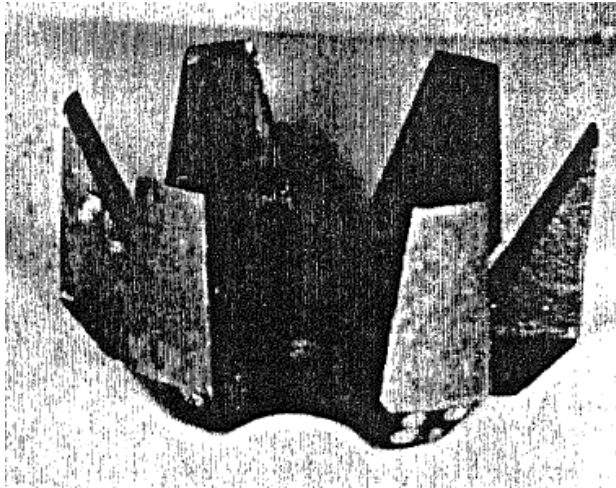
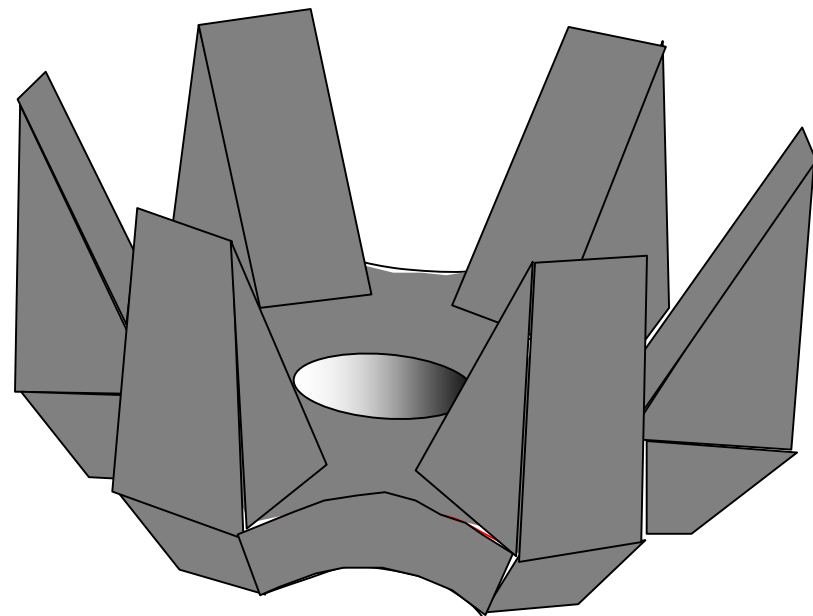


