Appendix A – Sketches of Ideas

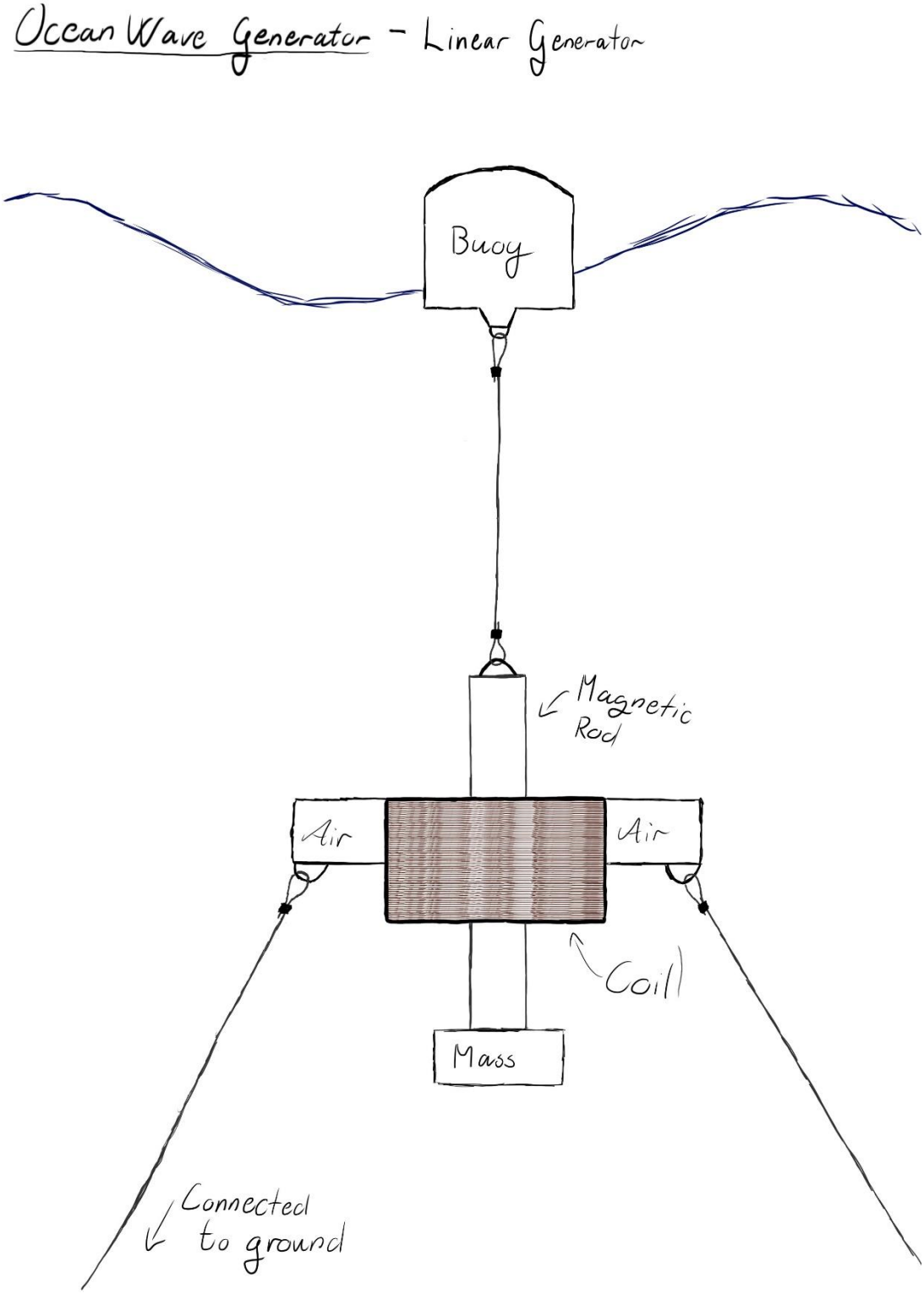
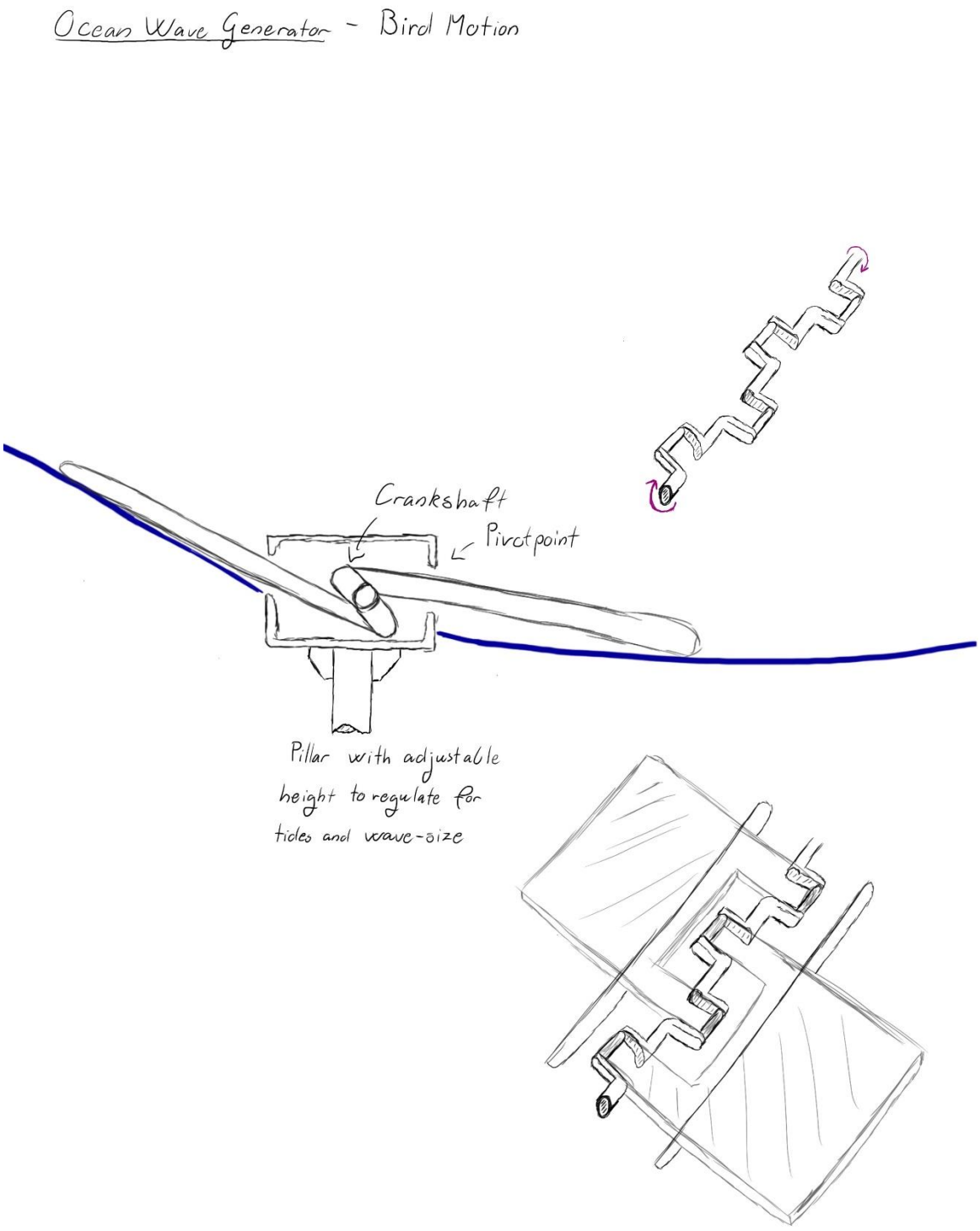


Figure 1 - Linear Generator



With a stationary shaft-hub, the waves will force the wings to pivot, turning the crankshaft.

Figure 2 - Bird Motion

Description as shown in Figure 4:

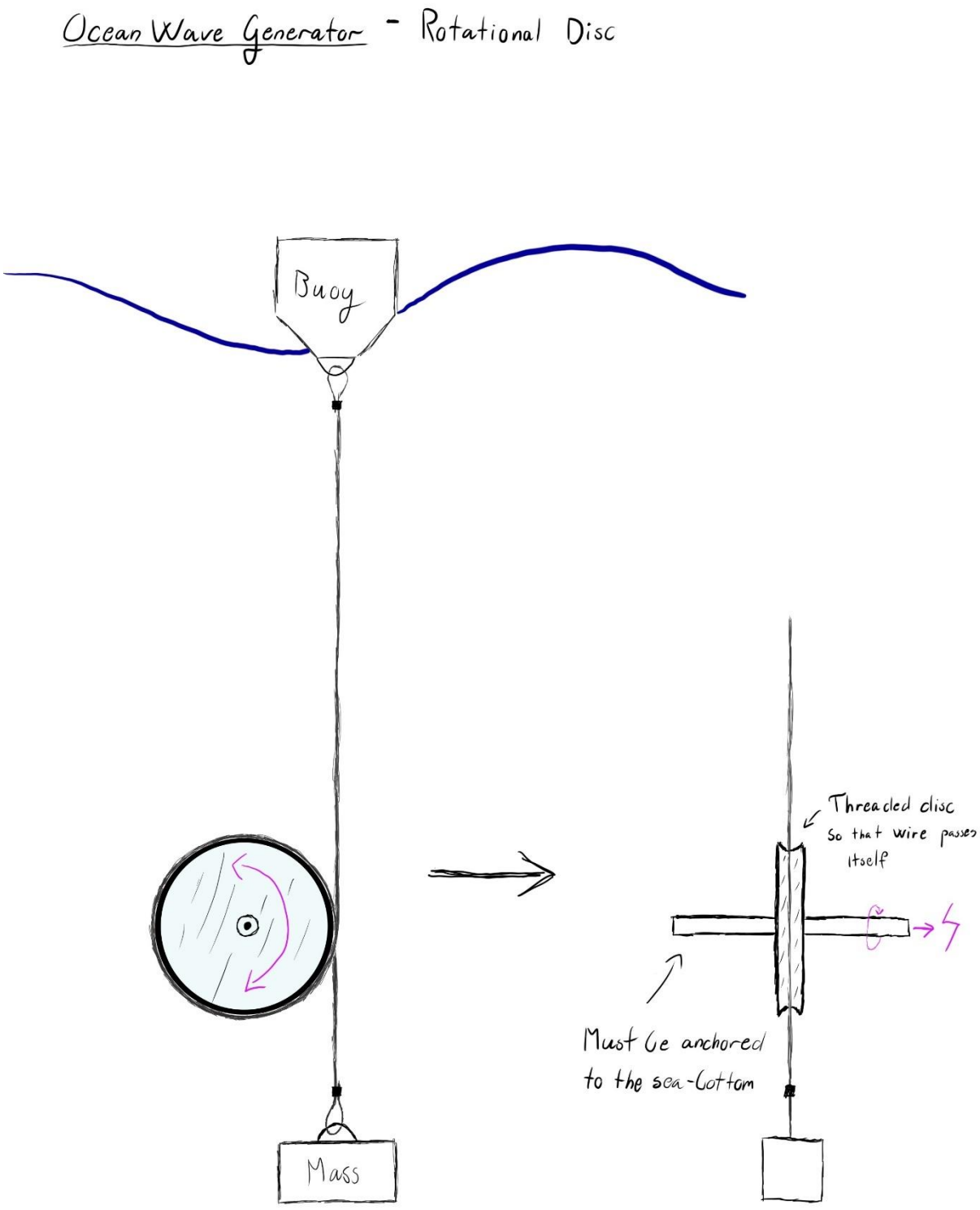


Figure 3 - Rotational Disc

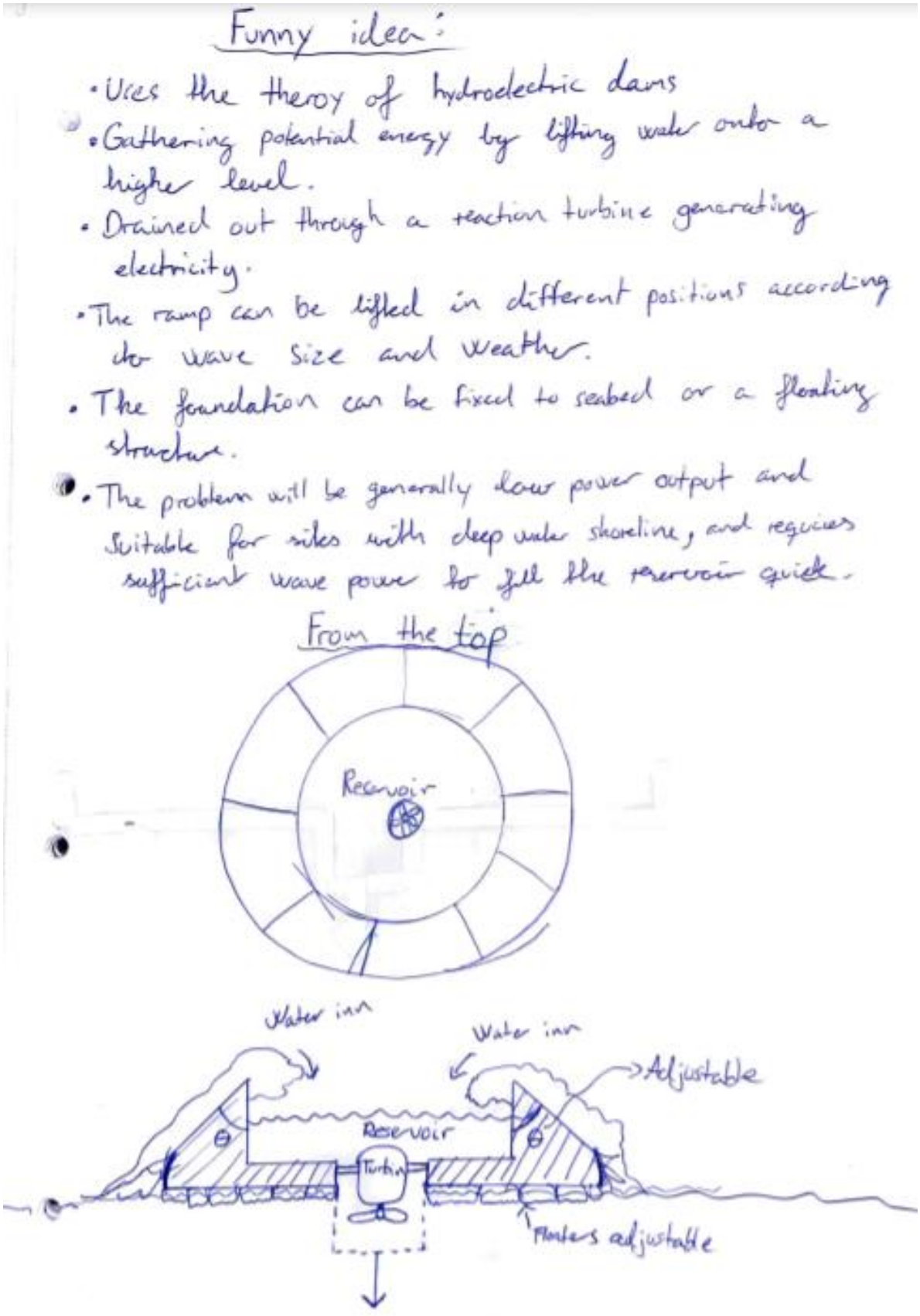


Figure 4 - Potential energy design using dams

Description as shown in Figure 5:

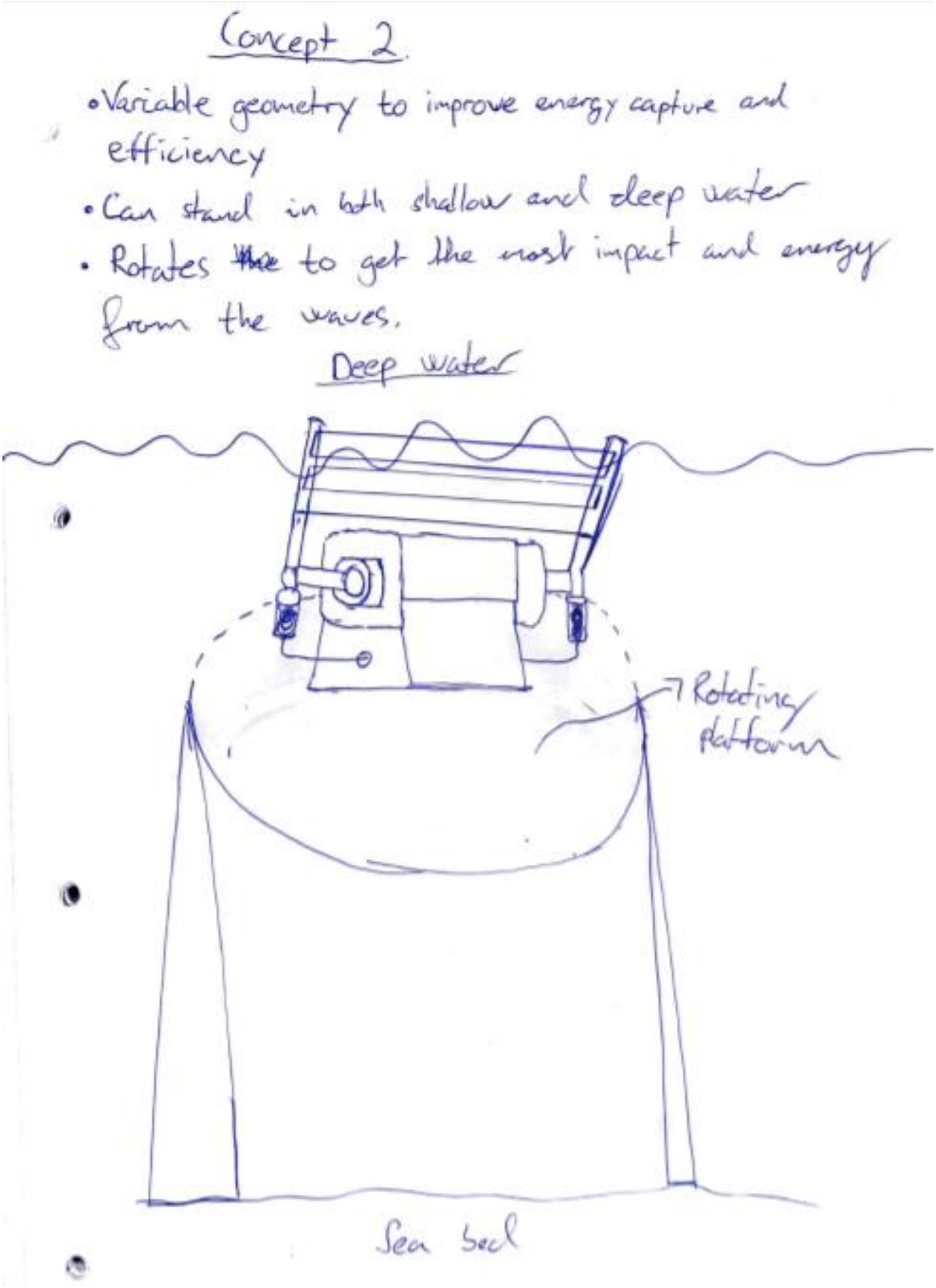


Figure 5 - Wave energy generator with rotating platform

Concept 3

Snake piston

- Capturing the motion of the waves by following the ocean movement, and produces a steady and constant electrical power supply.
- In the snake the hydraulic ram drives oil through a hydraulic motor which drives a generator, producing electricity.

