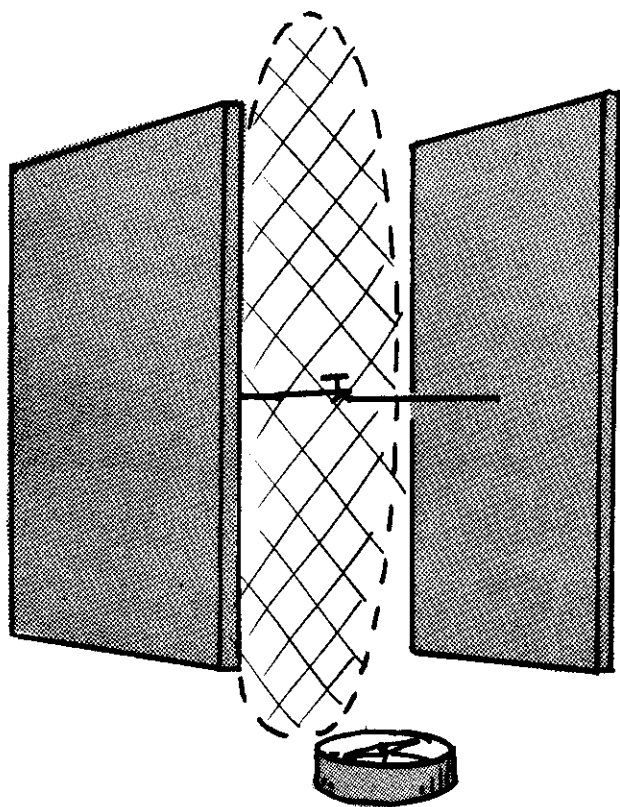


ANSWER: DISPLACEMENT CURRENT

The answer is: b. At first you might think that because there will be an electric current in the wire as the plates discharge, that current must produce a magnetic field around the wire, and that magnetic field must affect the compass. But there is also a dying electric field between the plates, and a dying electric field is a changing electric field, and a changing electric field produces a magnetic field around itself just like an electric current. The magnetic effect of the dying electric field is exactly opposite to the magnetic effect of the electric current. So the two cancel each other.



A changing electric field is called a displacement current. The name comes from an old idea that an electric field is really a strain or displacement in the “aether” which some people thought filled empty space.