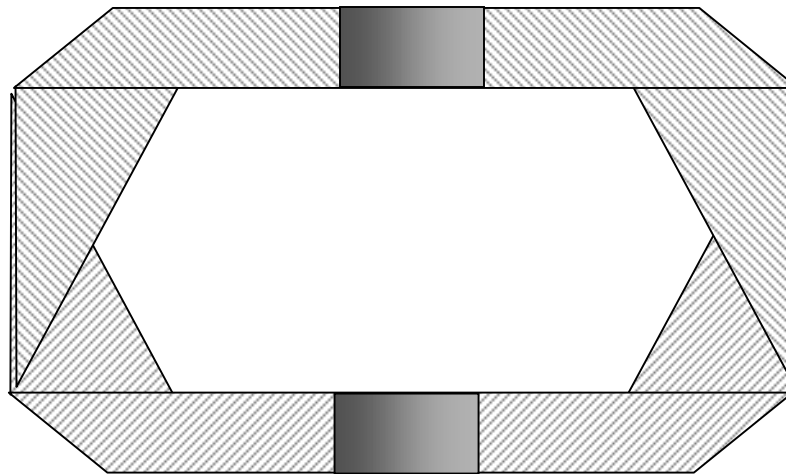
Part of Hendershot motor



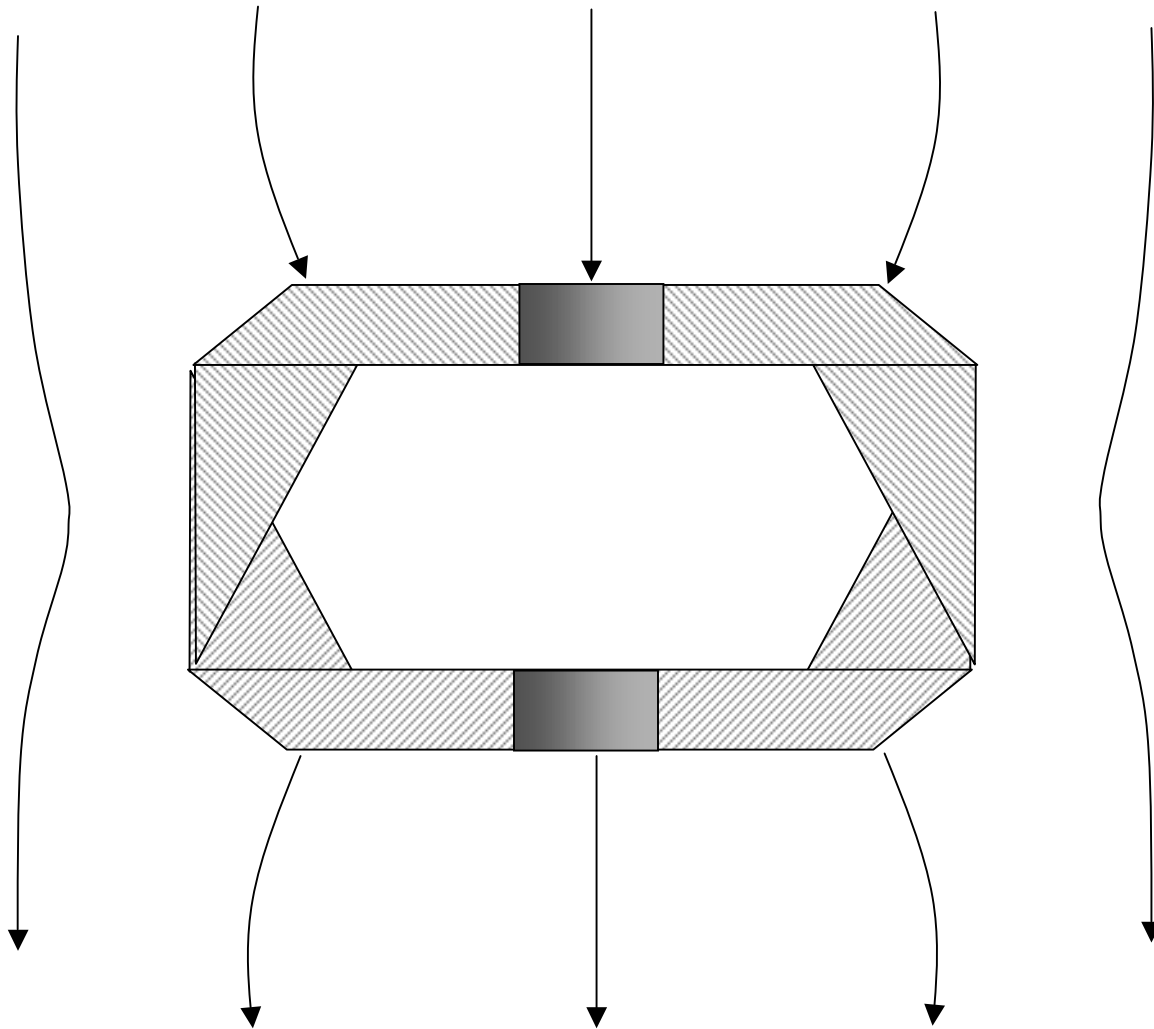
Sketch showing teeth on disc



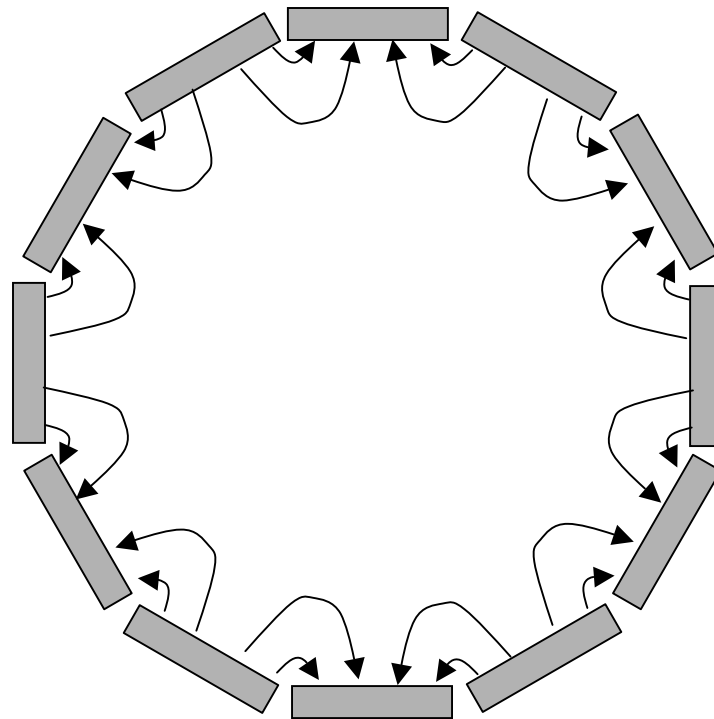
There are two toothed discs that mate without touching
as shown in this cross section



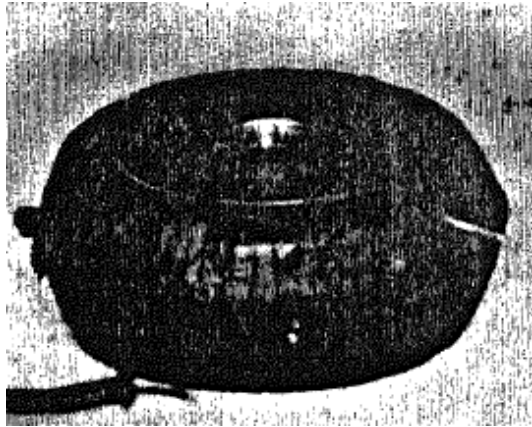
The parts are made of ferromagnetic material hence attract magnetic flux lines



