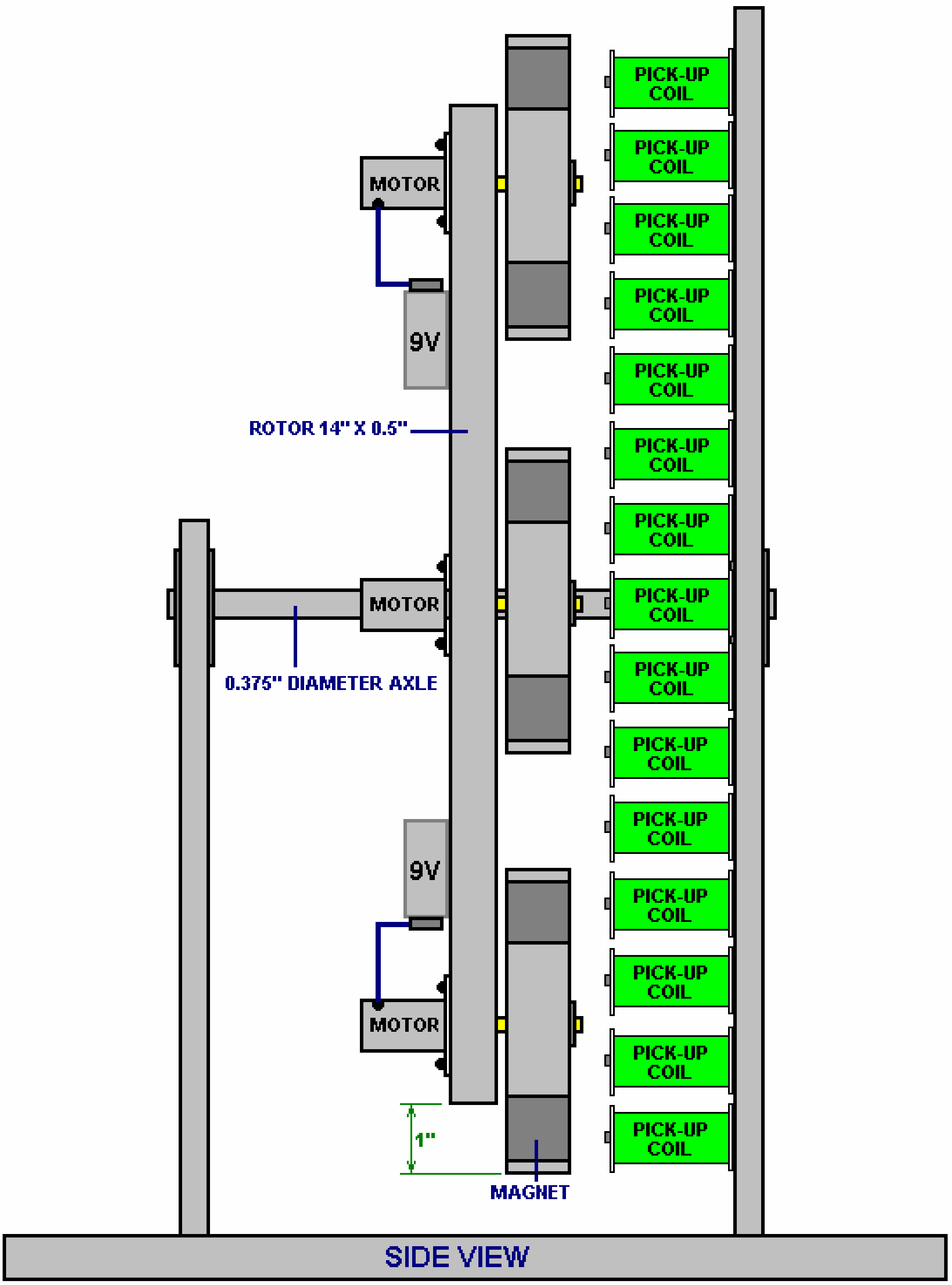
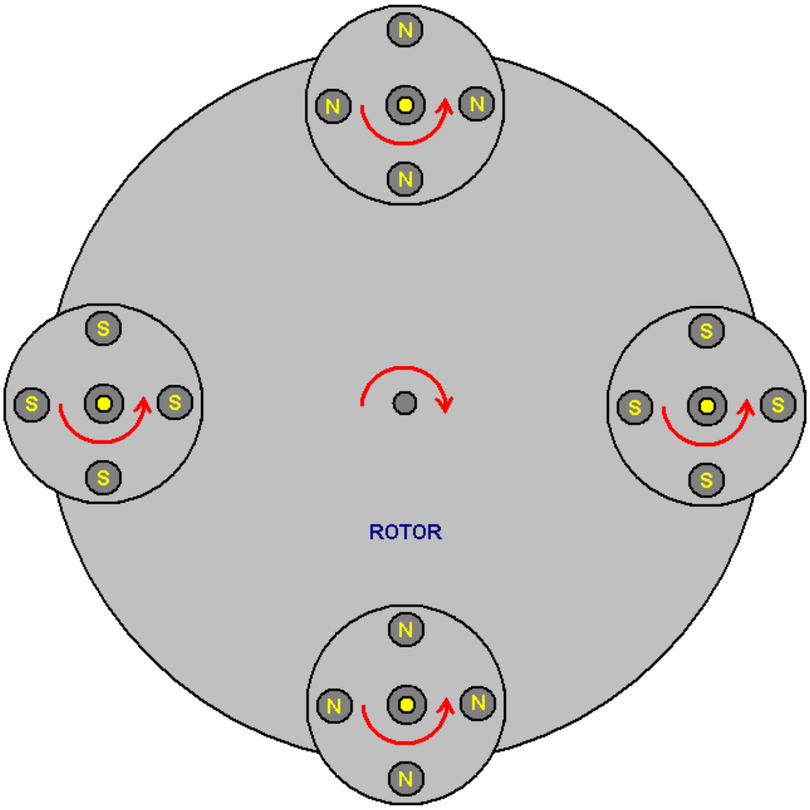
The 'Infinity' Motor/Generator

