**CLAIMS**

**1.** A system for generating a linear movement, comprising an electromagnetically charged body (30,MM) which is free to move along a main direction, at least one static field generator (50,Bob), and at least two buffer elements (20,40; RM,RM; ML,ML; MA,MA; MF,MF), wherein the movement of said electromagnetically charged body (30,MM) along said main direction is controlled by the static field generator (50,Bob) and by the buffer elements (20,40; RM,RM; ML,ML; MA,MA; MF,MF), and wherein said static field generator (50,Bob) is alternately powered with a power profile such as to generate the displacement of the system in one of the two ways along said main direction, wherein the displacement of the system occurs due to mechanical thrust of the electromagnetically charged body (30,MM) on the buffer elements (20,40; RM,RM; ML,ML; MA,MA; MF,MF), and wherein the impact between the electromagnetically charged body (30,MM) and the buffer elements (20,40; RM,RM; ML,ML; MA,MA; MF,MF) is avoided and the electromagnetically charged body (30,MM) and the buffer elements (20,40; RM,RM; ML,ML; MA,MA; MF,MF) move away from each other when they are taken too close in order to prevent them from getting worn.

**2.** A system for generating a linear movement according to claim 1, wherein said electromagnetically charged body is a movable magnet (MM), which slides inside a hollow tube (T) closed at the two ends (A,B) thereof, said two buffer elements are mechanical bumpers (RM,RM) made of an elastic material and positioned at the two ends (A,B) of the tube (T), and said static field generator is a coil (Bob).

**3.** A system for generating a linear movement according to claim 1, wherein said electromagnetically charged body is a movable magnet (MM), which slides inside a hollow tube (T) closed at two ends (A,B) thereof, said two buffer elements are springs (Ml,Ml) positioned at the two ends (A,B) of the tube (T), and said static field generator is a coil (Bob).

**4.** A system for generating a linear movement according to claim 1, wherein said electromagnetically charged body is a movable magnet (MM), which slides inside a hollow tube (T) closed at two ends (A,B) thereof, said two buffer elements comprise a system of springs (MA,MA) positioned at the two ends (A,B) of the tube (T), which hold said movable magnet (MM) in the position of equilibrium,

and said static field generator is a coil (Bob).

**5.** A system for generating a linear movement according to claim 1, wherein said electromagnetically charged body is a movable magnet (MM), which slides inside a hollow tube (T) closed at two ends (A,B) thereof, said two buffer elements are two fixed magnets (MF,MF) positioned at the two ends (A,B) of the tube (T), wherein said two fixed magnets (MF,MF) are positioned so as to hold said movable magnet (MM) in the position of equilibrium, and said static field generator is a coil (Bob).

**6.** A system for generating a linear movement according to claim 1, wherein said electromagnetically charged body is a movable magnet (MM), which slides on a central pin (PC), said two buffer elements are two fixed magnets (MF,MF) positioned at the two ends (A,B) of the central pin (PC), wherein said two fixed magnets (MF,MF) are positioned so as to hold said movable magnet (MM) in the position of equilibrium, and said static field generator is a coil (Bob).

**7.** A system for generating a linear movement according to one or more of the preceding claims, wherein said static field generator (50,Bob) comprises a plurality of coils (Bob1, Bob2, ... BobN) powered separately.

**8.** A system for generating a linear movement according to one or more of the preceding claims, wherein said static field generator (50,Bob) comprises a plurality of coils (Bob1, Bob2, ... BobN) powered together.

**9.** A system for generating a linear movement according to one or more of the preceding claims, wherein said static field generator (50,Bob) is powered with a square-wave or sinusoidal or sawtooth power profile.

**10.** A system for generating a linear movement according to one or more of the preceding claims, wherein a diamagnetic cover (CD) is present, which acts as a “magnetic brake” to decelerate the movement of the electromagnetically charged body (30,MM) when returning to the position of equilibrium.

**11.** A system for generating a linear movement according to one or more of the preceding claims, wherein a central tube (TC) made of diamagnetic material is present, which acts as a “magnetic brake” to decelerate the movement of the electromagnetically charged body (30,MM) when returning to the position of equilibrium.