

DEFENSIVE PUBLICATION ## Tri-Axial Floating Engine: Bearingless Frictionless Generator Converting Lenz's Law Braking into Propulsion via Piezoelectric Phase Alignment **Publication Date:** June 13, 2026 **Publication Number:** DP-ST-2026-003 **Inventor:** Kiwann Williams **Assignee:** SoulTech Systems / Royalty Investment Company / Tikkun Olam Initiative **Classification:** Electromagnetic Generation / Frictionless Kinetic-Magnetic Systems --- ### NOTICE This document is a defensive publication intended to establish prior art under 35 U.S.C. Â§ 102(b). It is publicly disclosed for the purpose of preventing the patenting of the inventions described herein by any party other than the inventor. This disclosure is made without warranty and is not a patent application. All technical details are disclosed sufficient to enable a person having ordinary skill in the art to practice the invention. --- ## 1. Field of the Invention The present invention relates generally to electromagnetic generators and, more particularly, to a bearingless, frictionless kinetic-magnetic generator that uses geometric magnetic asymmetry (crossed-helix spiral configuration), piezoelectric phase alignment, and passive magnetic levitation to convert the electromagnetic braking force of Lenz's Law into a continuous propulsion vector, enabling self-sustained rotation without external mechanical drive, steam cycle, or combustion input. --- ## 2. Background Conventional electromagnetic generators suffer from three fundamental efficiency losses: 1. **Mechanical bearing friction** â€” Physical contact between rotor shaft and bearings generates heat, wear, and progressive mechanical entropy. 2. **Lenz's Law braking** â€” When current is induced in a stator coil by a moving magnet, the induced current creates a counter-magnetic field that opposes the motion of the rotor, acting as an electromagnetic brake that must be continuously overcome by external mechanical force (steam, wind, water). 3. **Thermal dissipation** â€” The steam turbine cycle used in the vast majority of power generation loses approximately two-thirds of energy as waste heat. Prior attempts at frictionless generators have addressed bearing friction through active magnetic bearings (requiring control electronics and power) or superconducting bearings (requiring cryogenic cooling). No prior art has addressed the fundamental problem of converting Lenz's Law braking into a propulsion vector through geometric and material-level means. What is needed is a generator that eliminates physical bearings through passive magnetic levitation, eliminates Lenz's Law braking through geometric shearing and piezoelectric phase alignment, and operates without thermal combustion cycles. --- ## 3. Summary of the Invention The Tri-Axial Floating Engine is a bearingless, frictionless kinetic-magnetic generator comprising three concentric modules arranged in a crossed-helix configuration: - **Core Rotor:** A lightweight cylinder featuring a stair-step profile with permanent magnets arranged in a right-hand helical spiral. - **Middle Interface Stator:** A non-conductive tube wound with copper helix windings, with piezoelectric elements interleaved at regular intervals. - **Outer Driver Track:** Permanent magnets arranged in a left-hand spiral â€” the geometric opposite of the rotor. The rotor is suspended in mid-air by passive magnetic levitation (opposing permanent ring magnets at top and bottom)

