

Battery and resistor. Initial state.

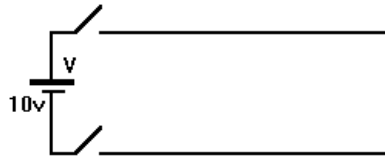


Figure 3

Now let us turn to the conventional view of the initial conditions. We will insert two switches, one in the top conductor and one in the bottom conductor (Fig.3). When we close the two switches, the distant resistor cannot define the current which rushes along the wires because the wave front has not yet reached the resistor (Figs.4,5).

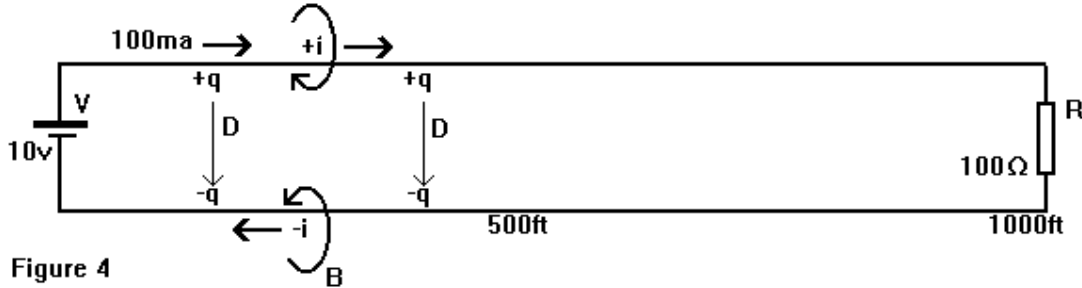
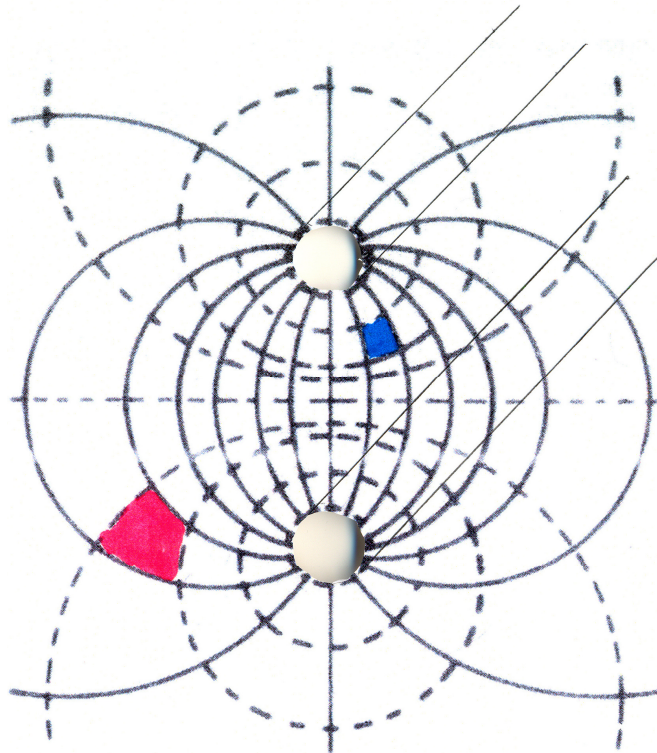


Figure 4



Figure 5

Lacking knowledge of the value of the resistor, the current is defined by the characteristic resistance Z_0 of the pair of conductors (usually called their characteristic impedance).



There is electric current in the conductors, and electric charge on the surface of the conductors. The lines represent the electric flux, and the dotted lines represent the magnetic flux.