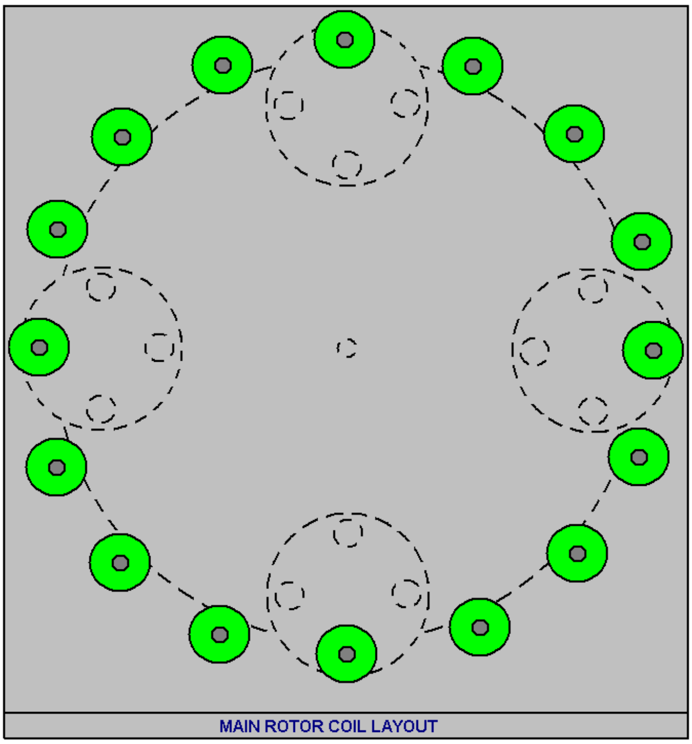
Mark Wesling. A proposed generator design put forward by Mark Wesling has the promise of particularly high performance. This is presented here as an idea as this device has not yet been built as far as I am aware. Mark calls this the 'Infinity' Motor/Generator. In this design, the rotor drive is achieved through the use of four or more independent small high-speed motors, each mounted on the main rotor and each provided with it's own smaller rotor as shown here:



Seen from the front, the rotors are positioned like this:



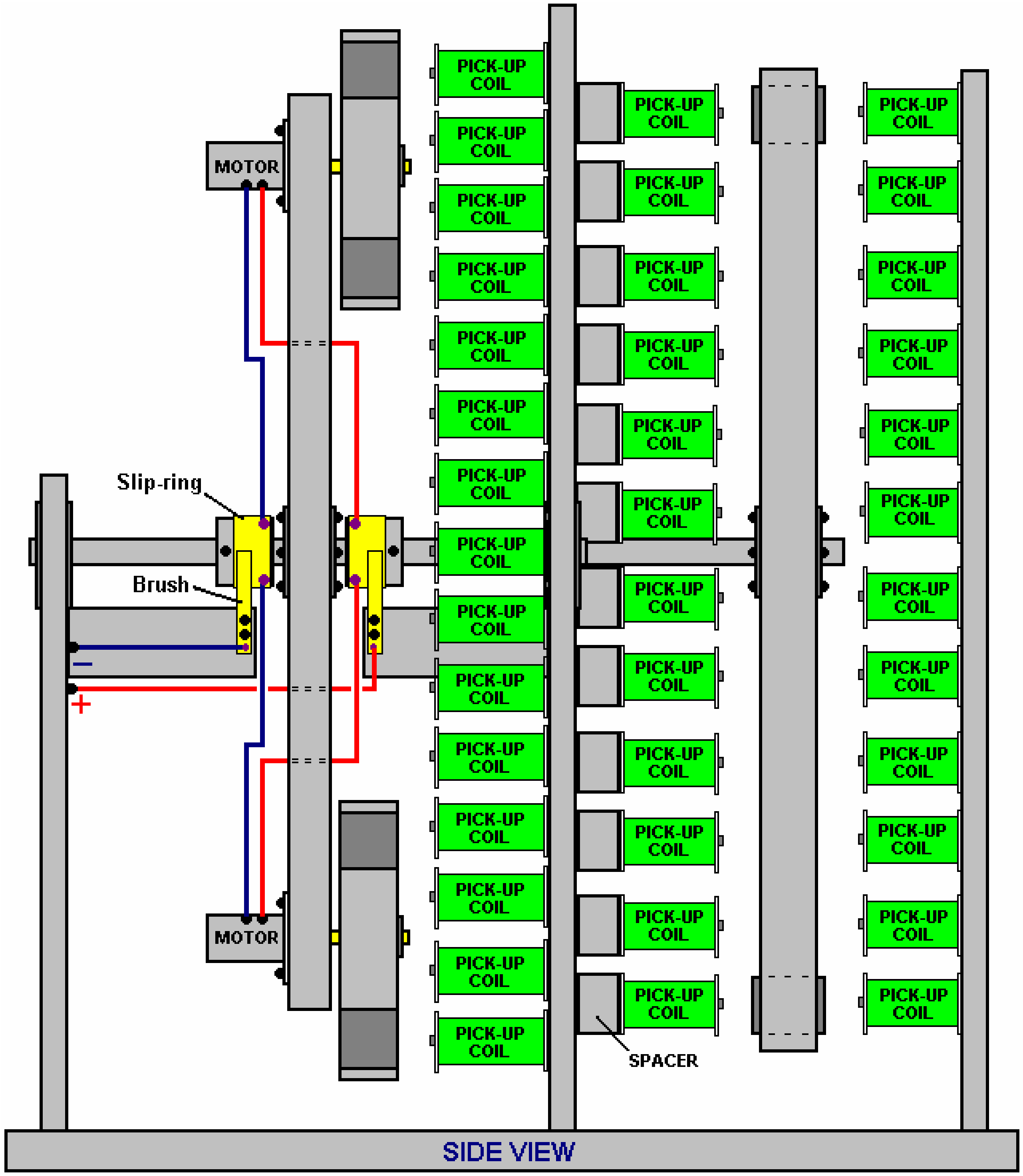
The magnets are mounted very securely in the small rotors so as to be sure that they cannot break loose when the rotor spins at high speed. The drive mechanism for the main rotor is unusual in that it uses the Lenz Law drag effect. There is a ring of power pick-up coils positioned so that when the magnets of the small rotors are in the position farthest from the main rotor axle, they are directly facing the coil as shown here:



This has very little effect until an electric current is drawn from the coils. When that happens, the Lenz Law drag opposes the movement of the magnet. But, as the moving magnet is effectively mounted on the large rotor, that opposing push drives the large rotor in the opposite direction. If the small rotors spin in a clockwise direction, then the large rotor will be driven in a counter-clockwise direction. Surprisingly, the greater the current draw, the greater the rotation rate of the large rotor.