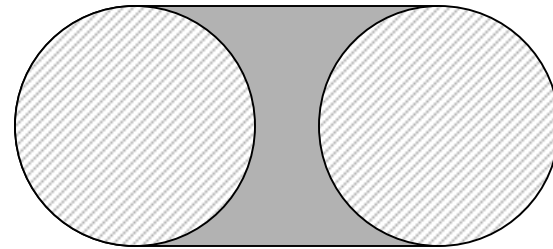
Because the teeth are not touching there will be flux lines between adjacent teeth as shown. Note these flux lines are at 90° to the original field lines applied to the stator



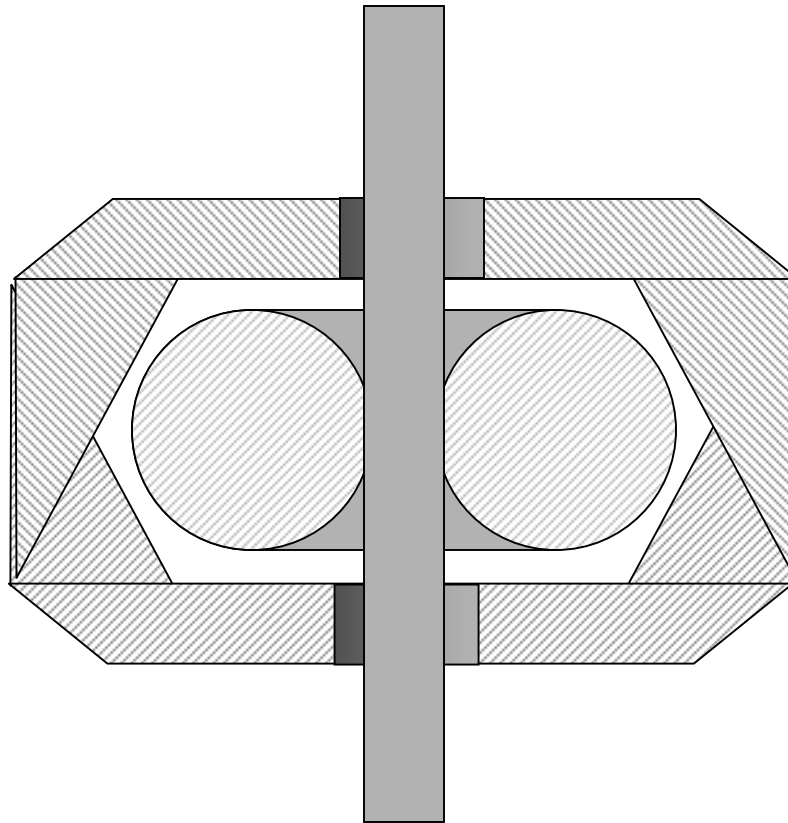
This is the third part of the motor
which looks to be donut shaped



