The Toroidal Ionic Centrifuge

It is well-known that wingtip vortices are common in aviation, as are various sorts of ‘trailing edge vortices’ in the realm of propellers and other blade systems, where they become particularly important in the context of cavitation. Furthermore, any more or less radially disposed surface will tend to generate similar phenomena when rotated at high speeds.

It is also commonly acknowledged that vortexing motion can be used to separate various materials, substances, states, and conditions from one another, as in cyclone separators and certain centrifuges, and likewise that such motion can result in temperature changes.

The present disclosure relates to an invention designed to advantageously apply, support, and enhance these processes and principles in the realm of fluid flows, for the purposes of separations and stratifications of all kinds, including of temperatures, elements, charges, atomic and molecular states, as well as various combinations of atoms and molecules.

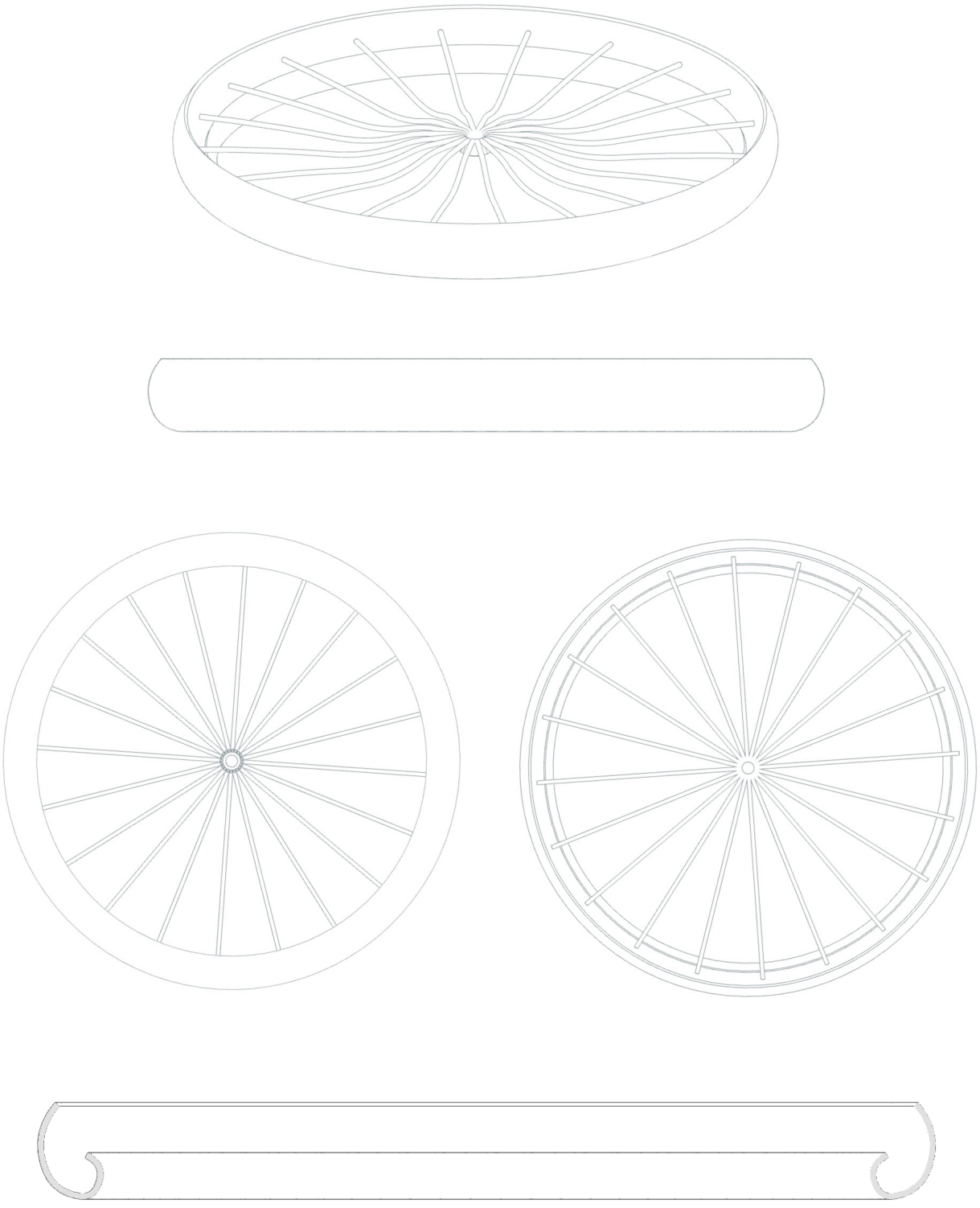
The invention consists of hollow, toroidal or torus-like structures meant to be situated near the inner or outer edge or edges of, or elsewhere near a rotating, more or less radially disposed surface or surfaces, and are so constructed that toroidal or helical flow originating on said rotating surfaces can move into them. The invention’s relationship to the relevant rotating surface or surfaces can involve co-rotation, counter-rotation, various combinations of velocities, and arrangements with one part being fixed and the other rotating.

The invention encompasses embodiments with tubes, or toroidal structures with various perforations, intended to duct off certain materials and/or energies, and/or to facilitate rotation.

The invention can and should incorporate materials or combinations of materials, which in virtue of their properties (magnetic, electric, thermoelectric, thermomagnetic, galvanic, and so on), enhance or support the salient processes central to the specific application.

The present invention may be of any size and designed and used to facilitate any advantageous application, e.g., power production, propulsion, fluid conveyance, desalination, chemical syntheses (including in the realms of food and beverage chemistry), and the production or refinement of fertilizers or other agricultural amendments.

Here is a depiction of one possible embodiment of the invention:



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