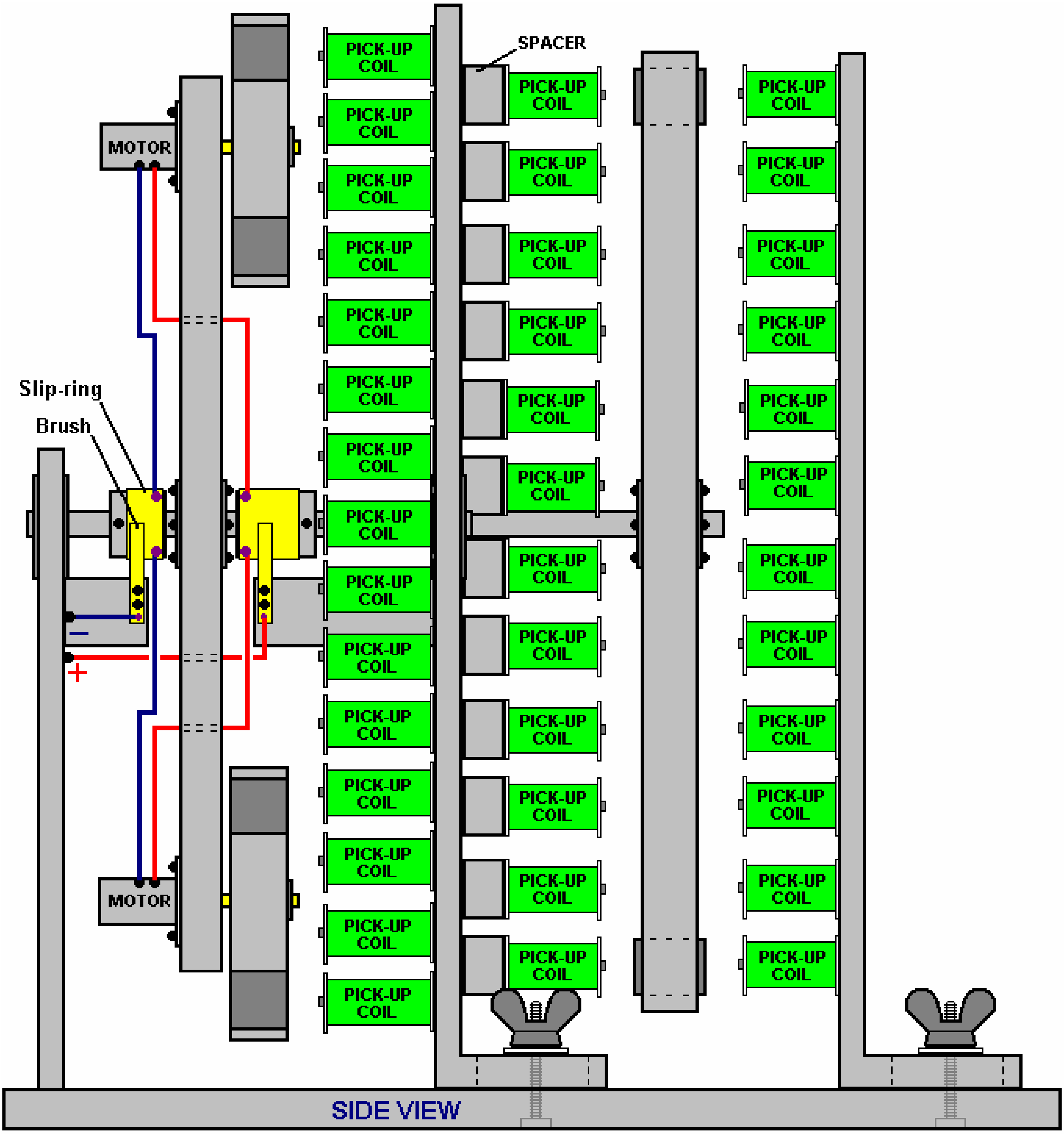
It is envisaged that the spin rate of the large rotor may become excessive, so in order to slow it down while producing additional output power, the main rotor shaft is extended and an ordinary magnet/coil generator arrangement attached to it.