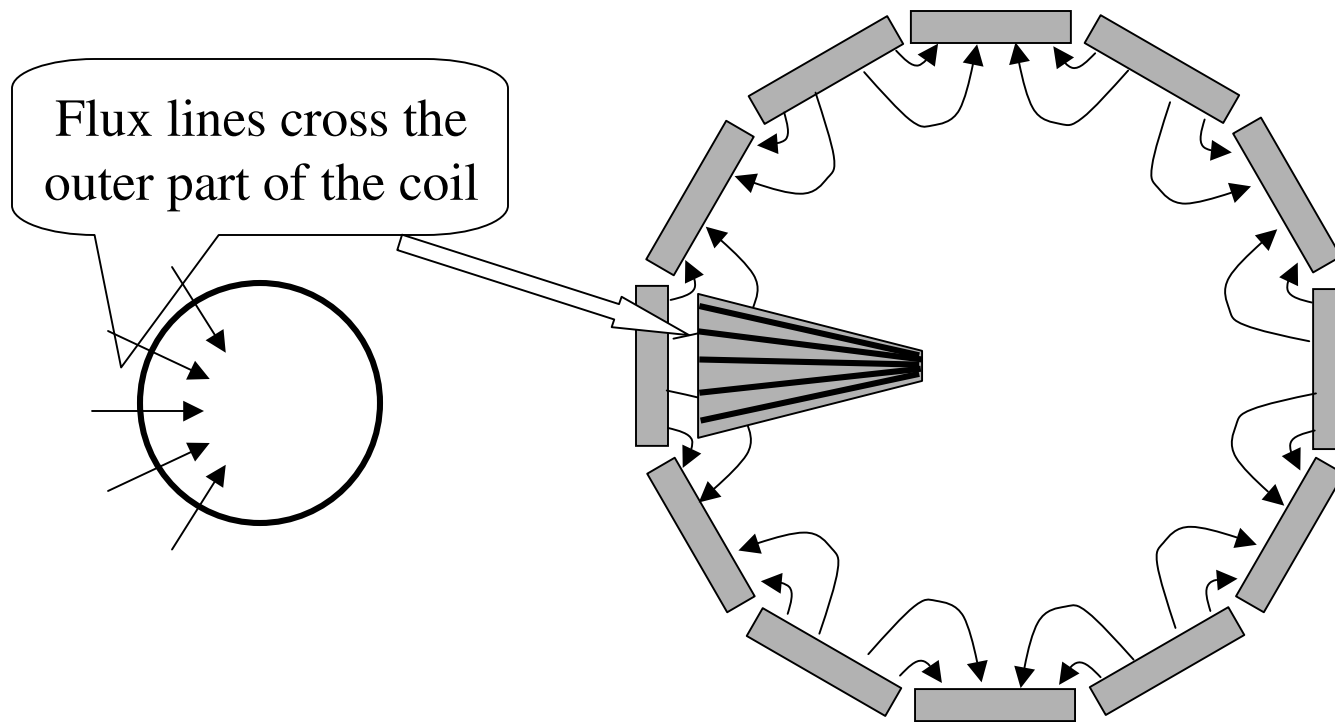
We will assume this to be the rotor
while the toothed parts are the stator



