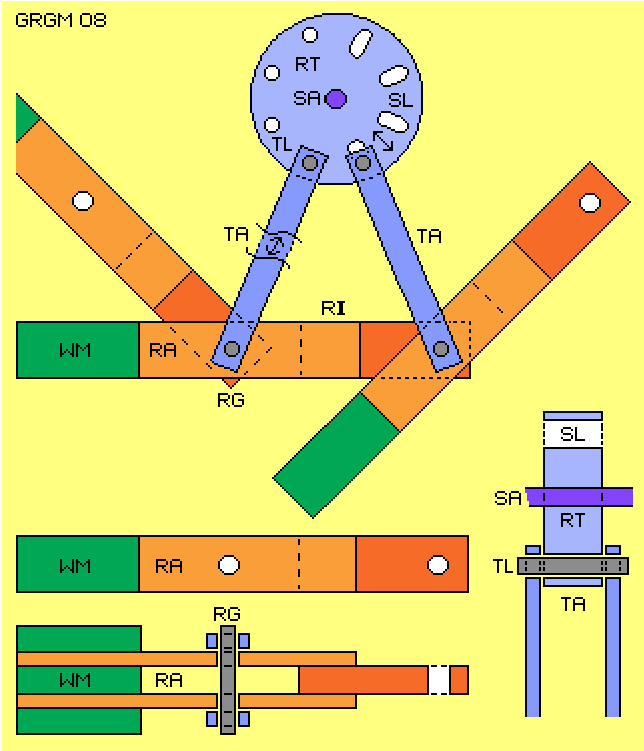
That counter-pressure is essential prerequisite for total motion process. If rotor-hub would be allowed to turn free, it will accelerate and finally all parts are turning with same speed. Function of seesaw no longer is working, the ring no longer is pressed upward right side, upside parts sink down, contrary motions come up and system soon will end any turning motion.

That wheel is functioning only when that seesaw-effect is acting, i.e. the rotor-hub is turning slower than masses fall down left side. So all times a basic load must weight and decelerate system shaft - otherwise that wheel won´t be self-running. That´s why Bessler e.g. installed that stamp-mill or turning of wheel was decelerated temporary by external pendulum. This engine well can deliver usable turning momentum, respective opposite, that engine will run only when system takes load.

Construction
This motion-principle can be realized by most different techniques. One possible construction is rough sketched at picture GRGM 08 by some sectional views. Around system axis (SA, dark blue) is turning the rotor-hub (RT, light blue), which in principle is disk-shaped (however could also be build by radial spokes). At both downside hub-bearings (TL, grey) the rotor hangs at the hub-arms (TA, blue). These constructional elements are shown upside central by side-view and below right by cross-sectional view.

As mentioned upside, the hub-arms must be allowed to swivel within bearings and must have variable lengths. At left hub-arm is marked, this could be achieved by any telescope-element (see double arrows). Alternative the differing length could be achieved by slot-shaped bearings (SL, white) within rotor-hub, like sketched at hub-arm right side (and also upside within rotor-hub alternative some of theses bearing-slots are drawn). A bolt (grey) of hub-arm thus can shift inward and outward within its bearing-slot (see double arrow).

Below at picture a side-view and cross-sectional view of rotor-arm (RA, light red and dark red) is sketched. That arm is build by two parallel rods (light red) at its backward part (in turning sense). At that back-end the effective mass (WM, dark green) is installed between and aside of these rods. At the middle of these rods are openings, within which a bolt (grey) builds the ring-joint (RG). These both (light red) rods are extended towards front-end by one central rod (dark red). At front-end again is an opening for second joint of that rotor-arm.



At centre of picture is shown how the ring (RI) of that rotor is build: each front-side thin end (dark red) is positioned between both back-side rods (light red) of previous rotor-arm. A bolt (grey) builds the movable connection. This ring-joint (RG) in addition includes the hub-arm (TA, blue), also movable. As hub-arms have variable length (respective can glide in- and outward within a slot-bearing), the ring can take different shapes within its space for motions.

This sketch shows only one possible construction of that principle and it´s not drawn true to scale. If Bessler really would have used this conception at his wheel of 3.6 m height, the constructional elements could have show that size: hub-bearings at a radius of 25 cm, hub-arm variable between 70 and 75 cm, distance between rotor-joints some 75 cm, distance between ring-joints and centre of effective mass 40 to 50 cm, total length of rotor-arm thus about 115 to 125 cm (dimensions of smaller wheels see below).

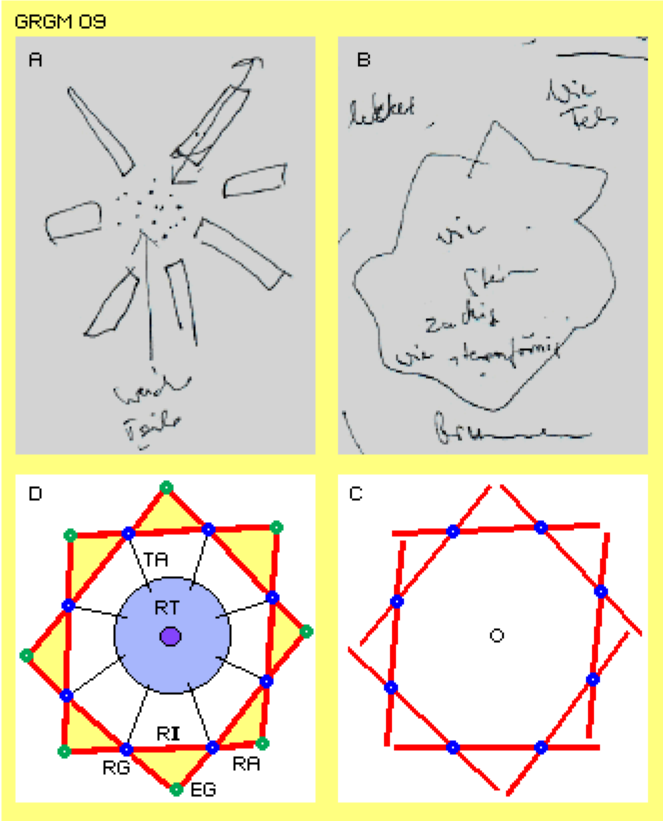
Bessler´s Gearwheel´

At Remote Viewing sessions concerning subject of Bessler (see previous mentioned chapters) one viewer was especially fascinated of a constructional element, some 5 to 6 cm long and thick like pencils, moving radial inward and outward. Several times he did draw these ´control-elements´ like shown at picture GRGM 09 upside left at A, strangely all times seven pins. These could be parts of a slide bearing, thus a better version of previous slot-bearings.