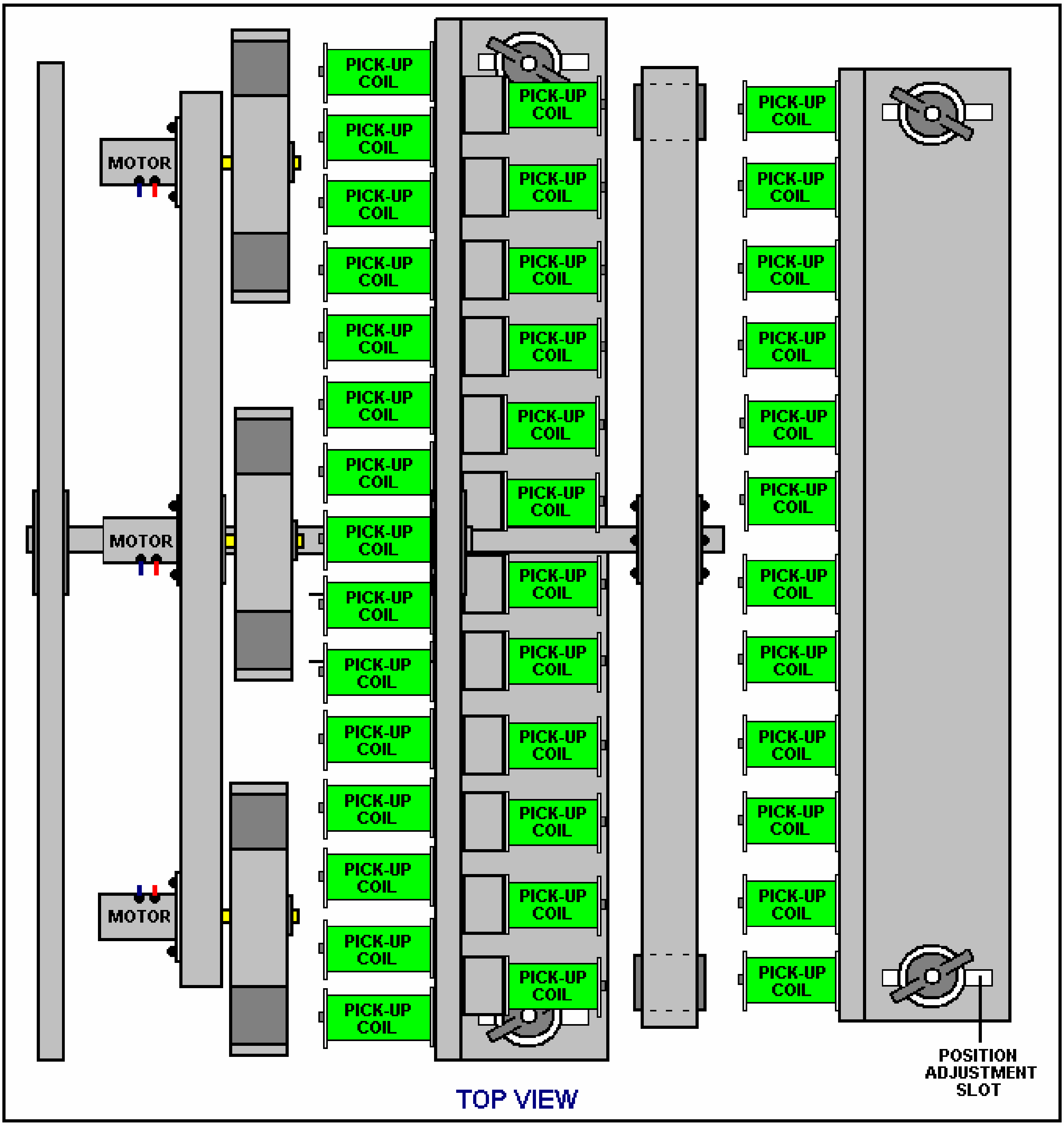
While initially, each 9-volt motor has been shown with it's own separate battery, there is no particular need for the motors to be 9-volt and a more convenient arrangement is where all four motors are fed power from a single source, using two insulated slip rings mounted on the axle with spring-loaded brushes pressing against them as shown here:



This drawing omits two of the small rotors and their motors in order to show a possible slip-ring and brush arrangement.

