

## Making a Simple D.C. Electric Motor

### Apparatus needed

1 wine bottle cork  
(4cm long)  
2 nails (1½ mm × 25mm)  
2 flat magnets  
Insulated copper wire  
(about ½ mm diameter)  
1 piece of cardboard  
“Scotch” tape  
Paper clips

### Tools needed

Scissors  
Wire cutters/strippers

Some advice on the construction of the motor

1. Make the cardboard frame first (see figure 1); then put in place the brushes (which must be curved as shown in figure 3).
2. Make sure that the nails are in the centre of the cork.
3. The coil of wire should have at least 8 turns (more if possible). The wire must be wrapped tightly round the cork. The exposed ends of the coil must be as close to the nail as possible (but must *not* touch the nail).
4. When the coil has been made, hold it in place using “scotch” tape (or similar).

In figure 1, a full line means CUT and a dotted line means FOLD.  
Dimensions are in mm.

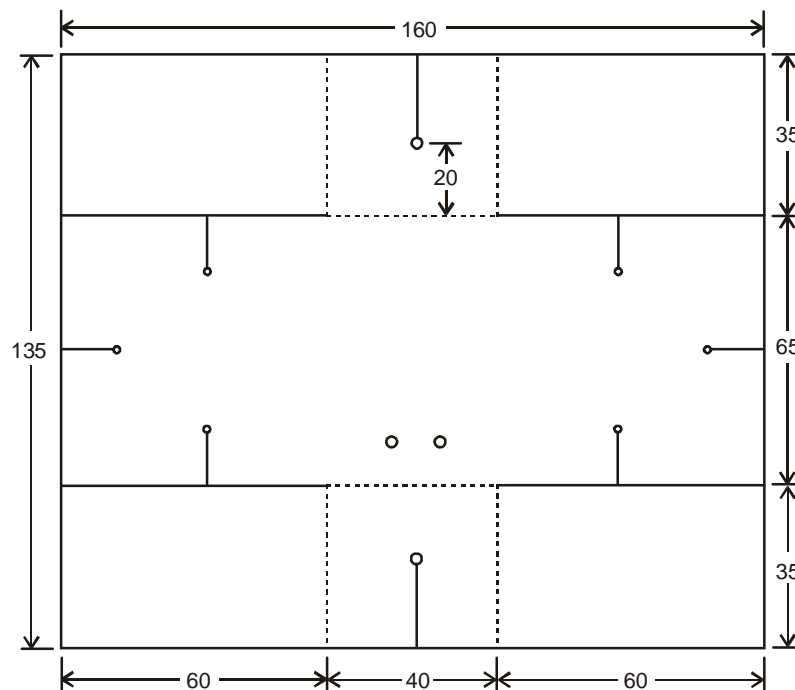


figure 1

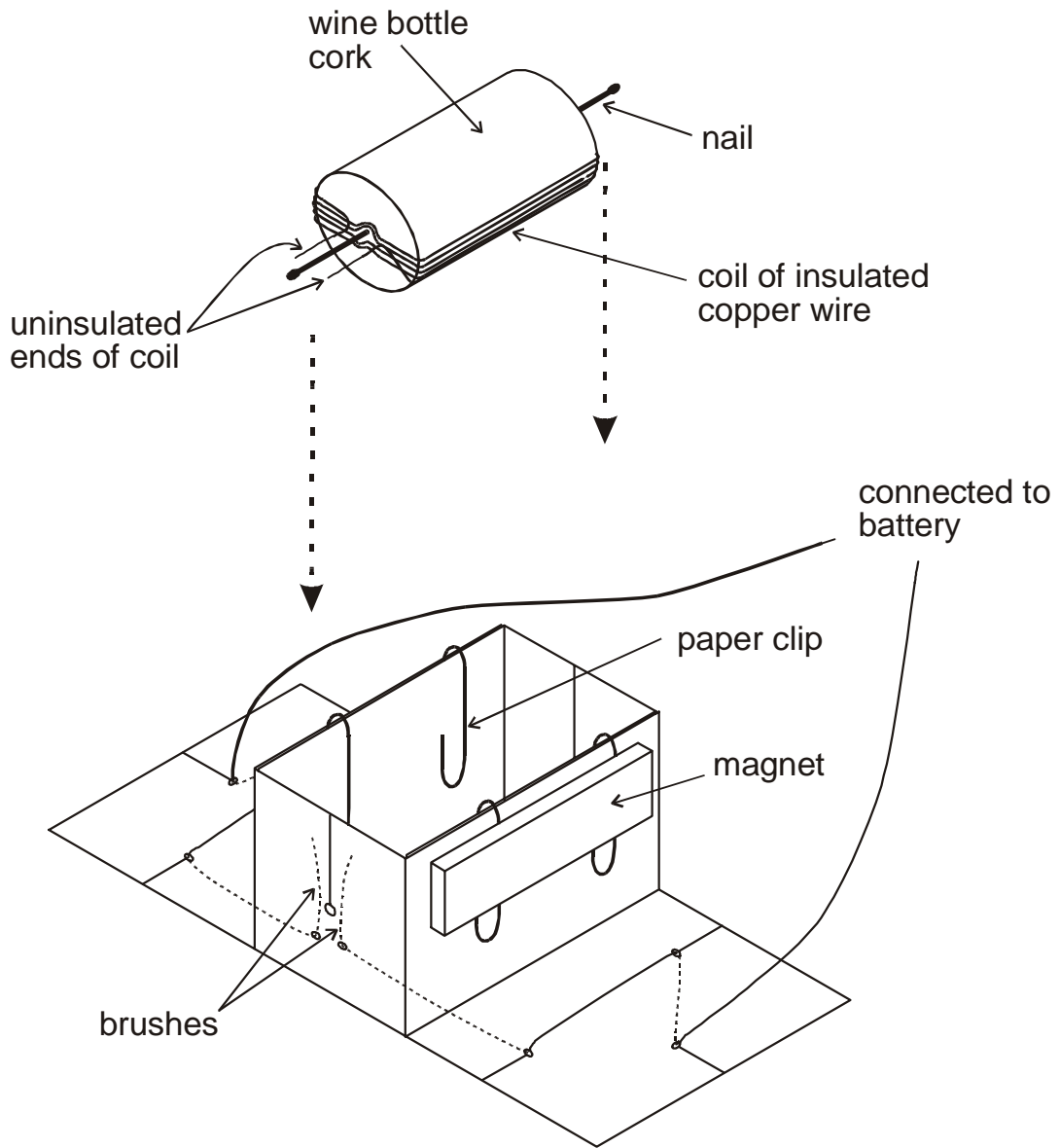


figure 2

Figure 3, below, shows the approximate positions of the brushes before and after the rotor is put in place



figure 3