Again several times this experienced viewer sketched an uneven star, again with seven edges and described its motion procedure (at picture upside right at B). This now correspond to upside mentioned statement of Bessler, he used an uneven moving ´gear-wheel´. Most reports however quote eight weights, working by pairs. At the other hand, Bessler did build many wheels, so might be also with seven ´edges´.

At previous picture 05 that edge-version was put aside, because rotor-arms at variable ring won´t match at edges (here once more drawn right side below at C). However it´s well possible to build rotor-arms with edges fitting at a joint (EG, light green), like shown at this picture downside left at D.

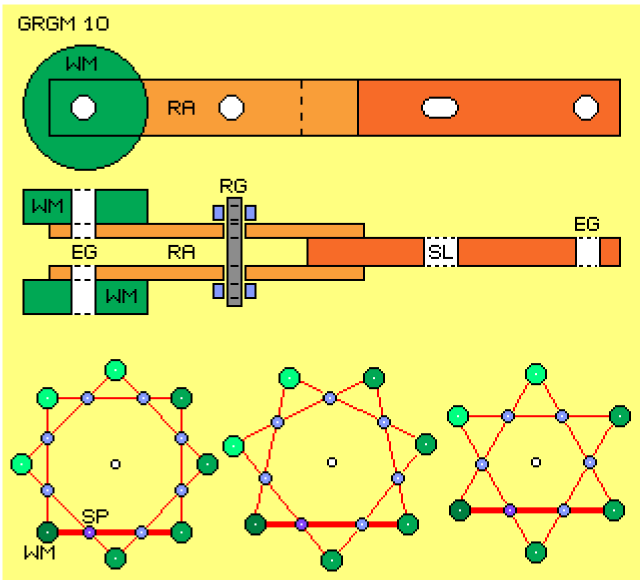
The rotor-arm (RA, red) now is extended at both sides beyond ring-joints (RG, blue). Deformation of ring (RI) is possible, when the backside joint is fix positioned at rotor-arm, however the frontside joint is build by a slot-shaped opening. Then the rotor-arms are movable mutually by certain degree, so the outside triangles (marked yellow at this picture) can take differing shapes.



Additional Joints
At an eight-edge ring, the angle between rotor-arms normally is 45 degree (respective inner-angles are 135 degree). The room for movement is sufficient when the angles can vary by about ten degree. The slot-bearing of frontside joint at rotor-arm must be only few millimetre long to allow that range of differing shape of ring. An advantage of this star-conception might be, it shows more sideward-stability. Disadvantageous however are additional movements within ring-joints, involving friction losses and delay of force-transmission and thus danger of uncontrolled strokes.

At picture GRGM 10 upside corresponding rotor-arm (RA) is sketched by cross-sectional view. Within narrow frontside part (dark red) now that slot-bearing (SL, white) is arranged and at front end an opening (EG, white) for new joint at the edges of the ´star´.

Towards backside, the rotor-arm still is build by two parallel rods (light red) with the ring-joint (RG, with grey bolt). At backside end of rotor-arm now again is positioned an edge-joint (EG, white). There could be installed the effective mass (WM, green) at both sides of rods, e.g. in shape of round disks.



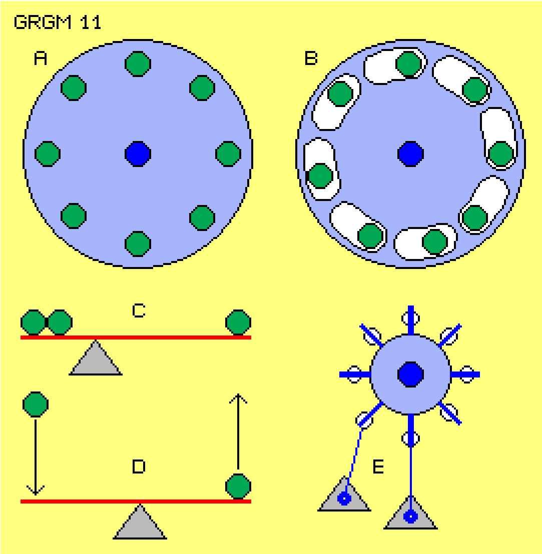
So it´s well possible to build a ´flexible gear-wheel´, however with some higher efforts. Probably however the conception with one-armed rotor-elements will be construction more simple, flexible and effective.

Lever-Arms and Weights
At this picture GRGM 10 below are sketched three wheels of likely size with eight, seven and six edges - in order to check out why which version should be preferred. Upside and left, the effective masses (light green) are falling and thus merely are weighting at rotor-ring and rotor-hub. Below left (between eight and seven o´clock) free falling will end and that effective mass (WM, dark green) momentary weights via its rotor-arm (RA, red, drawn thick) at the

support-point (SP, dark blue). Discussed lever-effect of seesaw lifts upward the masses (green) of right side.

At eight-edge star (left at picture) the deceleration (respective redirection) of fall-movement acts at relative short lever-arm (distance between WM and SP), while right side four masses must be lifted at rather long lever-arms. Also at seven-star (middle of picture) at this phase four masses are positioned right side, however the mass left side can affect at a longer lever-arm. Even better is that relation at six-edge-star (at picture right side), where in addition only three masses are lifted right side.

