

Motors

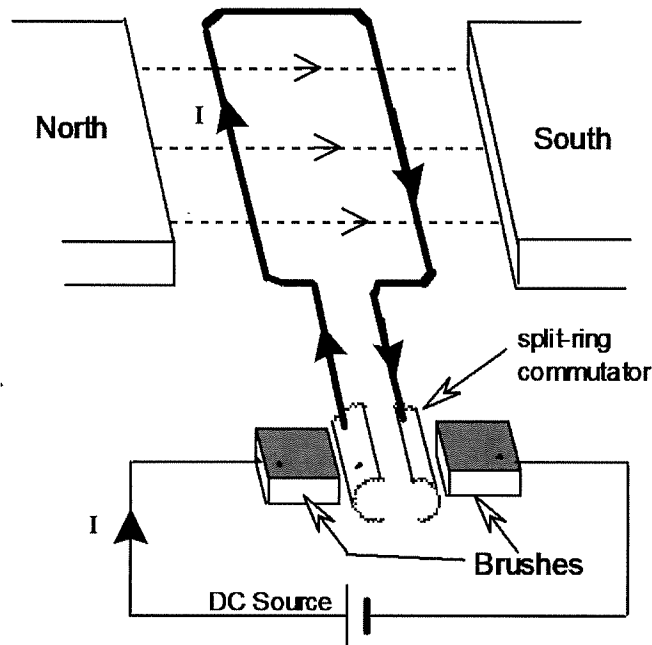
An electric motor converts electrical energy into mechanical energy.

An armature sits between the opposite poles of a magnet. As a current travels through the armature it interacts with the magnetic field causing the armature to rotate

A real motor will have many of loops of wire in the armature.

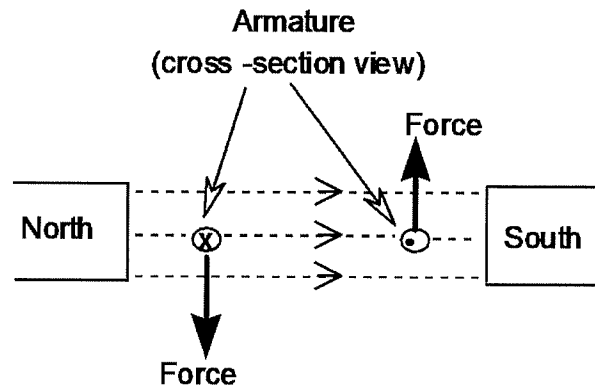
The brushes make electrical contact with the armature through the split-ring commutator

Since the armature and commutator are rotating the brushes are usually spring loaded to keep them in firm contact with the armature.



This is a cross section of the diagram from the previous page. When current flows through the wire the armature will rotate

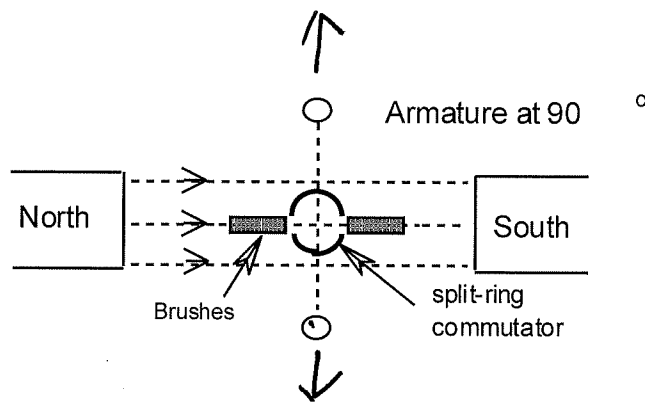
counter-clockwise



Eventually the armature is turned 90 degrees, at this point there is no current because the "split" in the split-ring commutator is a non conductor. This means that there are no

force

acting on the armature, but its rotational inertia keeps it turning.



Once past 90° the current will change direction because the brushes are in contact with the opposite section of the commutator.

This change in current direction is fundamentally important because it ensures the armature always turns in the same direction.