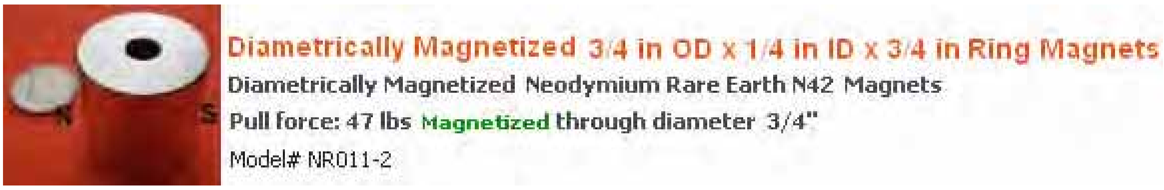
Each experienced constructor has his own idea as to the optimum spacing between magnets on a rotor and a set of power pick-up coils. The different types and strengths of the magnets used in different implementations of this design also has an effect on this spacing. The very experienced New Zealand experimenter and inventor, Robert Adams has found that spacings around half an inch (12 mm) can give optimum performance. Other builders are of the opinion that the space between the magnet and the coils should be the minimum possible. To allow for experimentation to find the optimum spacing, it is suggested that the construction should allow for the gap between each set of magnets and their associated coils, to be adjustable. To allow for this, the style of construction shown here might be considered:



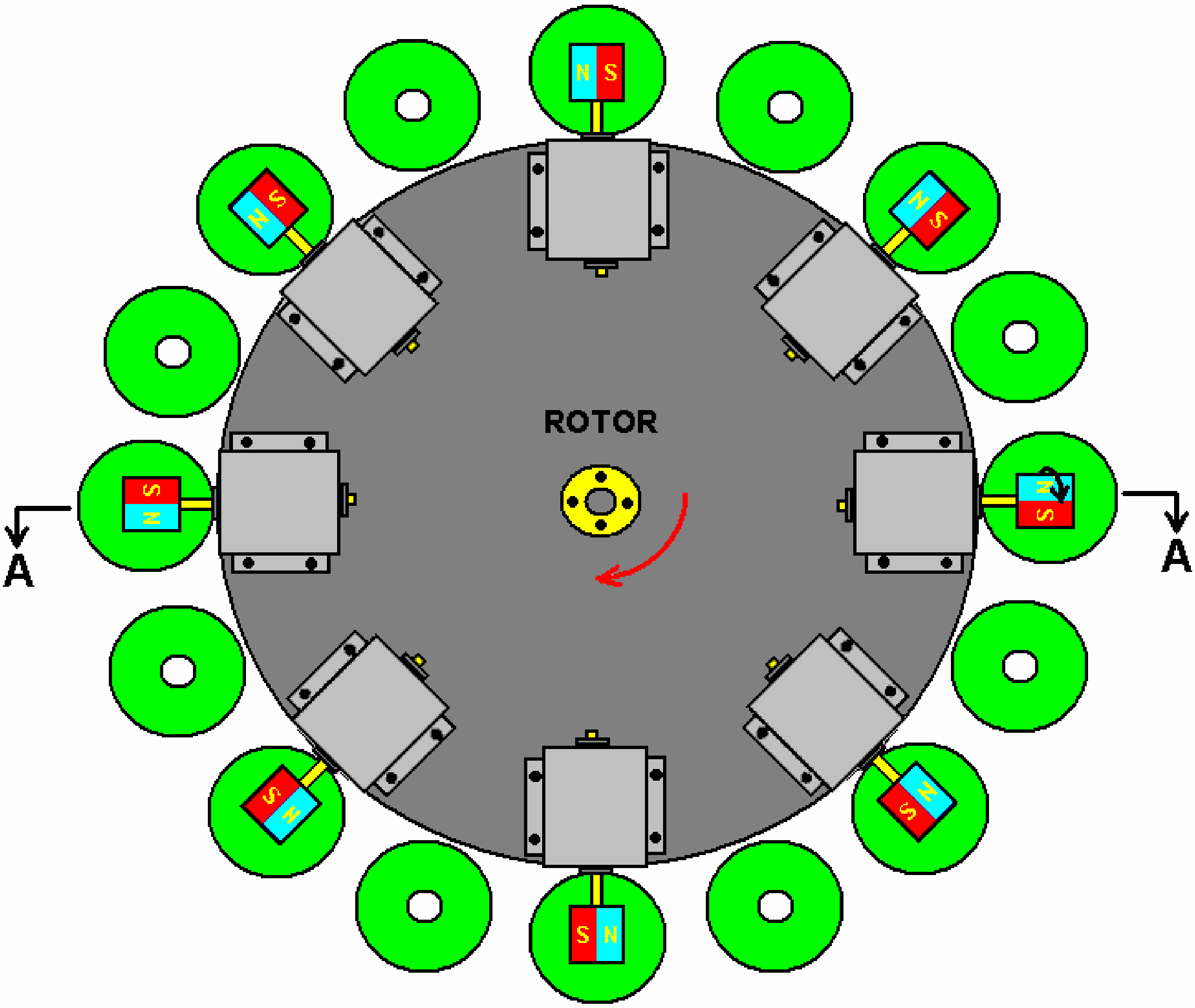


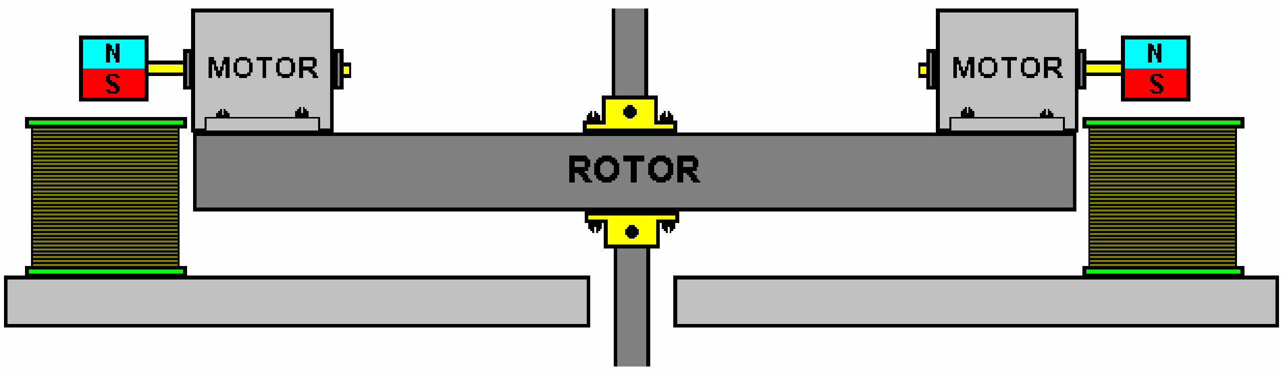
With this arrangement, wing nuts are used to allow easy adjustment of the position of the coils. The slip ring on that side of the axle needs to be much wider to allow this change of position without affecting the power feed through the slip ring.

Mark has advanced his idea further and is in the process of constructing a prototype. His more advanced method uses cylindrical magnets which are magnetised along the axis of the cylinder. One such magnet is this one from http://www.magnet4less.com/index.php?cPath=1_133:



The design uses eight small DC motors with unloaded speed of 8,000 rpm, mounted on the rotor, each with one of these magnets mounted on the motor drive shaft, as shown here:





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The other power-collection methods remain the same as shown previously. The coils shown for this latest suggestion are air-core, but what works best has to be determined through experimentation. The magnets are rotated very rapidly by the motors – perhaps 2,500 rpm – and each revolution causes a field reversal at the motor drive shaft. The magnets are powerful, so there should be a considerable effect on the coils and it only takes a thirty degree rotor movement to move from being exactly over one coil to being exactly over the next one, and there will be considerable magnetic effect in the intervening positions as well.

Mark comments on this arrangement: The main rotor will spin at just a few hundred rpm. This will pull the electrons forward through the coil (as opposed to a conventional coil that pushes the electrons). This action will pass the Lenz force on to the main rotor shaft as torque. The beauty of this design is that it puts the motor shaft in the same phase as the rotor spin whereas before, it was 180 degrees out and slowed the motors. Also, the gyroscopic forces on the small rotors/motors were great as the large rotor spun, while this design will hit every coil 100% on every rotation.

The technique of coil-shorting five times at the sine-wave peak can boost the output power by anything up to a hundred times, so using that method would be a major benefit if the necessary electronics skills are available. The coils shown appear to have a solid core, however, it is envisaged that the speed of rotation will be too great for a ferrous core and so either ferrite or air-core coils may be needed.