The system achieves turning momentum only by pressure onto support-point. The falling mass (left) must meet sufficient ´counter-inertia´ at right side. Like mentioned at upside ´Mechanic Gravity-Engine´ the six-star probably will show too less counter-force at right side. However Bessler well could have found the better effect when using a seven-edge arrangement (instead of the witnessed eight-edge-version).



Forces at Hub

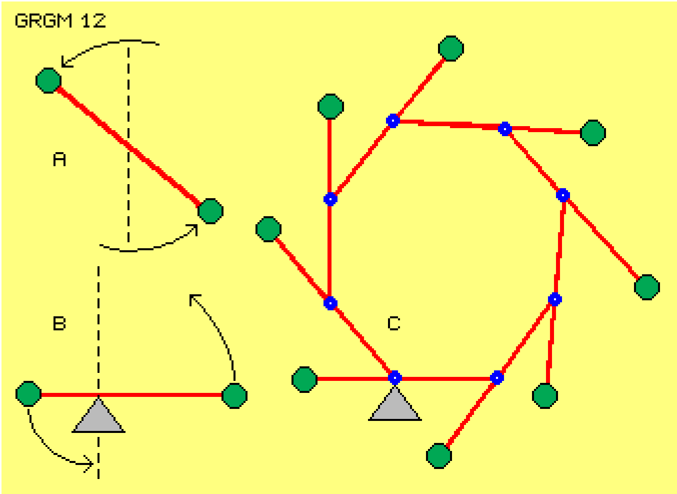
General aspects of the affecting principle once more are shown by picture GRGM 11. At A a rigid wheel (light blue) is drawn, turning around systems axis (dark blue). Effective masses (green) are fix mounted at the wheel. While turning, the masses take positions at different heights, however all forces are balanced as a whole. This wheel theoretic will turn infinite long, only decelerated by friction within bearings respective of air.

At B the masses are free movable within a slot (white), so masses left side can fall down. However also here only an exchange between potential energy of height and kinetic energy occurs, all energies in total keep constant. Also this wheel theoretical will turn steady on and on, however here come up additional losses by impulse-transmission of forces. In principle however it makes no difference, whether masses are turning constant or temporary can fall down.

At C once more that beam-scale is sketched, where lever-laws (and thus energy-constant) obviously are valid. The pressure of support-point (grey) is at least like the sum of all weights at the scale respective the forces affecting at the scale. At D once more is sketched, a mass falling down will lift second mass to corresponding height, via that seesaw, corresponding to law of energy-constant. Important once more is the fact, the pressure at support-point becomes strongly increased.

At the conception discussed here, masses won´t affect direct at rotor-hub. The function of rotor-hub (light blue at E) exclusive is to make available that support-point. Only at positions between eight and six o´clock the supports are weighted. The effective lever thus in average is the horizontal distance between seven-o´clock-position and system axis. Support-points must be arranged at movable arms and with variable lengths, so effective masses have sufficient room for motion. The masses by themselves never affect direct at the hub, but only via support-points the forces of rotor are transferred onto rotor-hub and thus onto system shaft.

Energy-Constant at Ring



Picture GRGM 12 shows general aspects of rotor. At A is drawn a ´juggle-rod´ with effective masses at each end. This rod turns free within space, e.g. from dotted position upside towards left and below towards right by same speed, practically like a rigid wheel, however without shaft ´hanging´ free in the space.

If (at B) a juggler holds the finger into track of left side falling rod, some besides the middle of rod, the left mass will swing around that support (grey) at short radius. The mass right side will swing at longer radius, thus its track becomes little bit stretched. After further turning the rod will take the vertical position like marked by dotted line. The sum of all motion-energies is not bothered by that interaction. Masses are not decelerated, the motions are only redirected somehow - and by the way also centre of system is shifted to left side (see dotted positions).

The redirection respective the shifting of gravity-centre comes up only based on this intervention, i.e. only because given motions were opposed by some resistance. That ´finger´ must not be hold stationary, but well can move some back in turning sense (so towards right). The back-stepping of support-point however must be slower than falling-speed of left mass. Only by that slow motion the resistance can have an affect - demanding input of power respective just this force is available and can be ´braked-off´ system.

At C again that ring of rotor-arms is sketched. This ring in principle corresponds to previous juggle-rod, only build more complex by different rods and joints. The ring must allow elastic contours, so at the one hand masses can fall down and at the other hand the transfer of forces can occur elastic (what e.g. corresponds to left-shift of gravity centre of previous juggle-rod). In principle however that rotor is a separate wheel, connected with the ´wheel´ of rotor-hub only via support-points.

The masses of rotor are allowed to fall forward-down, so this wheel is ´rolling-shifting´ (similar to a water-drop or amoeba) all times over the support towards left. Via seesaw the mass right side is guided up, relative near to system axis - where no energy is consumed but only forces are redirected. And only as a side-effect the counter-forces of that support weight at a lever of hub-arm and the support-points are pushed towards right side. All procedures are running straight corresponding to lever-law - only this ´unfortunate´ arrangement rises up additional affecting forces respective opposite: only based on brake-forces at rotor-hub previous motion processes can come up.