with gyroscopic stabilization, eliminating all mechanical bearing contact. The fundamental innovation is the conversion of Lenz's Law braking into propulsion through two mechanisms: 1. **Geometric Shearing:** The opposing spiral directions (right-hand rotor vs. left-hand driver) prevent the magnetic fields from ever achieving static equilibrium, eliminating magnetic lock points. 2. **Piezoelectric Phase Alignment:** When induction creates magnetic pressure in the stator, embedded piezoelectric elements absorb the force and shift the electrical phase, redirecting the counter-electromagnetic force from the leading face (braking) to the trailing face (propulsion) of the rotor magnets. The system is designed to receive an initial trigger pulse from an external source, after which the geometric and material innovations maintain self-sustained, frictionless rotation. --- ## 4. Detailed Description ### 4.1 Module 1: The Core Rotor The inner rotating element of the Tri-Axial Floating Engine. - **Substrate Material:** Non-conductive, lightweight structural material. - **Geometry:** Precision-machined raised stair-step profile on the outer face. - **Magnetic Configuration:** Alternating permanent magnets set into each step, aligned in a climbing **right-hand helical spiral**. - **Internal Grain Alignment:** The crystallographic magnetic domains of the permanent magnets are sintered at a shear angle matching the physical step, forcing the magnetic flux vector into a permanent, climbing spatial angle. ### 4.2 Module 2: The Middle Interface Stator The stationary middle element that both generates electrical output and converts braking forces into propulsion. - **Substrate Material:** Non-conductive tube. - **Conductive Path:** Copper wire wound into a tight, continuous spring-shaped helical solenoid directly around the tube. - **Damping and Harmonizing Matrix:** Miniature piezoelectric elements interleaved directly into the copper windings at regular physical intervals around the circumference of the cylinder. The piezoelectric elements serve a dual function: 1. **Harmonization:** They absorb transient magnetic pressure and convert it into high-frequency electrical pulses, filtering chaotic induction noise into coherent waveforms. 2. **Phase Alignment:** Under the magnetic pressure of induced current, the piezoelectric elements mechanically deform, shifting the electrical phase. This phase shift is the critical mechanism that converts Lenz's Law braking into propulsion. ### 4.3 Module 3: The Outer Driver Track The outer stationary magnetic structure that creates the opposing geometric field. - **Substrate Material:** Outer structural housing. - **Magnetic Configuration:** Permanent magnet tracks arranged in a **left-hand spiral** – the exact geometric opposite of the inner rotor's right-hand spiral. The crossed-helix configuration (right-hand inner, left-hand outer) ensures that the magnetic fields of the rotor and driver can never achieve a state of static spatial equilibrium. There is no physical "dead-center" or lock point. The magnetic fields are in a permanent state of geometric shearing. ### 4.4 Elimination of Magnetic Lock Points In a standard generator, rotor and stator magnets are arranged in perpendicular orientations, creating alternating North-South transitions that produce predictable lock points where magnetic attraction/repulsion balances and the rotor can stall. The Tri-Axial Floating Engine

eliminates lock points through geometric shearing: - The inner rotor magnets spiral in a right-hand direction. - The outer driver magnets spiral in a left-hand direction. - At no rotational position do the magnetic fields align to create a stable equilibrium point. - The continuous geometric offset means the magnetic fields are always in a state of shearing – always pushing the rotor to the next position. - This creates a permanent rotational bias: the rotor is geometrically inclined to move forward in one direction at all times. ### 4.5 Decoupling Lenz's Law via Piezoelectric Phase Alignment

The core innovation that distinguishes the Tri-Axial Floating Engine from all prior electromagnetic generators: In a standard generator, when a magnet moves past a coil, the induced current (by Lenz's Law) creates a counter-magnetic field that pushes against the approaching magnet – this is electromagnetic braking. The faster the magnet moves, the stronger the braking force. This is why all conventional generators require continuous external mechanical force. The Tri-Axial Floating Engine bypasses this through the following sequence: 1. **Trigger Phase:** An initial electrical pulse from an external source hits the middle stator helix. 2. **Rotor Acceleration:** The floating rotor, weightless on its maglev cushion, breaks resting inertia instantly due to the asymmetric stair-step magnetic repulsion from the outer driver. 3. **Induction Phase:** As the rotor spins, its moving magnetic fields cut through the copper helix, generating induced current. 4. **Phase Shift Phase:** The induced current creates localized magnetic pressure. Instead of this pressure pushing back against the rotor (Lenz's Law braking), it physically deforms the piezoelectric elements embedded in the stator at regular intervals. The piezoelectric elements absorb this transient magnetic force and convert it into high-frequency electrical pulses, shifting the electrical phase. 5. **Propulsion Phase:** Due to the phase shift and the physical pitch of the stair-steps, the counter-electromagnetic force is geometrically redirected. It no longer pushes against the **leading face** of the oncoming rotor magnet (braking). Instead, it pushes against the **trailing face** of the departing magnet (propulsion). **The mechanical brake is turned into a continuous electromagnetic propulsion vector.** ### 4.6 Frictionless Maglev Suspension System

