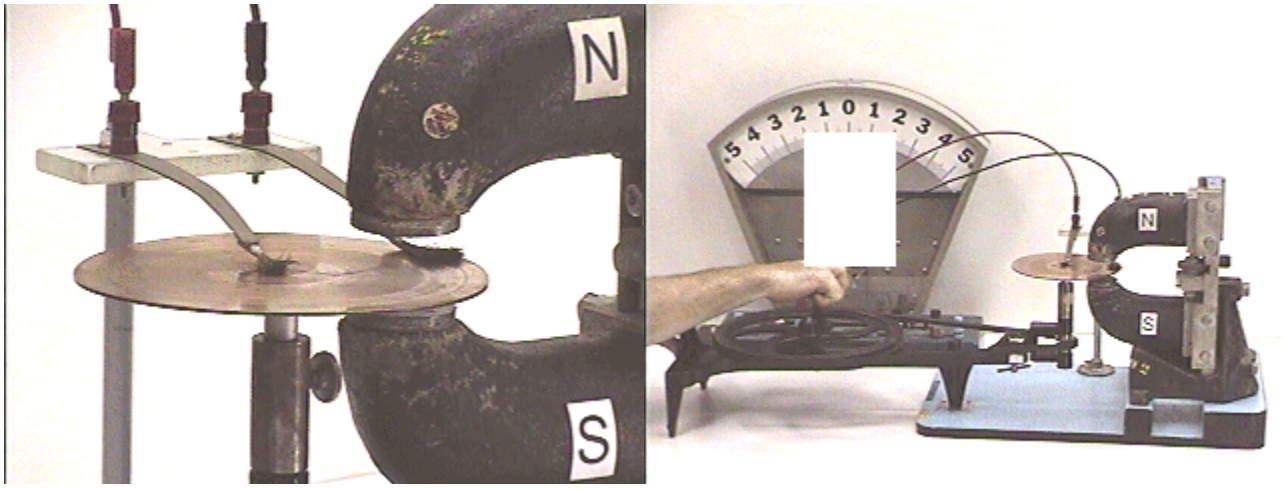
Question #209

A copper disc, shown in the photograph at the left below, can be rotated in either the clockwise or the counterclockwise direction by rotating a crank, seen in the picture at the right below, in the desired direction. A large magnet is positioned so that the disc rotates between the two poles of the magnet, with the North pole above and the South pole below the disc.



The two brushes are connected to a voltmeter by the connections seen at the top of the figure at the left. The brush at the center of the copper disc is connected to the "high voltage" side of the meter, while the brush at the edge of the disc is connected to the "ground" side of the meter, so if the center of the disc becomes more positive than the outside the meter will read "positive," to the right of center.

Now suppose that the crank is rotated so that the copper disc rotates in the clockwise direction as viewed from above. How will the meter read?

- (a) The meter will read a positive voltage.
- (b) The meter will read a negative voltage.
- (c) The meter will read zero.

Click here for Answer #209 after February 21, 2005.

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