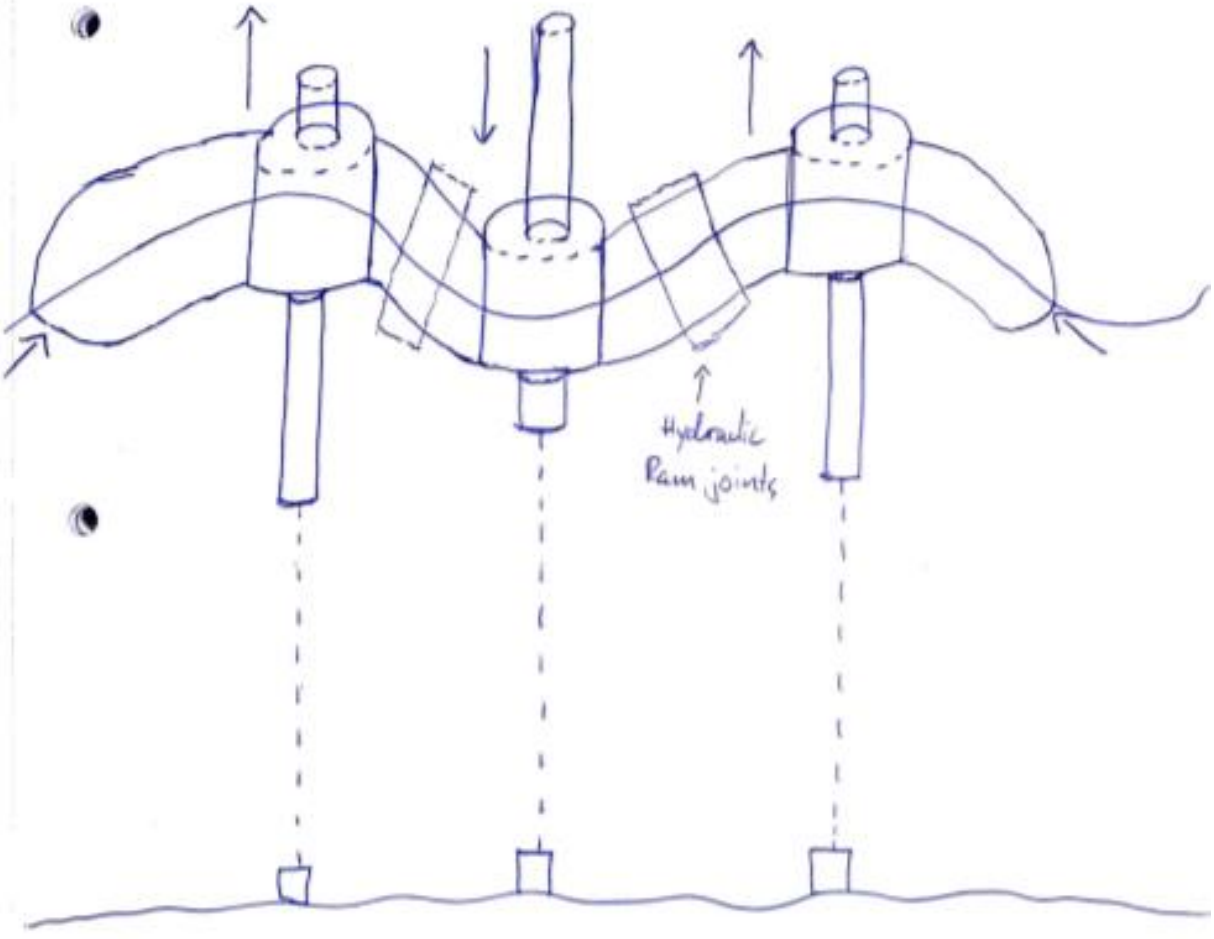


Figure 6 - Snake Piston

For the following designs, random words were given to challenge the creativity of the concepts. The word pipe was given for Figure 7. The idea for this model is to use the kinetic energy of seawater to drive two turbines creating electricity.