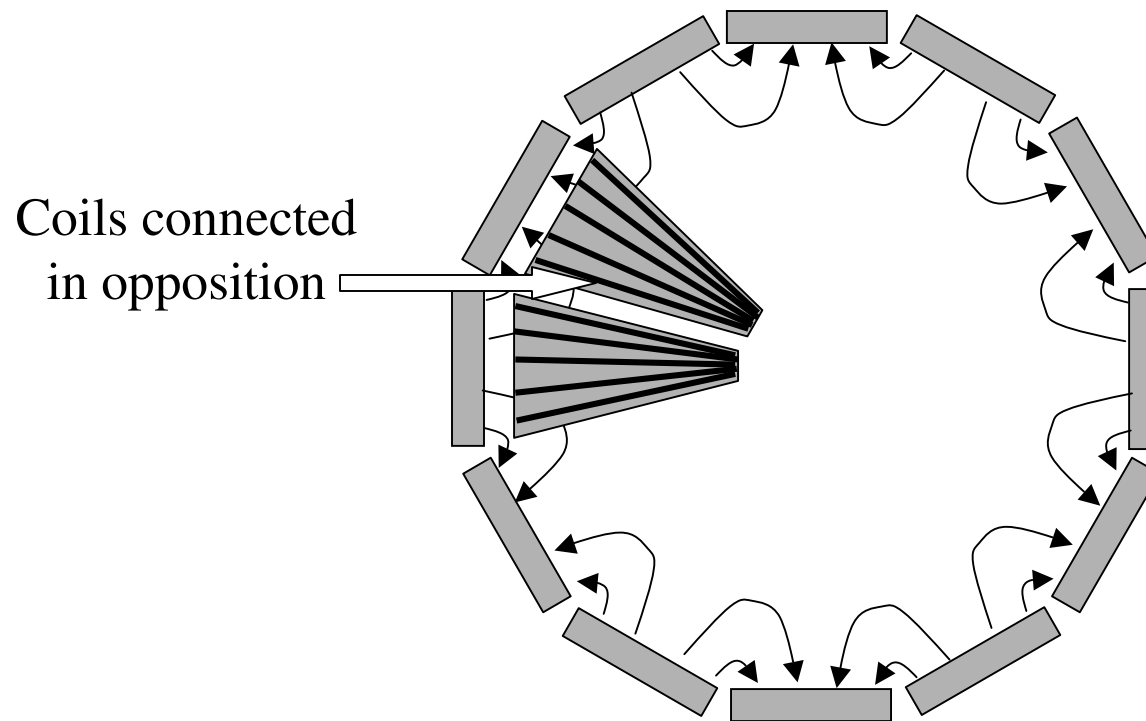
The donut rotor fits snugly within the toothed cage



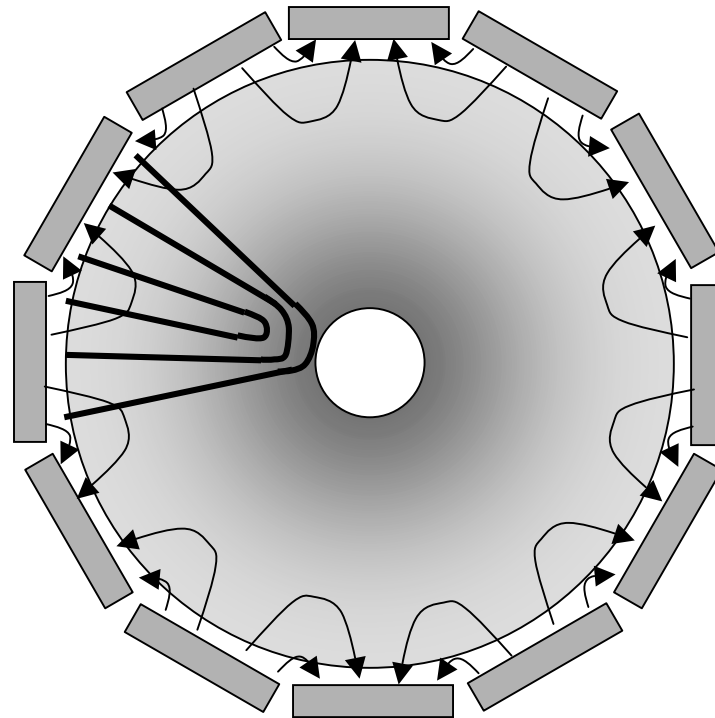
We wish to have conductors moving within the internal field and obtaining voltage from $E = v \times B$ flux cutting induction. A partial toroidal winding will capture voltage from the movement of the outer part while the inner part will not contribute