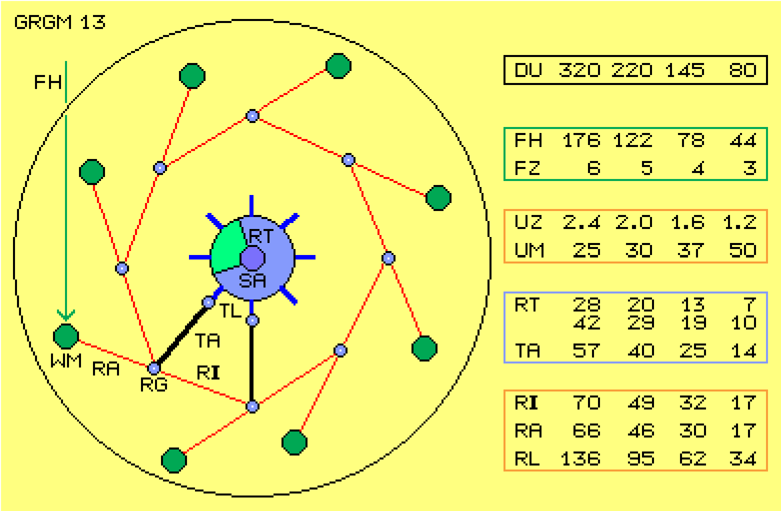
Calculate, Simulate, Construct, Test

This wheel is a pure mechanical construction where only gravity and centrifugal forces are working. If suitable knowledge and simulation-software is available, one should be able to find optimum data by pure theoretic approach - just like today products at first are produced virtual at computers and finally are build real. Otherwise success will demand many experiments and testing various conceptions - demanding suitable resources, time and nerves.

Most basic prerequisite however is to find and keep adequate revolutions, because only in this case decisive effect can come up at all. If one would like to rebuild Bessler-Original-Wheel, at first one should build that ´tamper-mill´ at system shaft (four tampers are lifted eight times each revolution). By adaptation of tamper-weights one can find optimum basic load resp. revolutions. Alternative at first one should build shaft with hub and drive the system by controllable electric motor. Tests will show which speeds result ´round mode´ respective (probably or hopefully) the motor will become generator.

One basic requisite naturally is also a casing most solid and well grounded. Even at optimum mode and even moving parts are well suspended, impulsive loads will come up. At the very end the system shaft has to take all forces - and if that shaft is not beard fix and stationary, force of impulses get lost in total.

Bessler did work for years with these problems, so one can not expect the very first attempt will bring the optimum result. Systematic testing with variation of all constructional parts will be necessary until that ´simple´ principle will come real and successful construction.



Data
Picture GRGM 13 left side once more shows that basic conception and right side are listed some data. Essential criteria were discussed since years at chapter Fall-Curves and once more at previous mentioned chapter Mechanical Gravity-Motor. These considerations are rather well, even up to now no really running machine was achieved (e.g. because masses there work by pairs, however finally here that elastic ring was developed for building this second and separated wheel). Now here at for columns are marked some example-data for wheels of different size, however data can serve only as clues.

Depending of diameter of wheel (DU) with 320, 220, 145 and 80 cm the effective mass (WM, green) can fall down different distances. The (relative) free falling starts about 11-o´clock- and ends about 8-o´clock-position. That fall-height (FH) left side is marked by green arrow and is for example 176, 122, 78 or only 44 cm. The falling time (FZ) takes 6, 5, 4 or only 3 tenth-seconds.

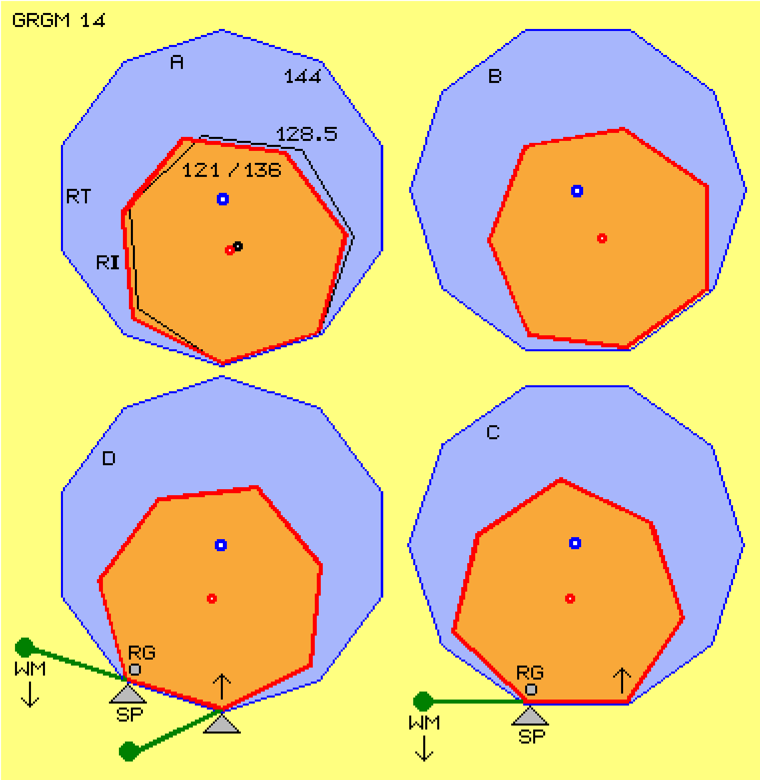
While the mass left side is falling down, the rotor-hub (RT, light blue) turns about 90 degree (marked by green sector). One revolution of rotor-hub thus takes four times of falling-time. So the time for one revolution (UZ) will be about 2.4, 2.0, 1.6 or only 1.2 seconds. The rpm (UM) of these wheels of different height will be about 25, 30, 37 or 50 revolutions each minute. As masses can not fall completely free, real revolutions might differ somehow.

The rotor-hub (RT, light blue) must not be build as large disk but the hub-bearings (TL, dark blue) could also glide at spokes (like sketched here). Their variable distance to system axis (SA) is here noted at row RT with min./max. 28/42, 20/29, 13/19 and 7/10 cm for these differing wheels. Possibly these rooms for movements are too wide. Optimum relations probably can be determined only by experiments.

The lengths of hub-arms (TA, here are drawn only both arms below) thus could be about 57, 40, 25 and 14 cm. Based on these RT- and TA-lengths results the distance between system axis and rotor-joints. Also here the optimum relation between both parts might be found only via experiments.