To eliminate physical bearing contact (the source of mechanical friction, wear, and entropy), the entire inner rotor is suspended in stable passive magnetic levitation. #### Vertical Suspension Mechanics - **Top Bearings:** Two ring-shaped permanent magnets – one on the stator housing, one on the floating rotor shaft – with identical poles facing each other, creating a powerful vertical repelling force. - **Bottom Bearings:** An identical set of ring-shaped permanent magnets – one on the floating rotor shaft, one on the bottom stator housing – set in mutual repulsion. #### Axis Stabilization and Gyroscopic Integration Earnshaw's Theorem states that a passive system of permanent magnets cannot achieve stable, static levitation in all three dimensions without active control. The Tri-Axial Floating Engine bypasses this limitation through gyroscopic integration: - The floating rotor shaft is integrated with a **central kinetic gyroscope**. - Once initial torque is applied, the high angular momentum of the gyroscopic rotor locks the core onto a single, mathematically perfect

rotational axis. - The gyroscope's gyroscopic stiffness stabilizes the radial axis, while the opposing top and bottom maglev rings stabilize the axial axis. - The rotor floats in a state of frictionless, dynamic equilibrium, spinning with zero mechanical surface contact. --- ## 5. System Integration The Tri-Axial Floating Engine is designed to receive its initial trigger from an external energy source. The integration sequence is: 1. Connect the external source to the initial trigger terminal of the Middle Stator Helix. 2. Spin the rotor manually to establish gyroscopic stabilization. 3. Release the system. The continuous charge from the source triggers the stator, initiating self-sustained, frictionless rotation. --- ## 6. Novel Aspects and Claims The following novel aspects are disclosed as prior art: 1. ****Crossed-helix magnetic configuration eliminating magnetic lock points**** â€” a right-hand helical spiral rotor combined with a left-hand helical spiral driver, creating permanent geometric shearing that prevents static equilibrium and provides continuous rotational bias. 2. ****Stair-step rotor geometry with aligned magnet grain**** â€” magnets with crystallographic domains sintered at a shear angle matching the physical stair-step, forcing the magnetic flux vector into a permanent climbing spatial angle. 3. ****Piezoelectric phase alignment converting Lenz's Law braking into propulsion**** â€” embedding piezoelectric elements at regular intervals in the stator to absorb induced magnetic pressure and shift the electrical phase, redirecting counter-EMF from the leading face (braking) to the trailing face (propulsion) of rotor magnets. 4. ****Passive magnetic levitation with gyroscopic stabilization**** â€” bypassing Earnshaw's Theorem through the combination of opposing permanent ring magnets (vertical suspension) with a central kinetic gyroscope (radial stabilization), achieving frictionless, contact-free rotor operation without active control electronics or cryogenic systems. 5. ****Three-module concentric architecture**** â€” Core Rotor (right-hand spiral, stair-step), Middle Interface Stator (copper helix + piezoelectric elements at regular intervals), and Outer Driver Track (left-hand spiral), each serving distinct but synergistic functions in a single integrated generator. 6. ****Integration of external energy source with frictionless generator**** â€” connecting an external source to the stator helix, creating a complete system where the external charge provides the initial trigger for self-sustained rotation. 7. ****Lenz's Law reversal through geometric and material synergy**** â€” the combined effect of geometric shearing (crossed spirals), physical pitch (stair-steps), and piezoelectric phase shift working in concert to transform electromagnetic braking force into a continuous propulsion vector, a result not achievable by any single mechanism alone. --- ## 7. Industrial Applicability The Tri-Axial Floating Engine is applicable to: - Off-grid residential and laboratory power generation - Emergency and disaster response power systems - Remote installation power supply (telecommunications, scientific stations) - Utility-scale power generation (in multi-tiered industrial arrays) - Electric vehicle range extension - Spacecraft and satellite power systems (frictionless, bearingless operation in vacuum) - Educational and research applications in electromagnetic generation --- ## 8. Reference Documents - SoulTech Systems, "Quantum-Geometric Electrostatic and Electromagnetic Energy

Systems," 2026. - SoulTech Systems, "Tri-Axial Floating Engine: Frictionless Kinetic-Magnetic Generator Blueprint," 2026. - Related internal disclosures: "Piezoelectric Phase Alignment for Lenz's Law Decoupling," "Passive Maglev Gyroscopic Stabilization Method," "Stair-Step Magnetic Rotor Architecture." ---

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