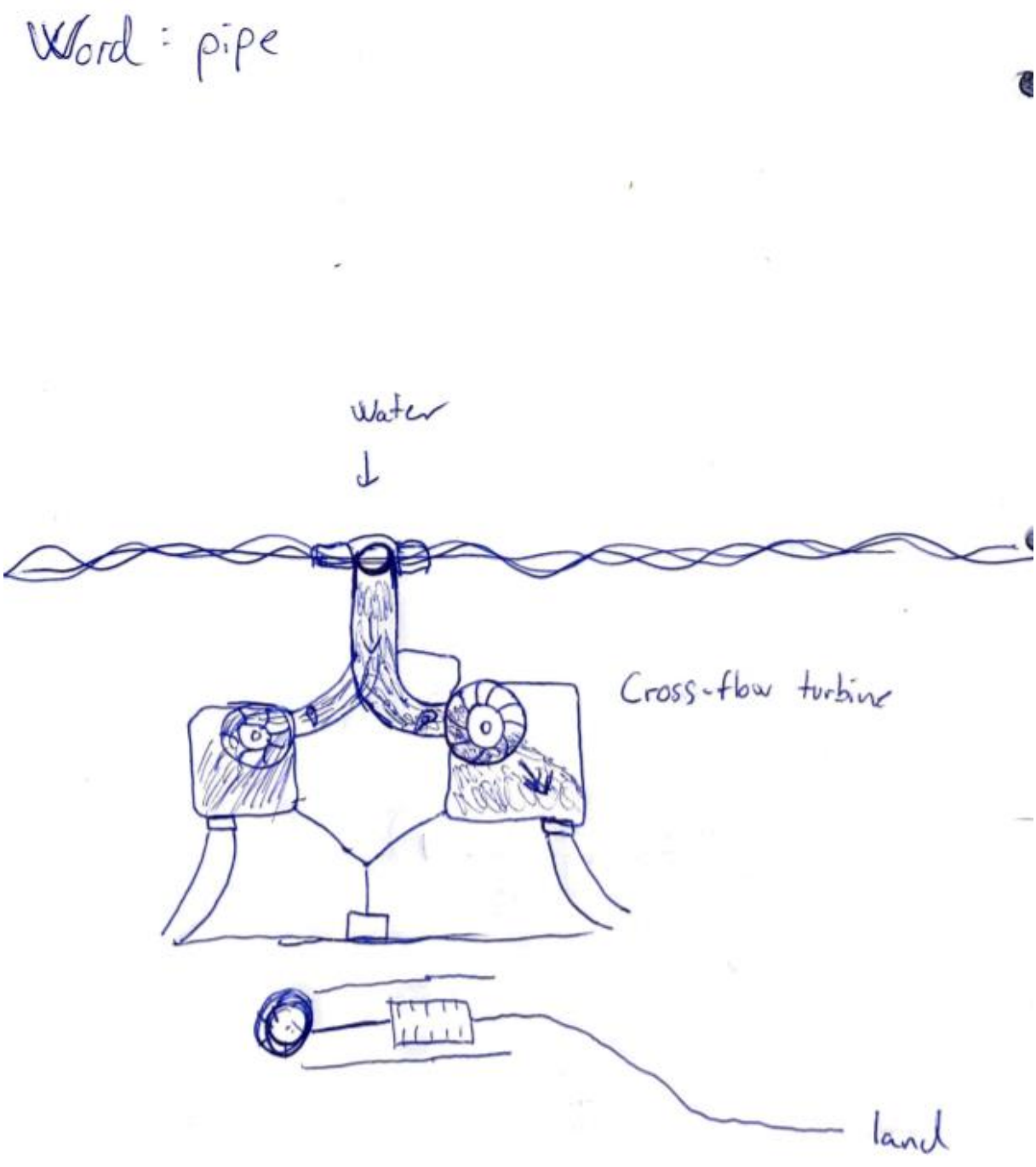


Figure 7 - Random word design

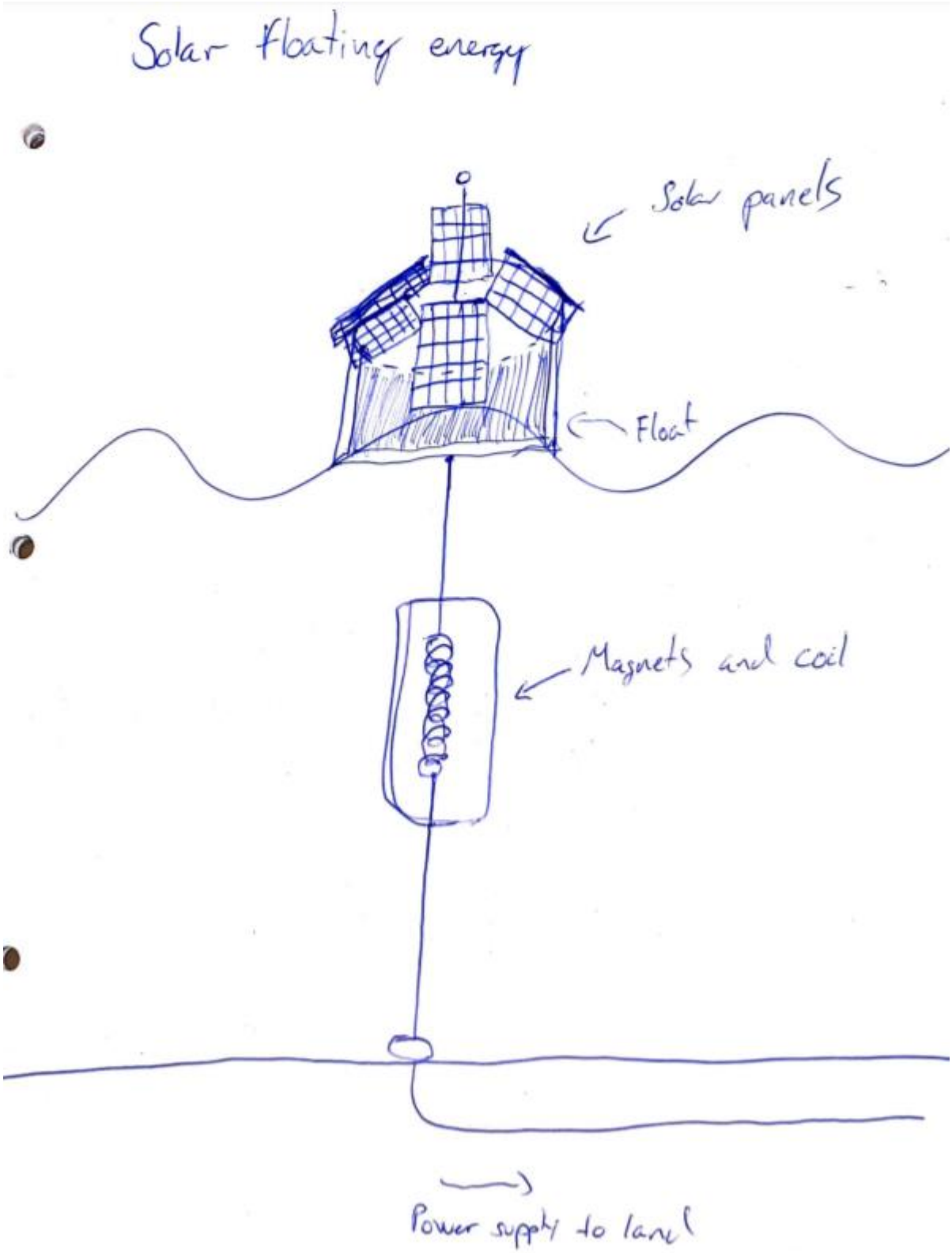


Figure 8 - Solar floating energy

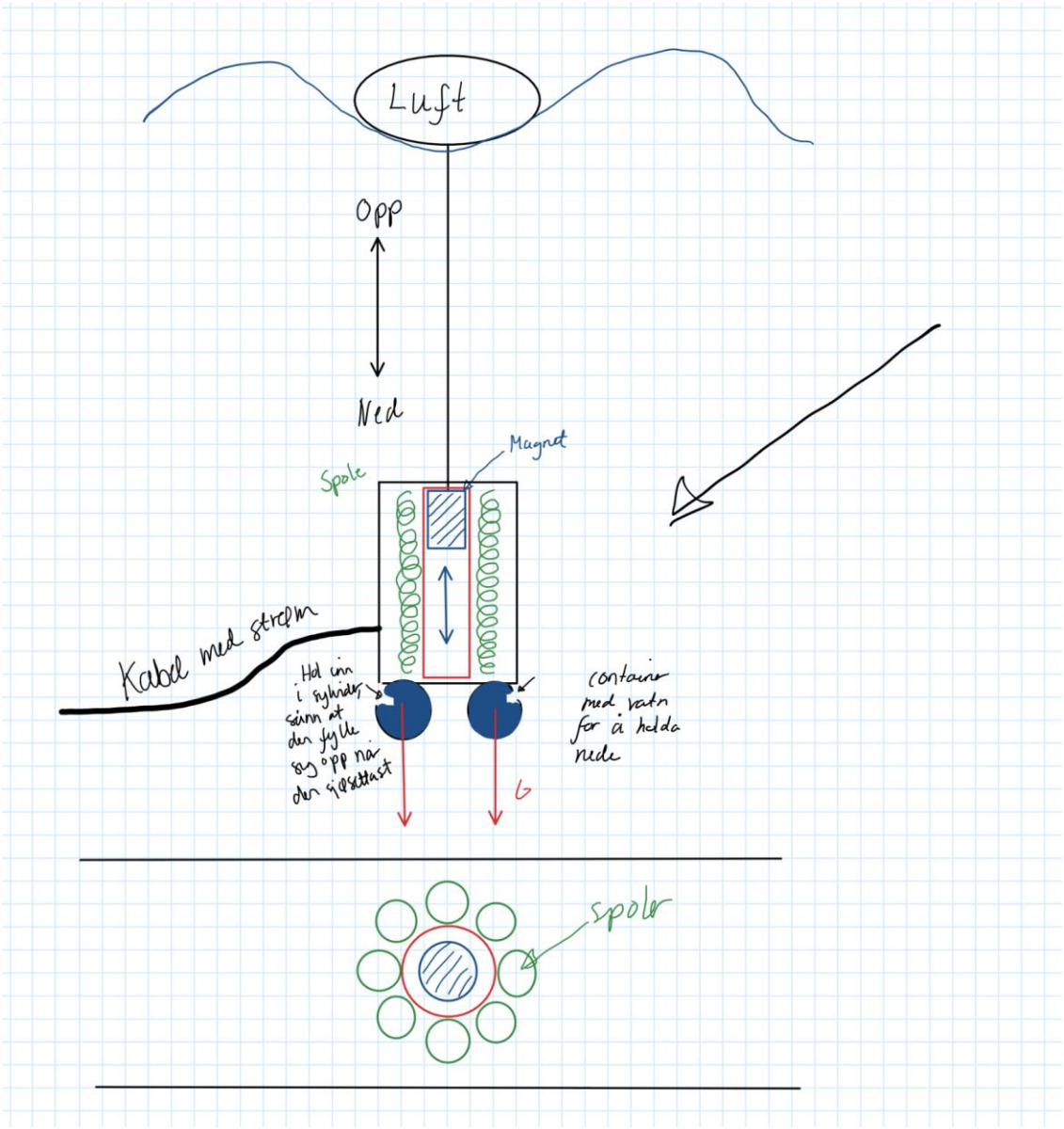


Figure 9 - Linear generator

Description of Figure 9 - Linear generator : This idea depends on linear motion to create energy. A rod is attached to a balloon with air inside to keep it floating at the surface. At the other end of the rod, a magnet is attached. The magnet will travel up and down with coils around it to create energy.

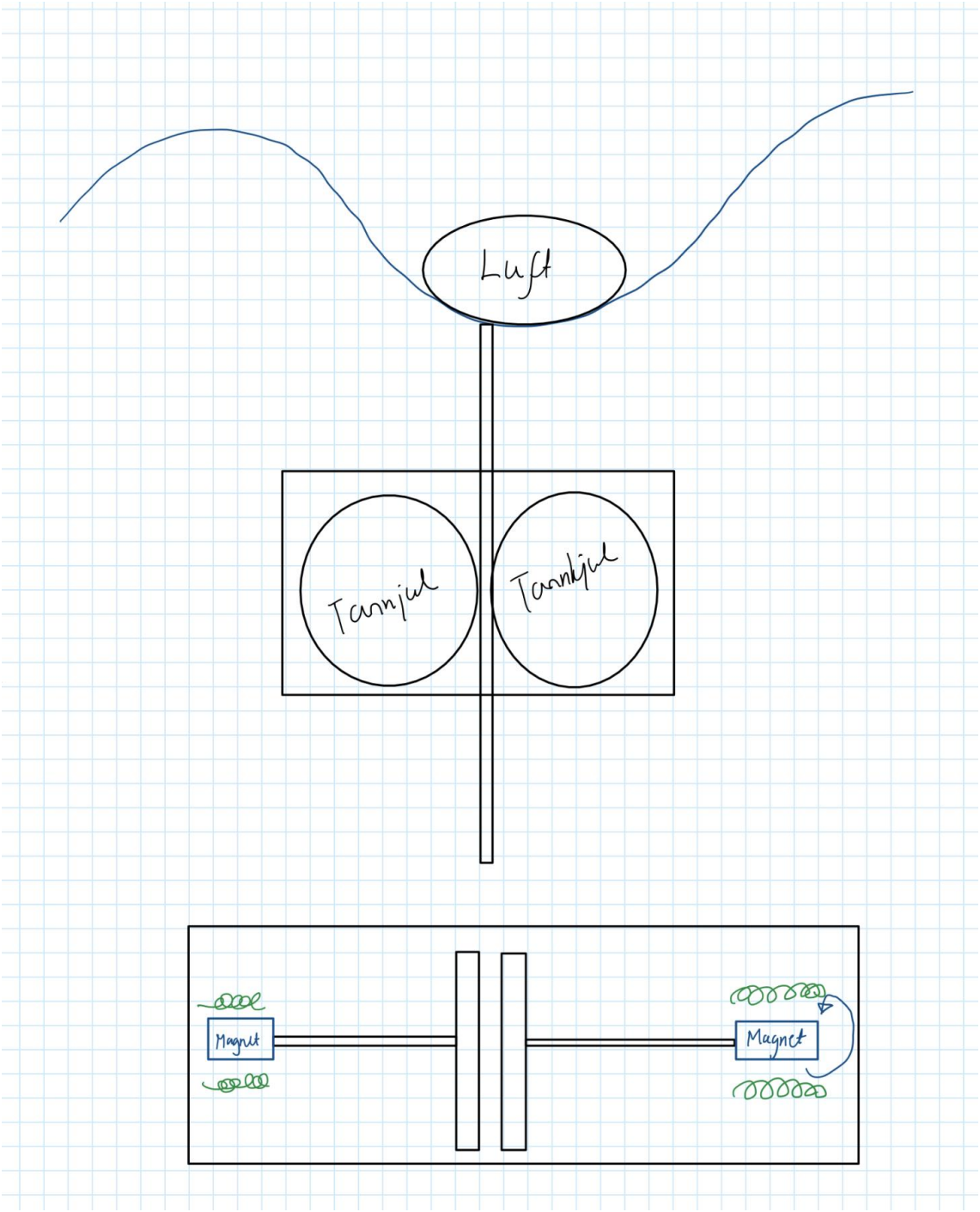


Figure 10 - rotational generator

As shown in Figure 10, this idea converts linear motion to rotational motion. A gear rack is connected to to separate gears as shown. The gear racks get pushed up and down from wave motion and creates rotational motion. The rotational motion is transferred to rods with magnets attached at the end. The magnet rotates with coils around it and creates electricity.