Based on average distance to system axis results the distance between ring-joints (RG, blue), where these ring-elements (RI, red) here are about 70, 49, 32 and 17 cm long. The backward part of rotor-arm (RA, red) with the effective mass (WM, green) could be as long ´as one likes it´, here e.g. proposed with 66, 46, 30 and 17 cm. The total-lengths of rotor-arm (RL) thus might be about 136, 95, 62 and 34 cm.

Different Edge-Wheels
So far, here are discussed a rotor-hub with eight arms and a rotor-ring with eight links. Both ´wheels´ have different diameters, demanding movable hub-arms with variable lengths. Both wheels are connected only via support-points, thus both wheels could also be really separated wheels with different number of edges respective links. Such variations are discussed at the following.



At picture GRGM 14 at A is sketched a ten-edge rotor-hub (RT, light blue). That rotor-hub is rigid and uniform, thus the inner angles are 144 degree. Within that rotor-hub is drawn a seven-edge ring (black lines) and its inner angles are about 128.5 degree at regular shape. The joints of that ring have room for motions of e.g. 121 to 136 degree. At the position drawn here that ring (RI, red) is deformed (like water-drop or amoeba) and ´floats´ to left side.

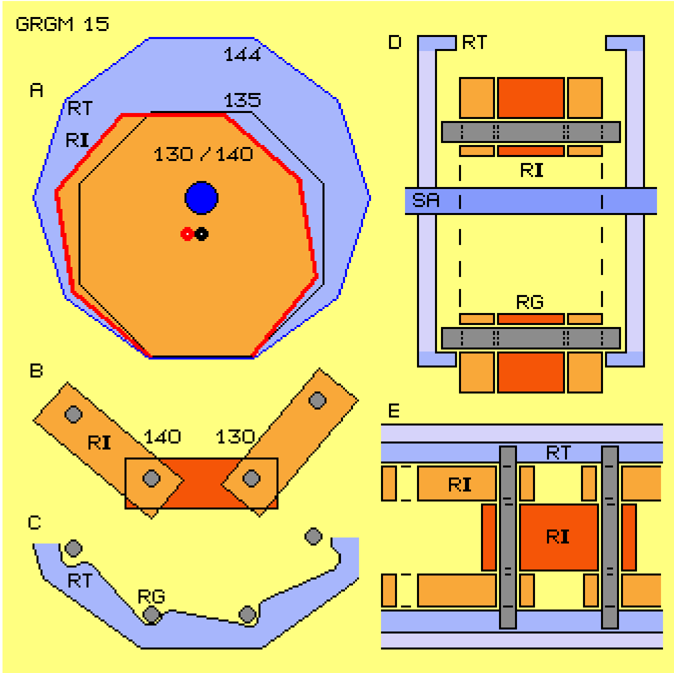
At B the rotor-hub did turn by 18 degree and finally at this position, the ring will tilt to left side. This situation (by unchanged position of rotor-hub) is drawn at C. The ring-joint (RG, grey) below left hits onto the rotor-hub. So the seesaw-effect comes up, where now all masses swing around that support-point (SP, grey). If at extension of that ring-element an effective mass (WM, green) is mounted, all masses right side of support-point are levered-up (see arrows).

This swinging-motion ends when rotor-hub did turn further 18 degree, like sketched below left at D. At this situation, already the next ring-joint (RG) did come to its support-point (SP) and thus next seesaw-effect follows. Like stated upside, ´oversize´ pressure is weighting at the support-point.

The situations at upside row at A and B represent starting-phase of system. At running mode however, positions change like shown at row below, only between situation C and D. The gravity-centre (marked red) of ring is positioned all times left side of system axis (marked blue). The ring weights all times at a support-point left of system axis (not only with the momentary effective mass but nearby with its total weight). The lever-arm in average is half the length of a ring-element (so half distance between two ring-joints).

Symmetric Hub
At picture GRGM 15 at A once more a rigid regular rotor-hub (RT, light blue) is drawn with ten edges of 144 degree. Within now an eight-edge ring (RI) is drawn, which has inner angle

of 135 degree by regular shape (black lines). When ring-joints are movable between 130 and 140 degree, contour is deformed like here sketched by red lines. The gravity-centre (marked red) is shifted towards left. The maximum 140 degree of ring still allows tilting within rotor-hub with his steady 144 degree.



At B is shown a section of ring. A middle ring-link (dark red) is connected via bolt (grey) of rotor-joint with neighbouring links (light red), where inner angles of minimum 130 and maximum 140 degree are possible. Based on that limited room for motion, this ring can not ´implode´, but stands on its support and only is taking differing contours.

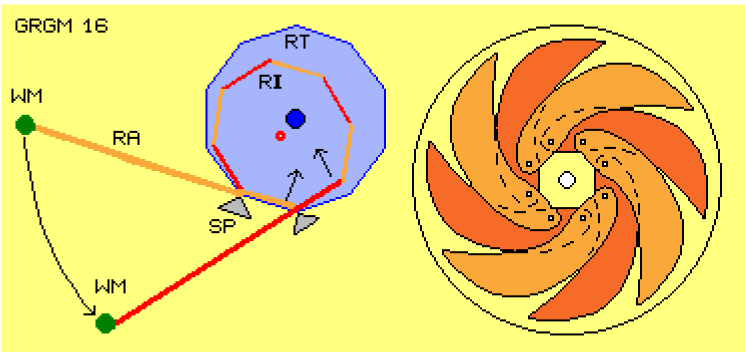
At C a section of rotor-hub (RT, light blue) is sketched. Only one bolt (grey) of a rotor-joint respective maximum the both bolts below stand on the rotor-hub - and above of stands resp. ´hovers´ the ring. The rotor-hub should build suspension-elements to take the pressure which all times is directed forward (in turning sense), e.g. like profile rough sketched here.

