

ABSTRACT

A linear electrical machine comprising a frame with a level reference plane and an array of electromagnets, connected to the frame to form a drive plane at a predetermined height relative to the reference plane. The array of electromagnets being arranged so that a series of electromagnets of the array of electromagnets define at least one drive line within the drive plane, and each of the electromagnets being coupled to an alternating current power source energizing each electromagnet. At least one reaction platen of paramagnetic, diamagnetic, or non-magnetic conductive material disposed to cooperate with the electromagnets of the array of electromagnets so that excitation of the electromagnets with alternating current generates levitation and propulsion forces against the reaction platen that controllably levitate and propel the reaction platen along at least one drive line, in a controlled attitude relative to the drive plane.

[Figure 1A]