ABSTRACT OF THE INVENTION

INERTIAL HYDRODYNAMIC PUMP AND WAVE ENGINE

A buoyant hydrodynamic pump is disclosed that can float on a surface of a body of water over which waves tend to pass. Embodiments incorporate an open-bottomed tube with a constriction. The tube partially encloses a substantial volume of water with which the tube's constriction interacts, creating and/or amplifying fluid-flow oscillations therein in response to wave action. Wave-driven oscillations result in periodic upward ejections of portions of the water inside the tube that can be collected in a reservoir that is at least partially positioned above the mean water level of the body of water, or pressurized by compressed air or gas, or both. Water within such a reservoir may return to the body of water via a turbine, thereby generating electrical power (making the device a wave engine), or the device's pumping action can be used for other purposes such as water circulation, propulsion, dissolved minerals extraction, or cloud seeding. Methods are disclosed for manufacture of hydrogen at sea and for delivery of said hydrogen using a ship. Methods are disclosed for filling a hydrogen-loaded carrier ship at sea.

[Figure:1]