At D upside right of picture, a longitudinal cross-sectional view through system axis (SA, dark blue) schematic is sketched. The rotor-hub (RT, blue) is build symmetric, so bolt (grey) of below rotor-joint (RG) at both sides can rest at support-points of rotor-hub. This builds a symmetric and stabile construction. The ring must not be a small ´chain´ but can be build rather wide.

At E below right side of picture, a view onto that suspension schematic is sketched. At the rotor-hub (RT, blue) here are resting two bolts (grey) of rotor-joints. When using even number of links (like here these eight), the ring can be build rather simple: at the one hand there is a middle relative wide ring-element (dark red) while the other link is build by two rods (light red), each half as wide and arranged aside of the middle link.

At long Lever

As neighbouring links now are arranged at different axial levels, the backward showing rotor-arms with their effective masses can show shapes nearby as one likes it. At picture GRGM 16 left at A are drawn two rotor-arms (RA, light-red and dark-red) at the phase of decisive lever-effect.



The effective mass (WM, green) here is arranged at relative long rotor-arm (about four times the distance between ring-joints). The backside effective mass (at light-red rotor-arm) momentary is some below of the 9-o´clock-position, where deceleration of free falling begins. Here the rotor-joint falls at the support-point (SP, grey) of rotor-hub. By long lever-arm the ring-elements of right side (and also their rotor-arms and -masses) are pushed upward (see arrows), according to seesaw-effect with its high pressure onto support-point.

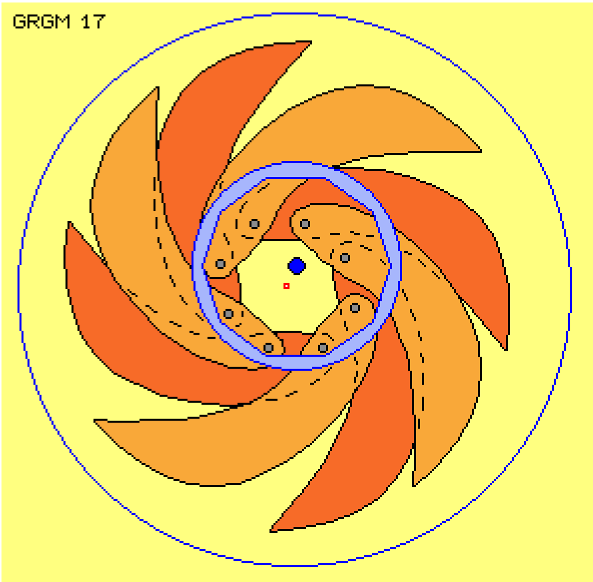
The swinging motion around that support-point goes on until it arrives at lowest position. At this position just did arrive the frontside (dark-red) rotor-arm drawn here. This effective mass now has lever-effect into changed direction: the support-point there is pushed to right side and the ring-masses upside of are pushed to left side. This thrust affects turning momentum at rotor-hub and same time the ring (inclusive the upside masses) are shifted towards left. This motion-phase is decisive because resulting static imbalance.

At the begin of that phase, the kinetic energy of free fall of left masses, via seesaw are transferred into lift of masses of right side. At the final part of that phase however, upside ring-masses are guided towards left side and this means acceleration of rotor-turning by itself - and ´as a side-effect´ results turning momentum for rotor-hub. So this process has double effect: via seesaw the pressure (of kinetic energy) is transmitted into turning of rotor and the counter-pressure (of seesaw support-point) is transmitted into turning of rotor-hub - a real win-win-situation.

Crop-Circle-Pictures
These backward showing rotor-arms strongly remember at ´sun-wheels´ (right side at previous picture), which came up long time as crop-circle pictures. This symbol since ages stands for motion and energy. I made analyses at many chapters of this website concerning sun-wheel- (and ´halfmoon´-) crop-circles as I expected they could be clues for free-energy-engines. However so far, I had not developed that conception of ´elastic rings´ which first time is discussed here.

At previous picture 16 is sketched a concentric sun-wheel (and similar were many crop-circles, however without marks for joints and system-axis off centre). At picture GRGM 17 now the crescent-shaped rotor-arms are arranged by the contour which the ring probably will take in running mode (thus with inner angles more or less flat by 130 to 140 degree).

Sun-Wheel Gravity-Motor
These backward curved rotor-arms are really effective, because their mass-parts are in different phases of motion. Mass of frontside e.g. falls straight down while mass further behind still falls outward to left side. Quite at bottom the frontside parts move already horizontal, while backside parts still are moving downward.



At the one hand the rotor-joint sits down at support-point relative ´soft´, at the other hand the wanted lever-effect based on swinging around support-point lasts most long. At right side the rotor-arms lay close to each other and thus are guided up at relative short lever-arm. At left side the rotor-arms and masses can swing far outward and fall-movement of backside mass-parts finally ends quite down. Naturally the machines must not be build by such completely round shapes. Nevertheless it´s important the rotor-arms reach far back respective are curved back (in turning sense) and e.g. several part-masses are installed at that curved rotor-arm.

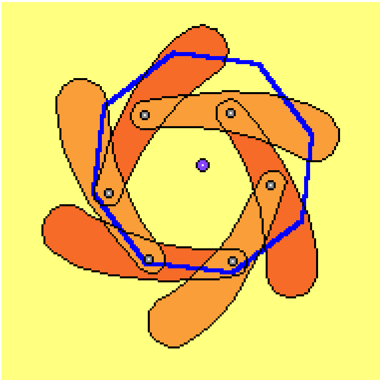
Just this sun-wheel conception offers possibilities for stabile and relative simple construction. The rotor-hub exists only by two symmetric disks with support-points to take temporary the bolts of rotor-joints. Alternative it could be build by narrow hub and eight radial showing hub-arms (fix mounted and with braces).

