CLAIMS

1. An electric motor comprising:

(A) a rotor which comprises:

a) a co-centric shaft and disk; and

b) a plurality of permanent magnets that are equi-angularly spaced and equi-radially disposed on a top surface of said disk; and,

(B) a stator which comprises:

c) a plurality of solenoids that are equi-angularly spaced and equi-radially disposed, each of said solenoids having a solenoid core, which in turn has a rectangular shape in cross-section, a cavity, and a disk slot; and

d) a coil which is wound over a coil slot positioned at an external surface of each of said solenoid cores, and wherein said coil alternately passes between adjacent solenoid cores above and below said disk, respectively;

wherein said rotor disk is positioned within said solenoids disk slots, and said permanent magnets are arranged such that they can pass through said cavities of the solenoid cores in a rotational manner, when said rotor disk is rotated.

2. An electric motor according to claim 1, wherein the coils of the solenoids are one-turn coils.

3. An electric motor according to claim 1, wherein the solenoids are disposed on a stator base.

4. An electric motor according to claim 1, wherein a ferromagnetic rod is disposed between any two adjacent permanent magnets of the rotor, thereby to form a close ring.

5. An electric motor according to claim 1, wherein a DC current whose direction is alternately reversed is supplied to said coils of the solenoids.

6. An electric motor according to claim 5, further comprising one or more sensors for sensing the position of the one or more of said permanent magnets relative to said

solenoids, respectively, and for causing alteration of the direction of the DC current, respectively.

7. An electric motor according to claim 6, wherein each of said one or more sensors is a Hall-type sensor.

8. An electric motor according to claim 6, wherein said alterations of the DC current direction is caused by a controller, and wherein said alterations are timed by a signal which is received from said one or more sensors.

9. An electric motor according to claim 6, wherein the poles of adjacent permanent magnets are arranged such that identical poles face one another, in an S-S, N-N, S-S arrangement.

10. An electric motor according to claim 2, wherein the one-turn coils of the solenoids are formed by a single conductor which passes through all the solenoids.