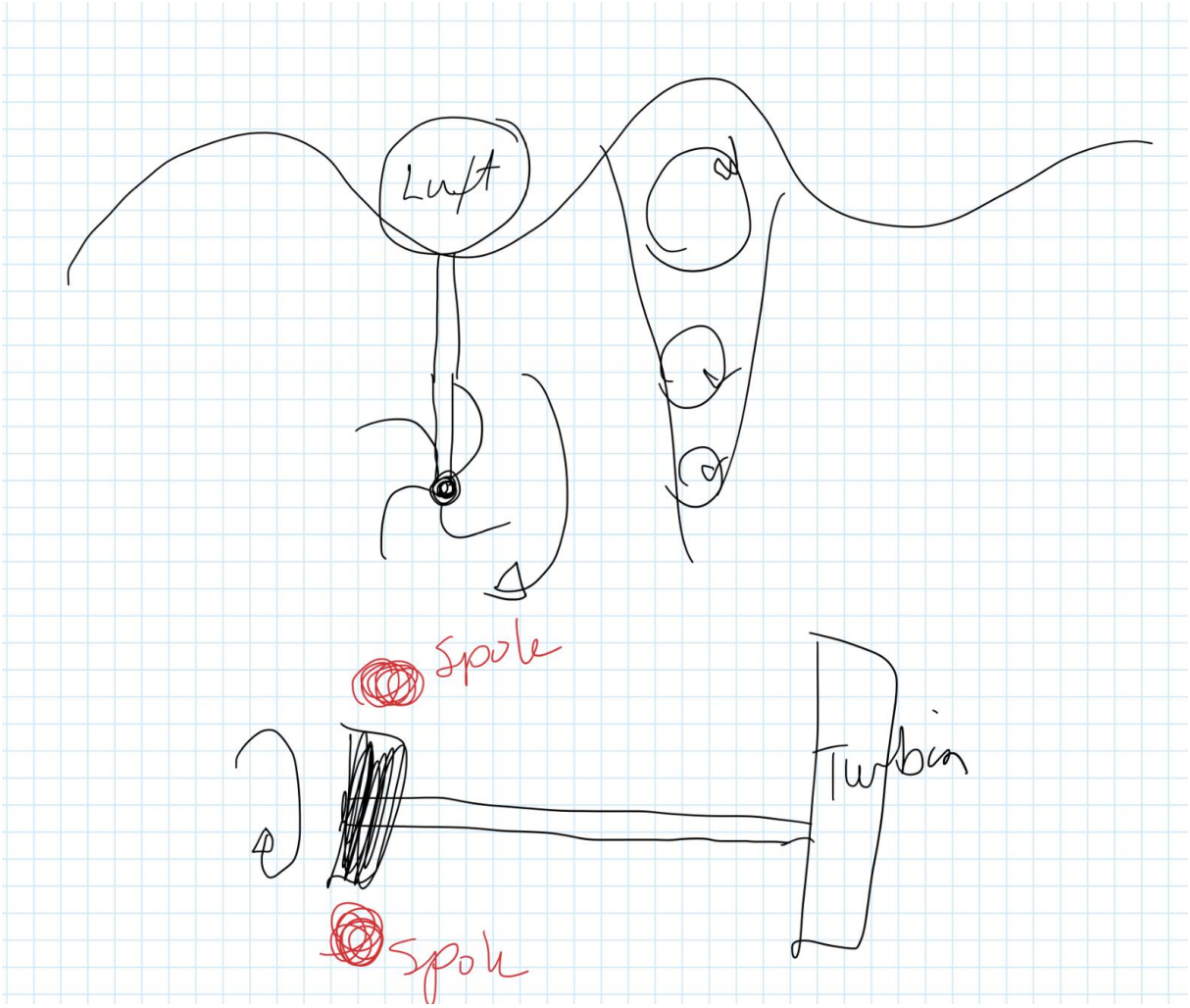


Figure 11 – Underwater Turbine

As illustrated in Figure 11, this idea tries to utilies the rotational motion of the water that the waves create beneath the surface. A rod is attached to a floating component and a fan shaped component is attached at the other end. This component is meant to rotate to create electricity.

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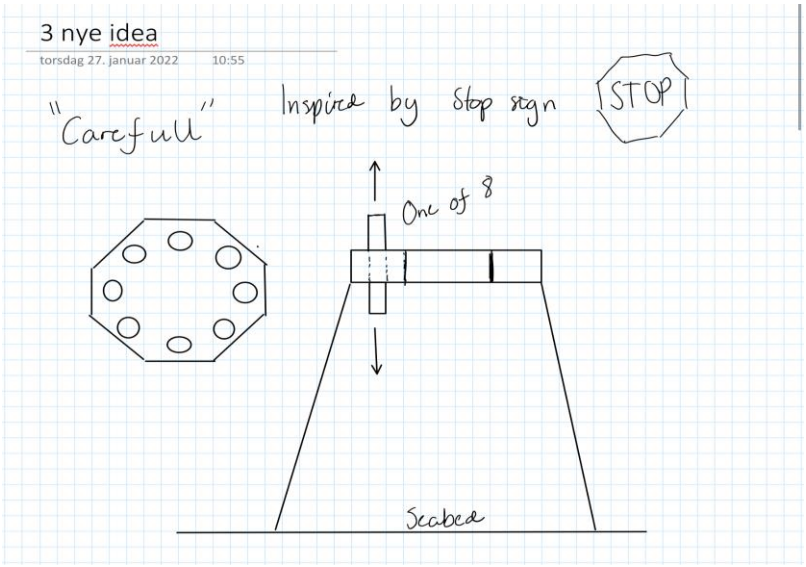

Figure 12 - Stop sign idea

Description of idea on Figure 12: This idea is inspired by the stop sign. The floating platform has 8 metal pistons moving up and down from wave motion to create electricity.

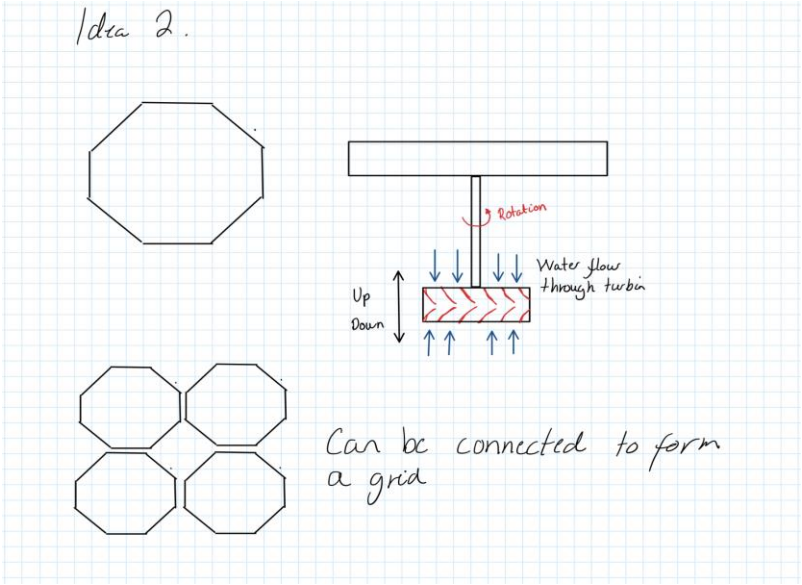

Figure 13 – Stopsign Turbine

Description of idea on Figure 13: This idea is using the same floating platform as above. The platform is connected to a rod with a turbin atteched. This turbine is meant to transfer the linear motion to rotational energy. The water flows through the blades to make the shaft rotate. The shaft is connected to a generator that is placed inside the floating platform.