The rotor-ring can be build by elements of likely shape. Instead of that middle thick (dark red) and aside small rotor-arms (light red) e.g. one could build 64 elements of same size, which alternating are mounted at bolts of joint. So each eight elements would build one rotor-arm inclusive effective mass, like a ´fan´. Also relative simple the limitation of angles can be installed, e.g. by bolts and slots where rotor-arms cross.

Here exist generally no variable lengths and thus no telescope- or glide-bearings are necessary. Friction losses occur only at bearings of system shaft and at ring-joints (where swivel-motions occur only in limited degree) and by air-motions.

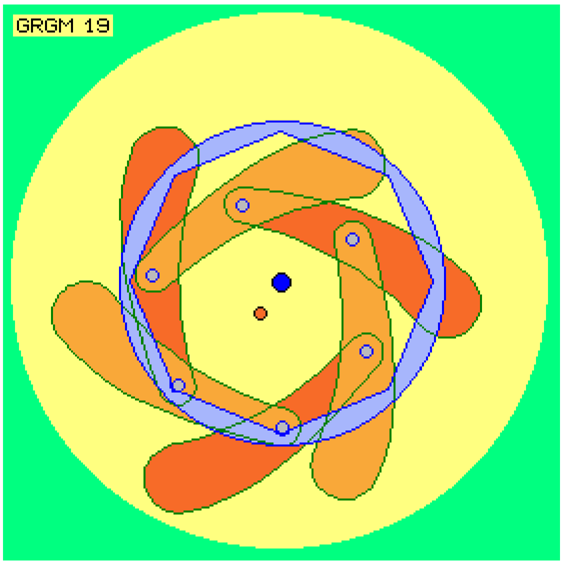
If for example the distance between ring-joints is assumed with 20 cm, the average radius of ring is some 26 cm. The support-points then will show distance of 33 cm from system axis, the rotor-hub thus will have a diameter of about 70 cm. Even the rotor-arms (in stretched position) reach out 80 cm, this machine needs square of only 200 cm (and can be build as deep as one likes it).

Also within this system the mass can not fall completely free. Height of fall (by previous dimensions) might be between 44 cm and 78 cm, so will take 0.3 to 0.4 seconds. One revolution thus takes between 1.2 and 1.6 seconds, so the system will run about 40 revolutions each minute. However the system will hold these rpm not by itself but must be loaded accordingly (respective tests must be done by controlled speeds).



For first attempt one well could build this machine by wooden elements. Later on, the construction could be done by metal plates. If for example each of previous 64 rotor-elements weights 8 kg, the weight of total rotor-ring would be about 500 kg. The gravity centre of rotor is positioned left from system axis all times. A joint weights at support-point about 18 degree aside of system axis and while swinging down comes to position just vertical below system shaft. In average thus the effective lever will be about 10 cm. So rotor at this position represents a (static) momentum M = 500 kg * 0.1 m = 500 Nm (besides excluded kinetic energy based on seesaw-effect at support-point).

Performance of a rotor-system is calculated by formula ´momentum times revolutions divided by 9550´, so here P = 500 * 40 / 9550 = about 2 kW. If these considerations would really be true, this machine would deliver 2 * 24 * 365 = 17520 kWh each year - by suitable energy-management more than demanded for a small house.

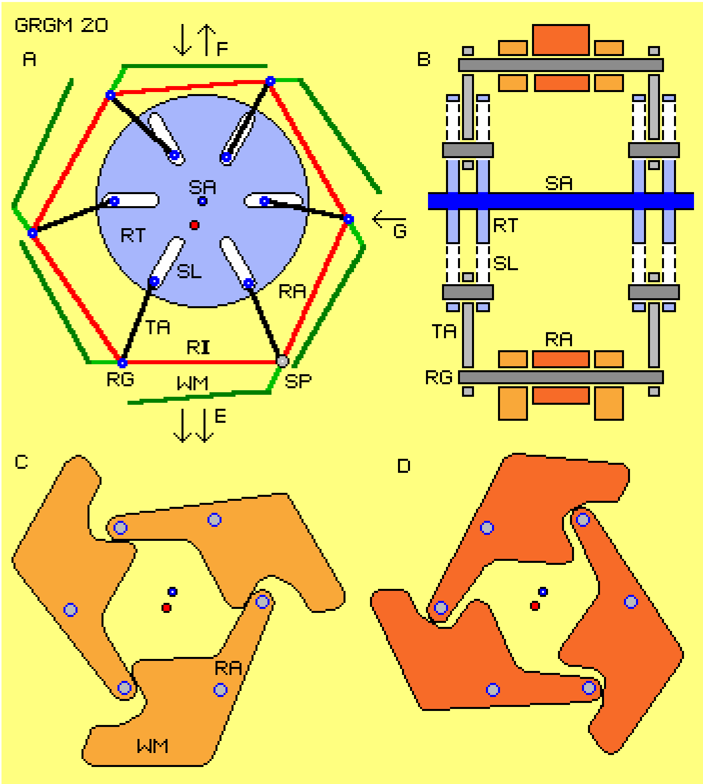


Variations

"Actually these are two wheels, one for up and down, the other for sideward motions" - and for me it´s still most astonishing how Remote Viewers were able to recognize these details. At previous animation one well can see six cudgel-shaped rotor-arms tumbling around. Some more difficult is to detect they are rolling within an eight-edge rotor-hub. Merely to watch are the ring´s changing contours.

The fix picture GRGM 19 shows cleaner: the rotor-hub (blue) with its regular eight-edge has inner-angle of 135 degree. The six-edge ring (see grey bolts of ring-joints) has inner-angle of 120 degree at regular shape. The deformation here comes up by room for motion with only plus/minus five degree. The decisive work is done by lower ´cudgel´ (dark red), as via support-point the upside masses are shifted towards left side.