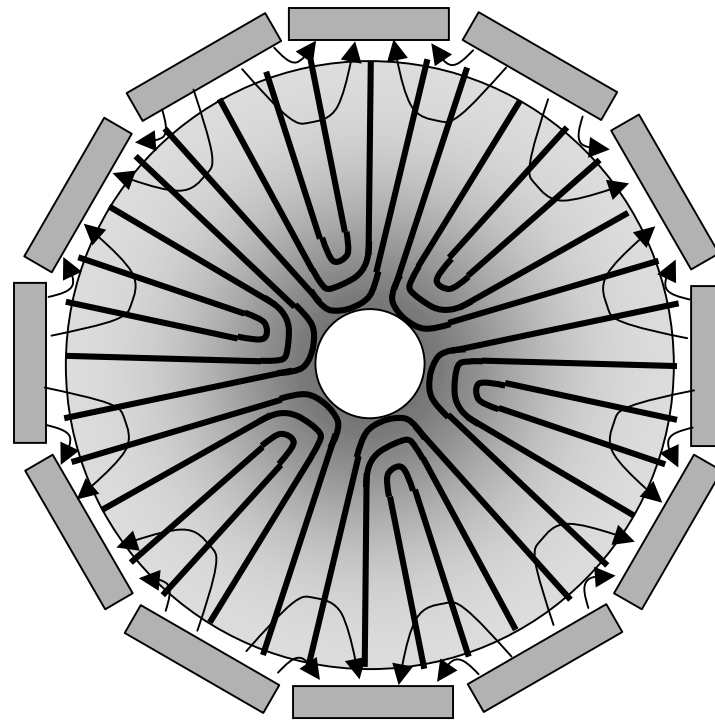
We could repeat the partial winding and connect it in the opposite polarity to then gain voltage from the two coils in series.
When the rotor has moved through 30° the voltage is reversed.



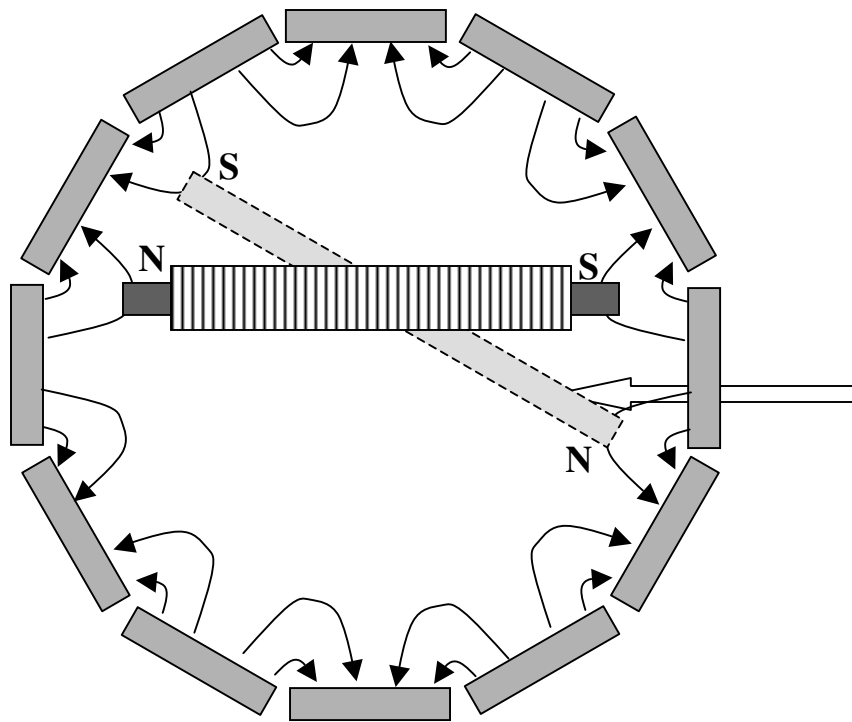
Alternatively we can wind surface coils as shown here
that do not loop through the donut