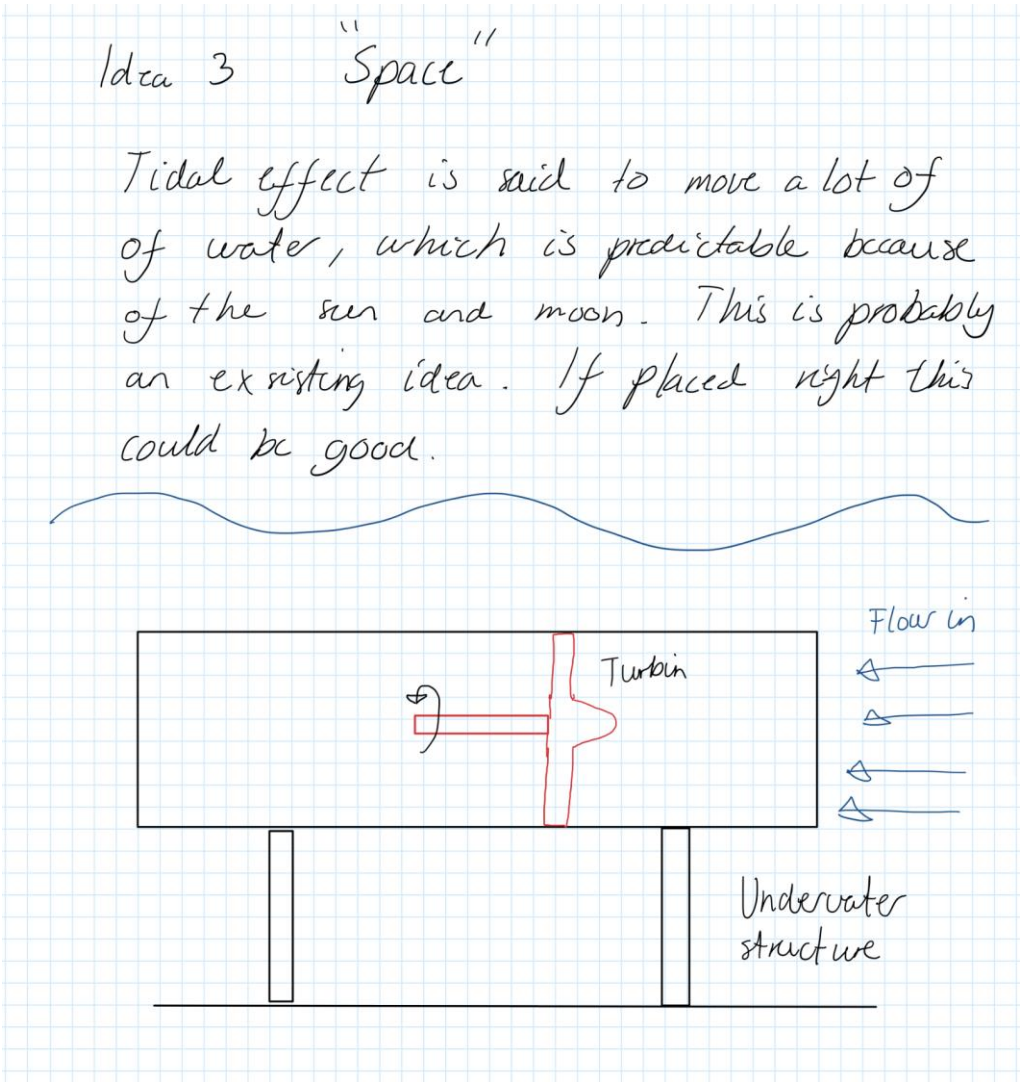

Figure 14 – Subsea Turbine

Description of idea on Figure 14: This concept is meant to be placed at areas that is highly affected by the tidal effect. The tidal effect is responsible for moving a lot of water, and that can be used. By placing a tunnel with a turbine inside at these places, it can create electricity from rotational motion.

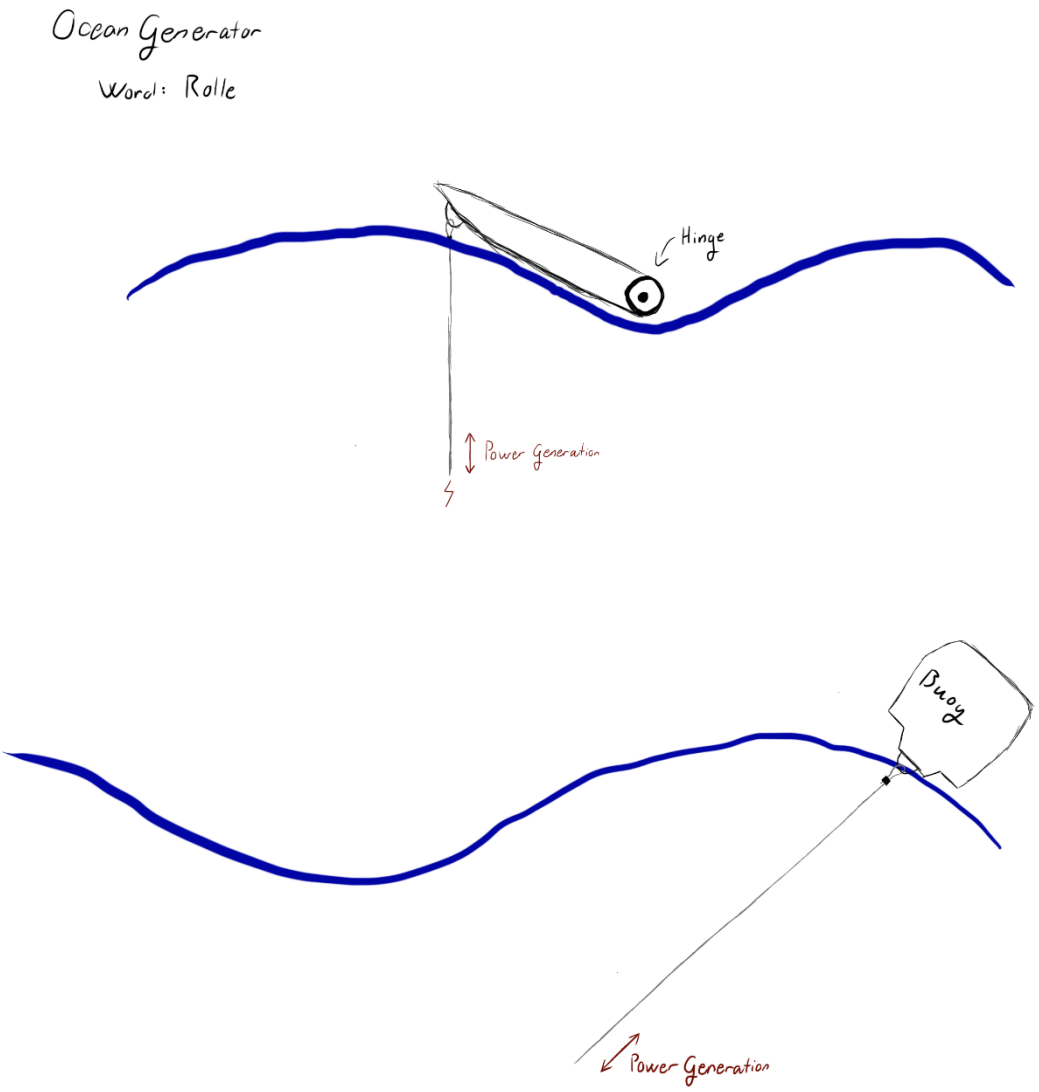

Figure 15 - Roller generator

Using the rolling motion of the ocean, the first idea uses a hinge and a flap to pull linearly on the wire, moving some mechanical component below the surface. Depending on how close you place the wire to the hinge, you can change both the velocity, range of motion and power through the wire. The second idea uses a pulling motion, where the buoy self-aligns using the waves and then pulls on the wire.

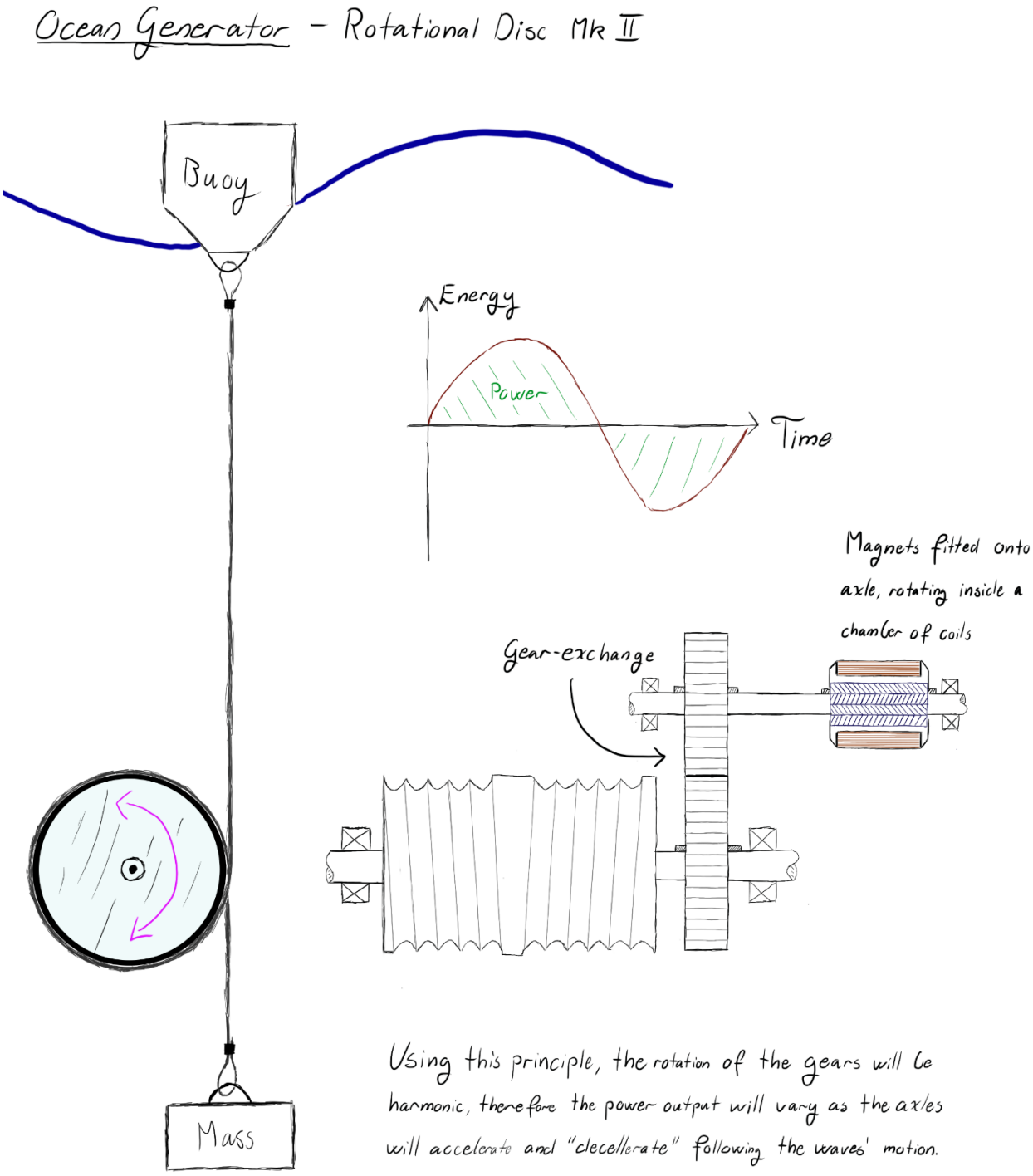

Figure 16 - Rotational disc

This idea is an improvenment from the rotational disk shown previously, showing how the mechanical components could be arranged.