The first approach of these investigations was an 8-in-8-edge-conception and later an 8-in-10-edge was discussed. At upside picture 10 the six-edge was found probably ´too light´. However now these rotor-arms strongly bended back could work at the six-edge-ring most effective. So this 6-in-8-edge-conception could be rather interesting or alternative also in shape of a 6-in-6-variation, which schematic is shown at following picture GRGM 20.



Upside right at B schematic is sketched a longitudinal cross-sectional view through system-shaft (SA, dark blue). The rotor-hub (RT, light blue) here is build symmetric with some distance between, so rotor-ring (RI) respective the rotor-arms (RA, light- and dark-red) can be rather wide.

Each rotor-hub is build by two disks with six slot-bearings (SL, white). Within these openings a bolt (dark-grey) of hub-arm (TA, light-grey) can glide inward and outward. Each hub-arm at its outer end is beard at its rotor-joint (RG), which again is build by a bolt (dark grey). Naturally this function can be realized also be other techniques.

So at this conception, both ´wheels´ keep contact all times. However the connecting hub-arms show ´variable lengths´ (here by their room for motion within slots of glide-bearings). Only the hub-arms below (two or most time only one) are at stretched position and only these hub-arms temporary support the rotor.

At this conception, the rotor-arms are installed at different axial levels, here a thick rotor-arm (dark red) at the middle and two thin rotor-arms (light red) each aside of, so perfect symmetry exists. The rotor-arms should be shaped like ´angle-lever-arms´ and show most backward (in turning sense). At this picture below, six rotor-arms of same shape are arranged at two levels. At C the light-red rotor-arms build wide inner-angle of 125 degree, at D the dark-red rotor-arms build inner-angles of narrow 115 degree (by unchanged position of grey bolts). The ring can take variable shapes between this contours and regular six-edge.

The effective mass (WM) is quite backward and the gravity-centre (red point) of ring is positioned left side of system axis (blue point) all times. The rotor-arms reach back to next rotor-joint. There also the room for motions can be limited, like sketched here: at C towards outside and at D towards inside. So much effective masses can be arranged at relative narrow space.

Gravity- and Centrifugal-Forces

At this picture upside at A schematic is drawn a cross-sectional view. At centre again is the rotor-hub (RT, light blue) with the slot-bearings (SL, white), within which the hub-arms (TA, black) are beard movable. Only both hub-arms below are at stretched position and support momentary the rotor respective this stands at both bolts of its below rotor-joints (RG, blue resp. grey). The rotor-arms (RA, red) and also their backward-showing effective masses (WM, green) here are drawn only schematic by straight lines.

Analogue to previous constellation, the ring-elements (RI, red) and thus also the gravity-centre (red Point) of ring are shifted some towards left from system-axis (SA, dark blue). The effective mass below (see downward showing arrows E) via support-point (SP, grey) affects this left-shifting (see left-showing arrow G).

The mass upside presses contrary, want´s to shift the ring towards right side. However the four masses of right and left sides are symmetric to momentary centre of ring and thus behave neutral. So at resting state all forces are balanced, also of upper and lower masses, so the ring well could take that (labile) contour. However the system as a whole is left-weighted and thus will tilt to left side, thus will start turning. Actually, all eye-witnesses told the Bessler-Wheel was quite easy to start, did immediately accelerate to certain revolutions, however remarkable efforts were demanded to stop the wheel.

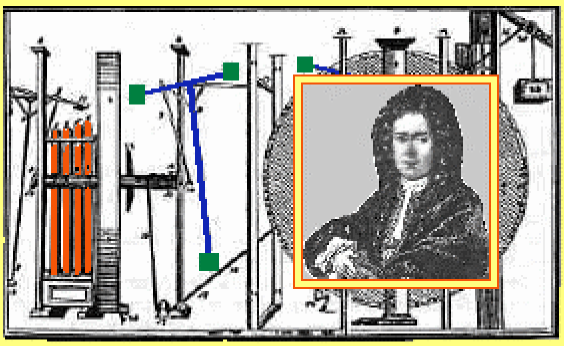
As soon as the system is turning, centrifugal forces come up and situation is essentially changed: below the gravity- and centrifugal-forces add, resulting strong force showing down (see arrows E). Upside the gravity-force is reduced by the centrifugal-force (see arrows F), so the upside mass shows few resistance against that left-shifting of mass below (based on gravity and inertia, realiter the upside mass wants to move left-down, so going on to rotate).

Actually this machine is a gravity-/centrifugal-forces engine. Gravity presses down all masses all time and thus is not usable by any rotor-system. Here however the gravity-acceleration allows (relative) free fall of masses, so stronger kinetic energy comes up. Again, that force is not usable direct manner, but here it´s only used for resulting stronger pressure at support-point of a seesaw.

Also the centrifugal-forces are not usable direct at rotor-systems, because all times showing radial off system axis and thus all forces mutually neutralize each other. This force is usable only indirect kind, here by reducing or increase weight-forces. The difference here is used to shift masses aside via ´angle-lever´ of rotor-arms. Resulting is ring-centre off system-axis and as a whole the gravity now affects at this eccentricity - and thus finally results usable turning momentum of that construction.

Confirmation
These considerations might be valuable hints for construction and solution of Bessler-problem. However I can not deliver further technical documents (nor any running machine). I can only point out the probably working effects and show basic principles, and hopefully now I got the decisive facts for self-running gravity-rotor-systems. If true, it should be possible to realize machines by different technologies, e.g. also by combination of previous proposals. And if it´s true, these new engines should be much better working than possible at Bessler´s times, 300 years ago.

GRGM 21



It would be fine, if we could present well deserved confirmation for that man named

Orffyreus - and this time could show the Bessler-Wheel as open system. This would be basic approve - without violation of energy-constant-law - ´free energy´ (here of gravity force) is usable (with most important consequences).

Even finer naturally would be, if that principle could be realized so effective, this link-ring gravity-motor could run at cellar around the clock all day after day and by pure mechanical technique would deliver absolute clean free energy.

Evert / 2009-12-20