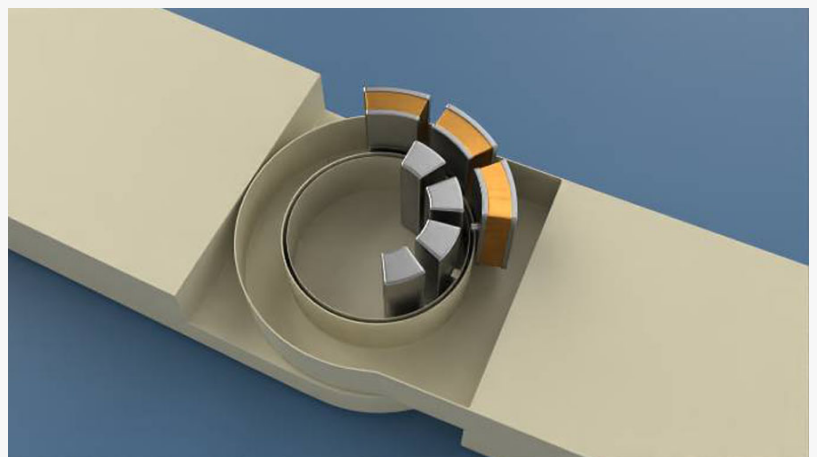
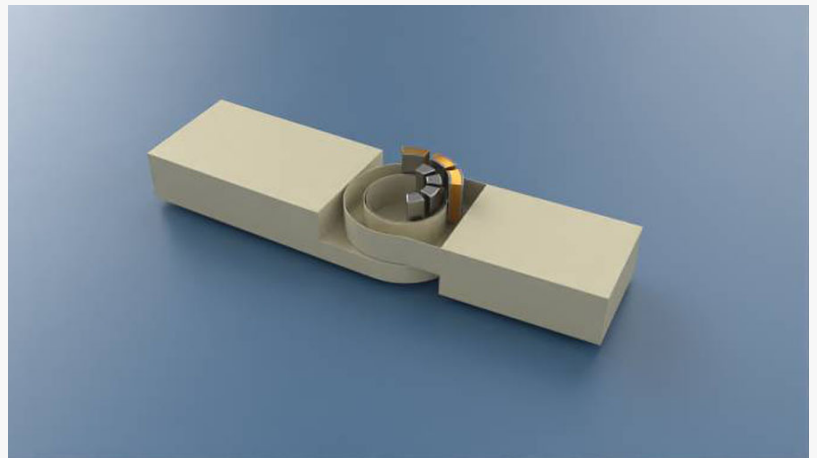


# InventionHome® Product Developer Creates Actuation System Developed as an Alternative to Hydraulic Mechanical Joints

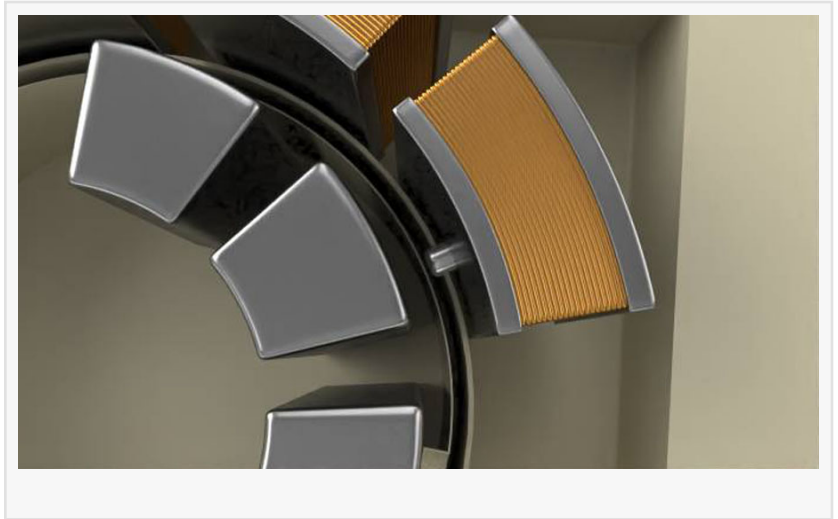
PITTSBURGH, PA, UNITED STATES, May 26, 2026 /EINPresswire.com/ --

Matthew S. of Glendale, CA is the creator of the Electro Magnetic Joint, an electromechanical actuation system designed as a potential alternative to conventional hydraulic joint systems used in industrial machinery, robotic platforms, and mechanical equipment. The system replaces hydraulic pistons with a coordinated electromagnetic arrangement designed to generate controlled joint movement through magnetic attraction and repulsion.

The joint architecture is based on an axle-and-arm assembly in which multiple electromagnets are positioned circumferentially around the axle and corresponding arm structures. Electrical current supplied through connected wiring dynamically alters the polarity of the electromagnets to enable controlled changes between north and south magnetic orientations. The system produces rotational movement at the joint interface without the use of hydraulic fluid or pressure-driven cylinders via selectively generating attractive or repulsive magnetic forces between the axle-mounted and arm-mounted electromagnets.



To maintain positional stability after movement, the system incorporates a solenoid-actuated locking mechanism. One or more electrically energized steel locking pins housed within the axle engage corresponding apertures in the arm assembly for reducing unintended movement or slippage while under load. The structural components may be manufactured using stainless steel, engineered plastics, or other application-specific materials depending on load requirements and environmental conditions.



Key features and benefits include:

- **Electromagnetic Joint Actuation:** Generates joint motion through controlled magnetic attraction and repulsion rather than hydraulic pressure systems.
- **Elimination of Hydraulic Fluid Systems:** Removes the need for hydraulic hoses, pumps, seals, and fluid reservoirs to help reduce leakage risks and maintenance requirements.
- **Dynamic Magnetic Polarity Control:** Utilizes electrically controlled polarity switching to regulate joint positioning and directional movement.
- **Reduced System Weight and Bulk:** Potentially decreases overall equipment mass and spatial requirements compared to conventional hydraulic assemblies.
- **Scalable Construction Materials:** Supports fabrication using stainless steel, polymers, and other engineered materials tailored to operational demands.

Hydraulic systems remain widely used in industrial and robotic applications due to their ability to generate high force output. However, these systems require extensive supporting infrastructure, including fluid reservoirs, pumps, hoses, and seals, all of which introduce maintenance demands and potential failure points related to leakage and pressure loss. Hydraulic assemblies can also contribute significant weight and occupy substantial installation space.

Electro Magnetic Joint provides an alternative actuation methodology based on electromagnetic force generation and electronically controlled positioning. The system aims to simplify joint architecture while reducing maintenance requirements and enabling integration into more compact or lightweight mechanical platforms.

Matthew filed his Utility Patent with the United States Patent and Trademark Office (USPTO) and is working closely with [InventionHome](#), a leading invention licensing firm, to sell or license the patent rights to his Electro Magnetic Joint product. Ideal licensing candidates would be U.S. based product manufacturers or distributors looking to further develop and distribute this

product innovation.

Companies interested in the Electro Magnetic Joint can contact InventionHome at [member@inventionhome.com](mailto:member@inventionhome.com). Inventors currently looking for assistance in patenting, marketing, or licensing their invention can request information from InventionHome at [info@inventionhome.com](mailto:info@inventionhome.com) or by calling 1-866-844-6512.

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InventionHome  
InventionHome  
+1 866-844-6512  
[info@inventionhome.com](mailto:info@inventionhome.com)

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