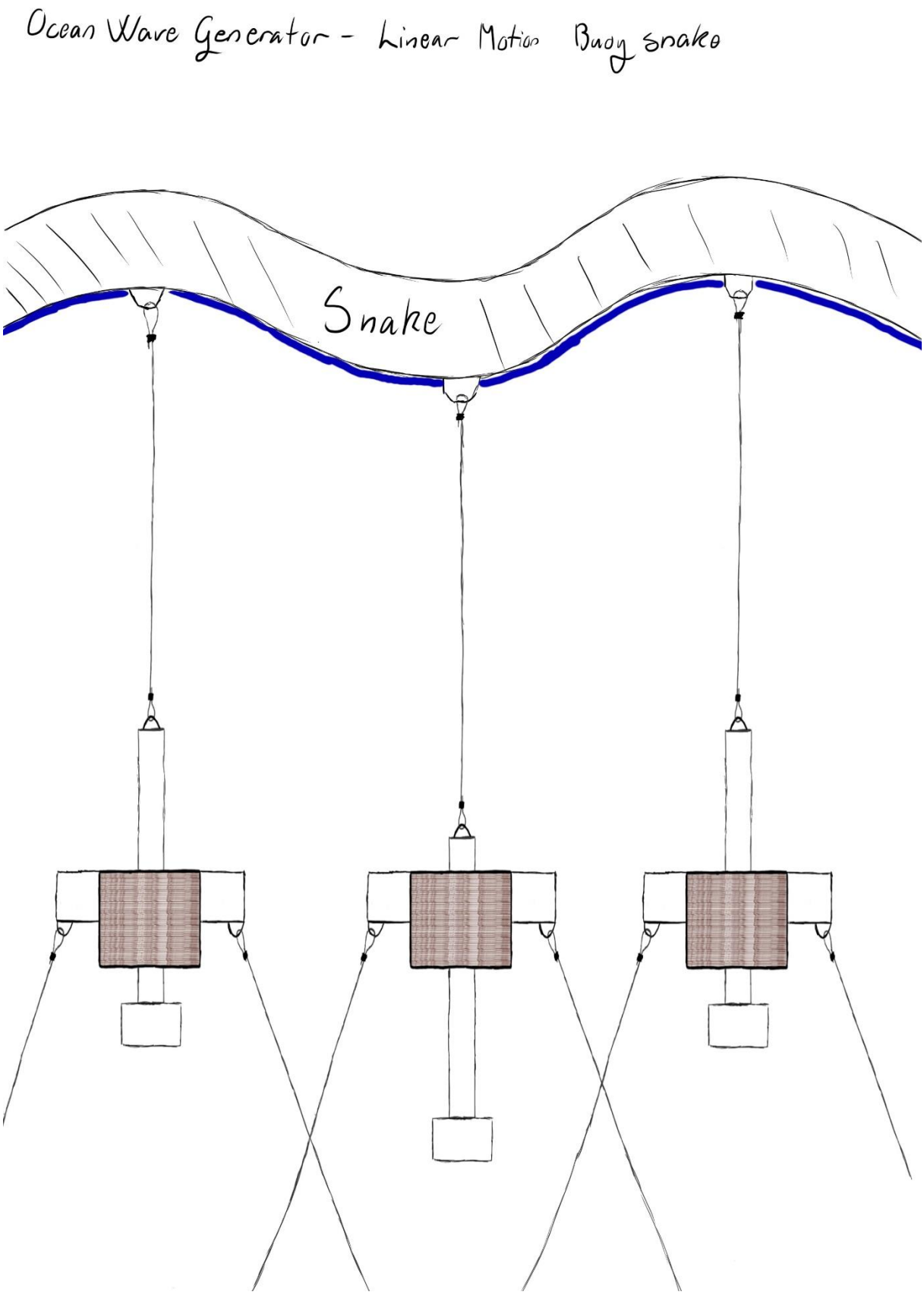

Figure 17 - Buoy Snake

This is a combined idea, using the snake setup and the linear motion buoyes to generate power over a larger area.