We could cover the whole donut in surface coils connected in series to get maximum voltage



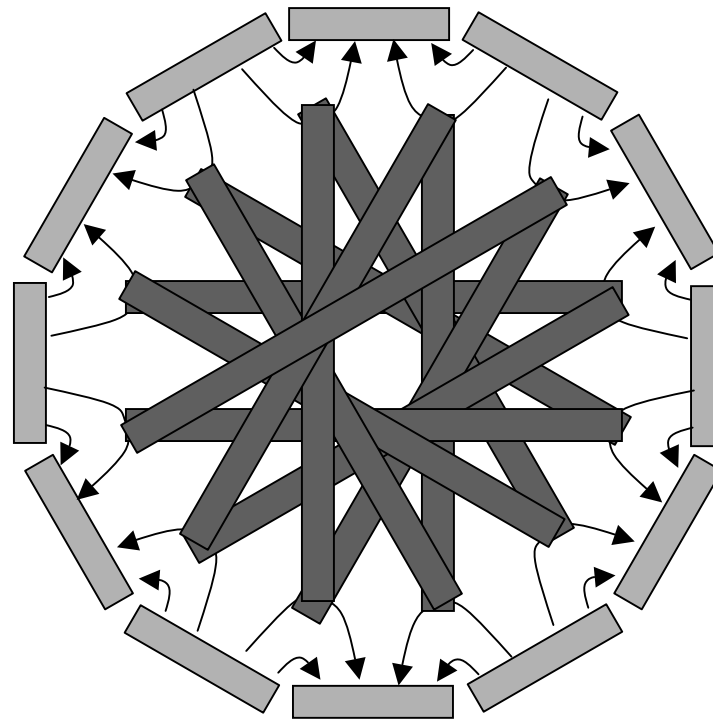
We want the voltage from the coils to create poles that will give the necessary movement. Here we show a coil wound onto a ferrite rod that is placed in a position so that both poles get force in the same angular (clockwise) direction.



When the rotor has moved through 30° the current has reversed so the force is still clockwise.

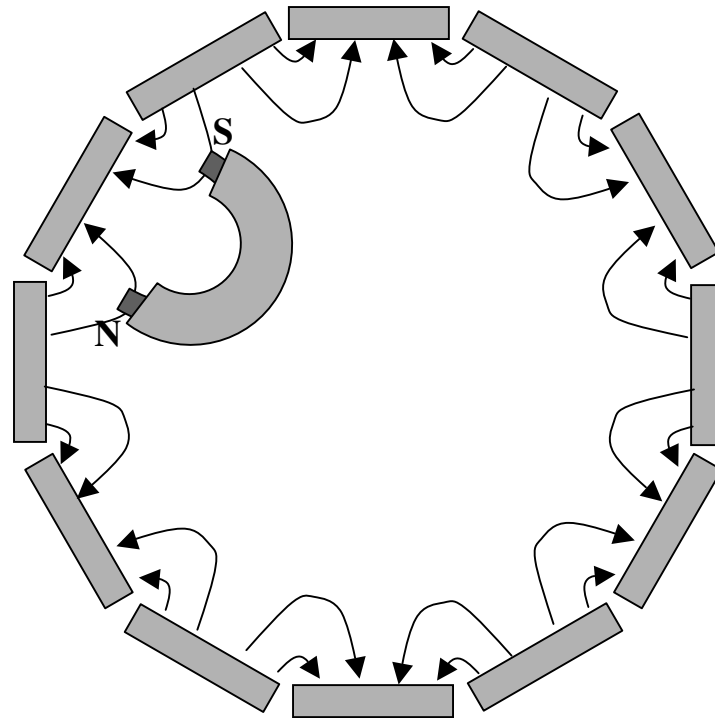
Donut coil not shown for clarity.

We could have a multitude of ferrite rods within the donut with coils all driven from the donut coil's voltage and appropriately connected.



Coils not shown

Alternatively we could have a U shaped rod with coil as shown here.



And we could have a multitude of U shaped rods with
coils appropriately connected