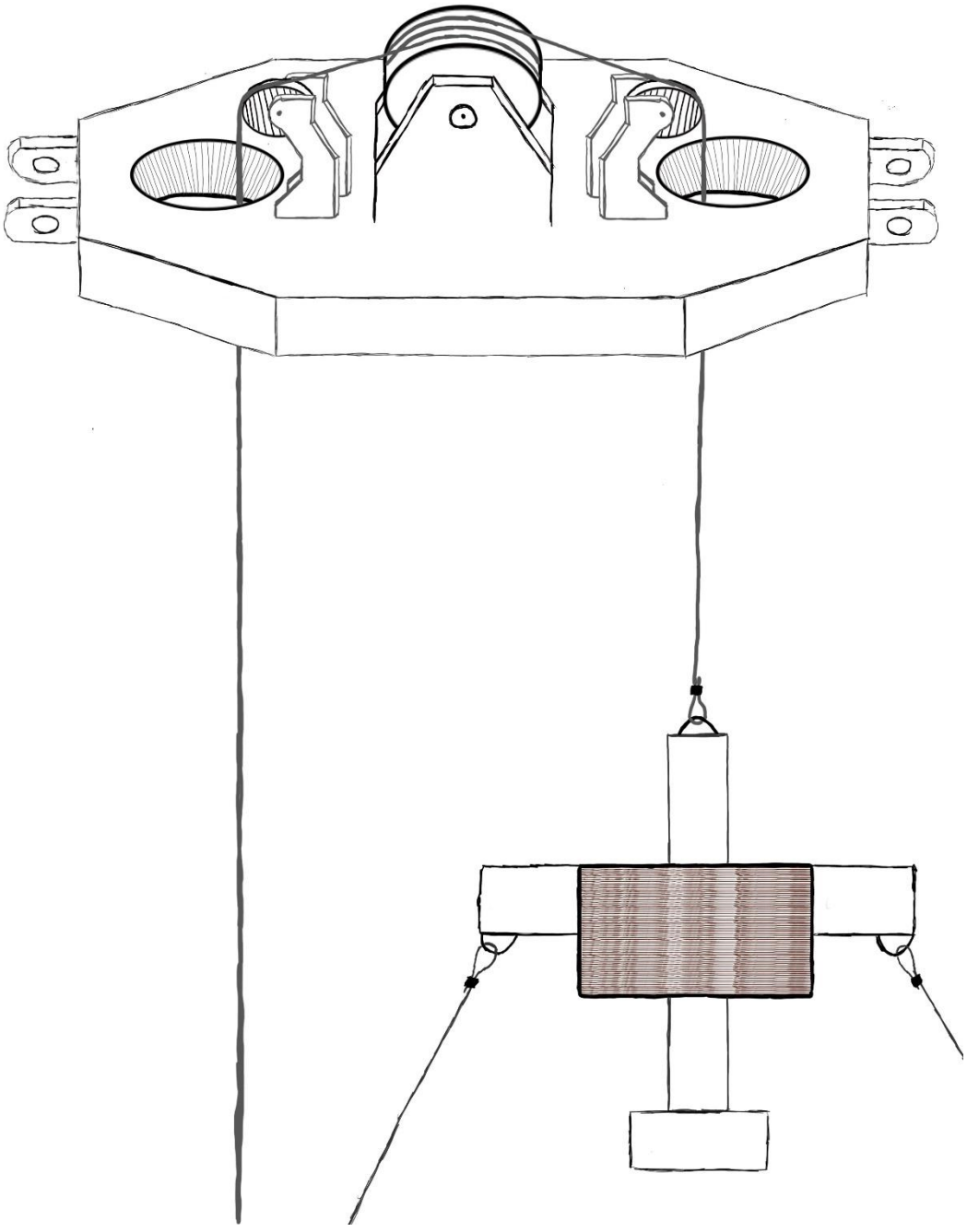

Figure 18 - Concept Illustration

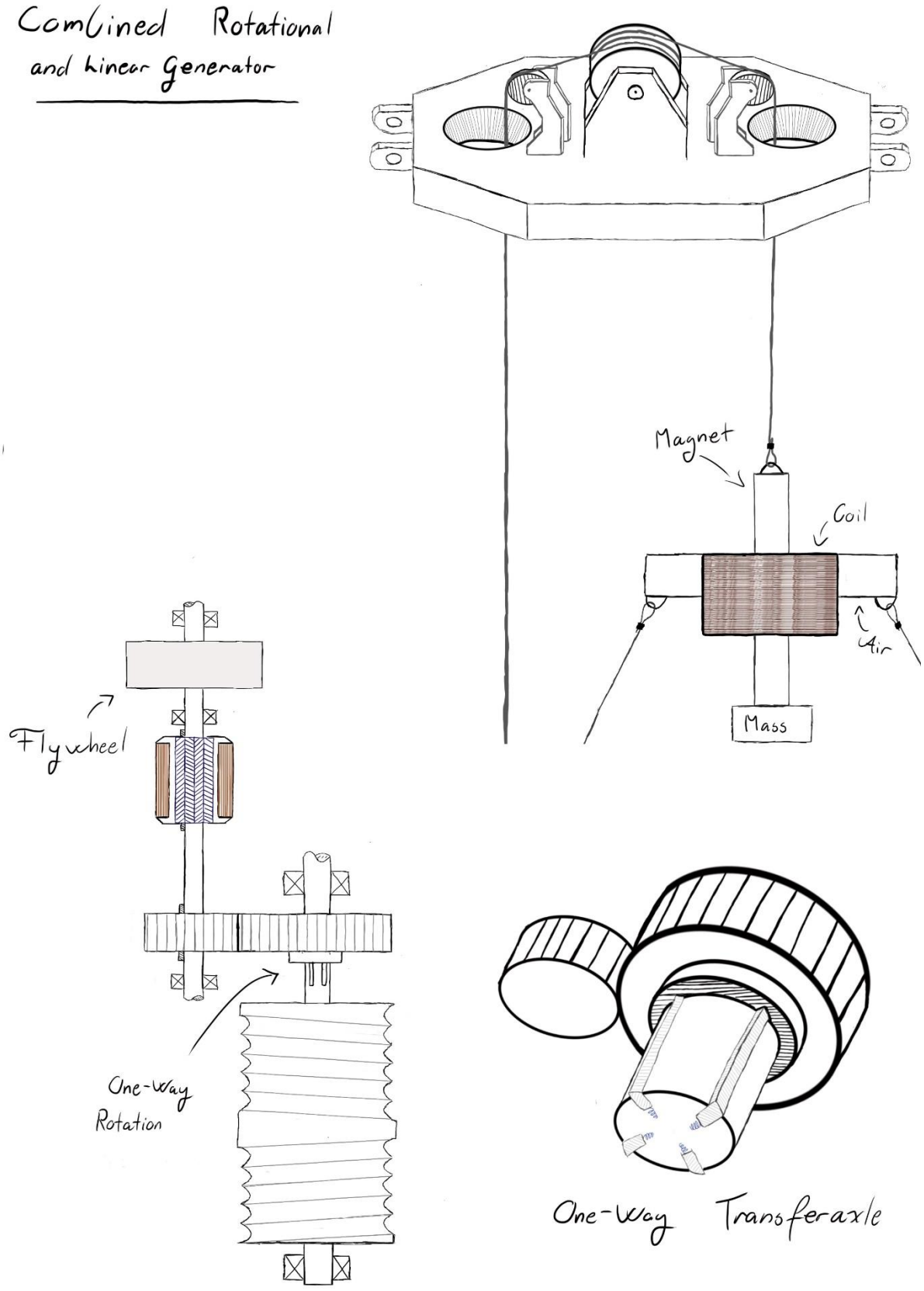

Figure 19 - Concept Illustration, Detailed

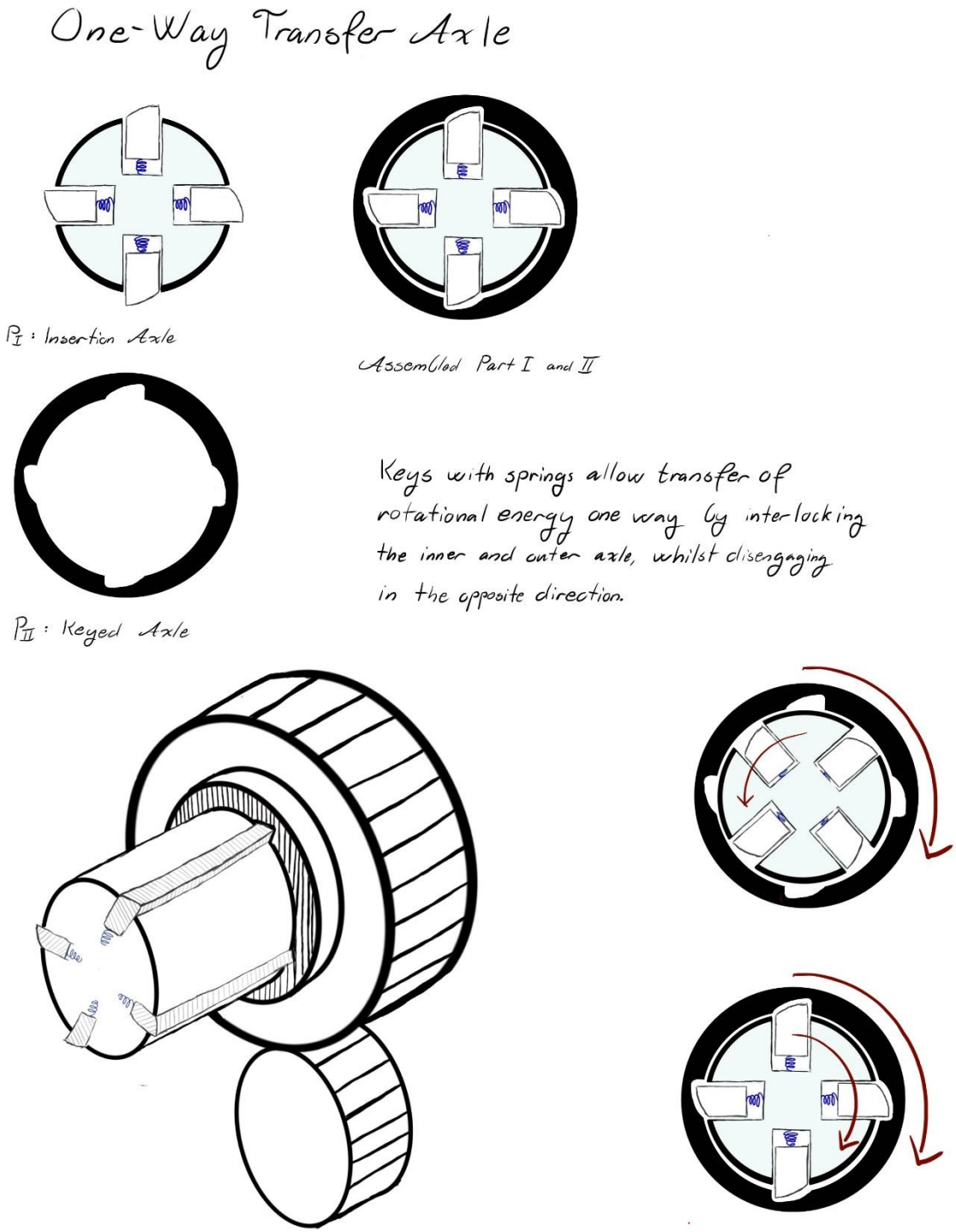

Figure 20 - One-Way gear

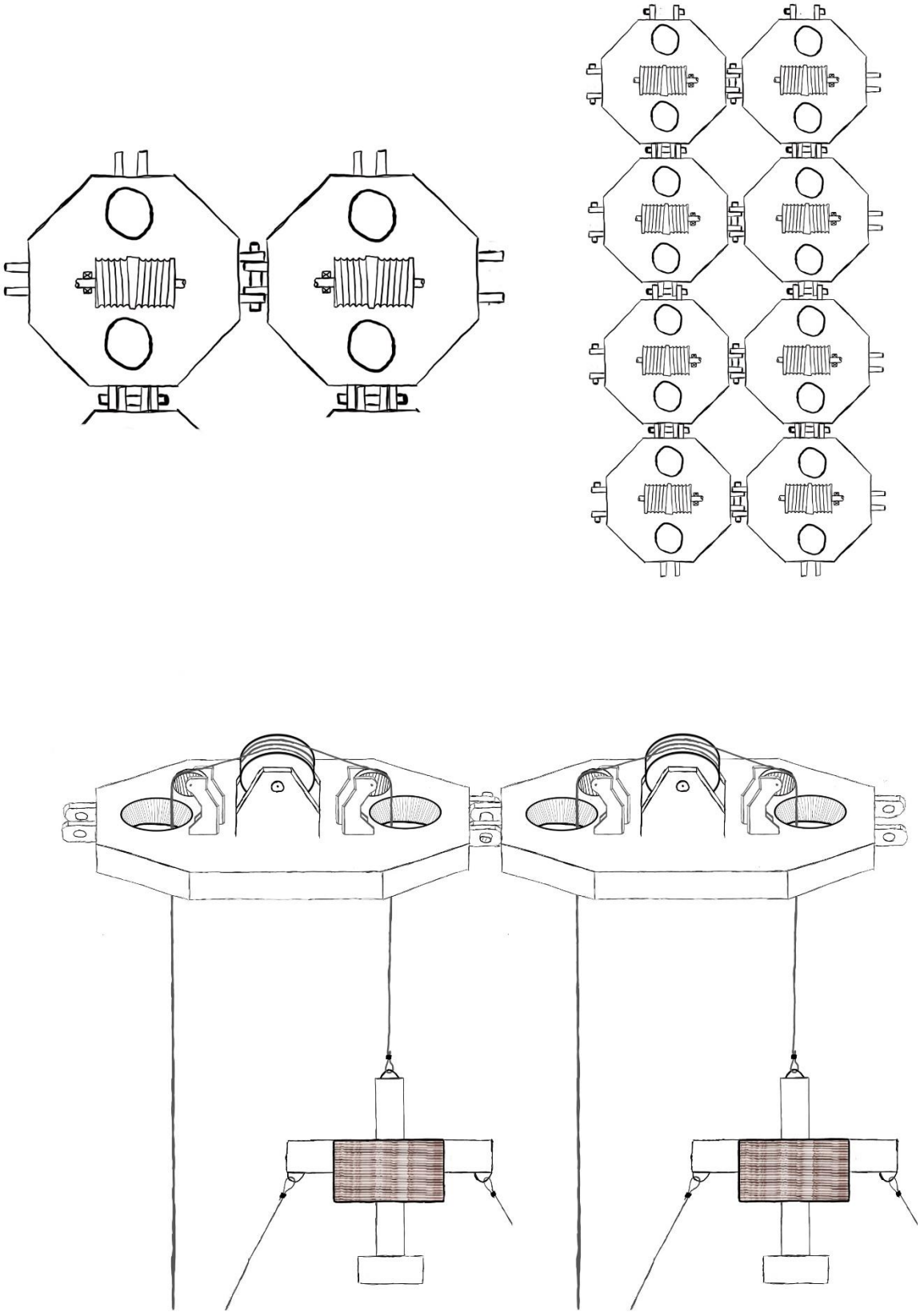

Figure 21 - Grid Example