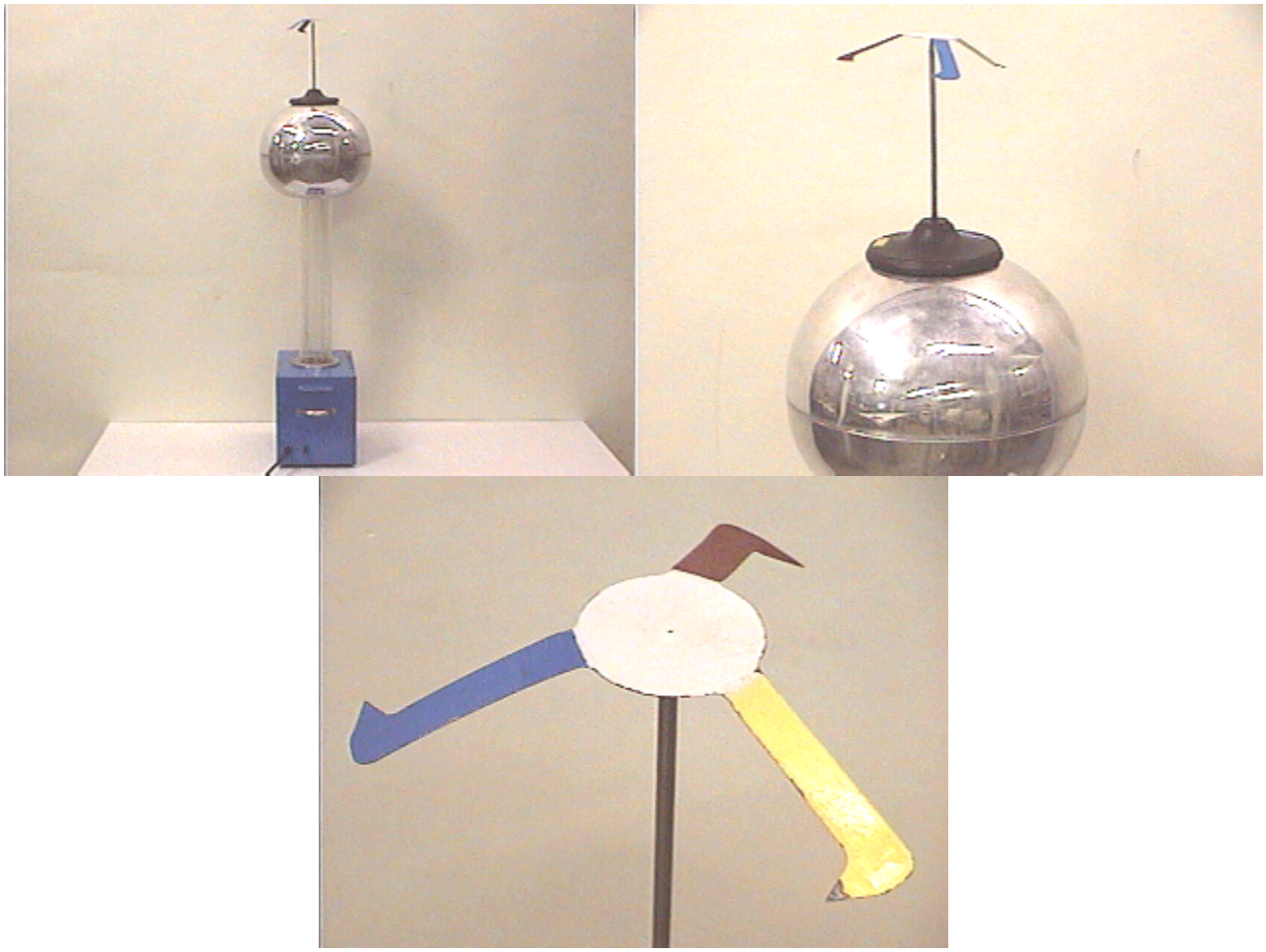
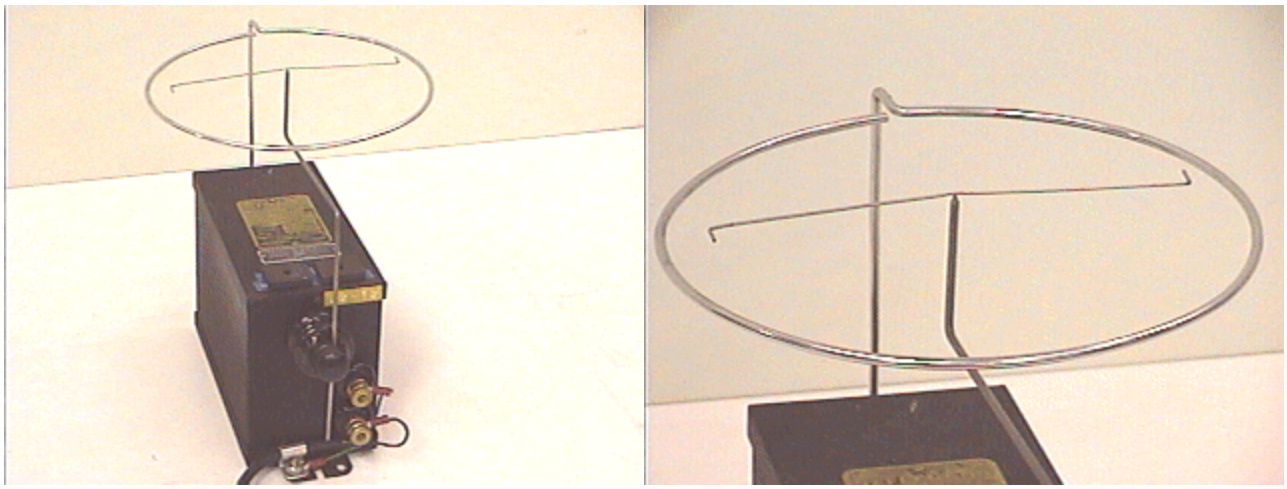
Question #181

The device shown in the photographs below, called "Franklin's wheel," rotates counterclockwise when the van de Graaff generator is turned on. According to the idea demonstrated using the ellipsoidal conductor of Question #178 the charge developed on the dome of the generator will be transmitted to the wheel and exit at the points. The action of the wheel is seen in an mpeg video by clicking your mouse on the photograph at the right.



The device in the photographs above is a *dc* device, in that the charge on the van de Graaff dome is always negative. In the photograph below is a similar device, except that it is attached to a 5000 volt *ac* transformer. Note that one side of the *ac* power is connected to the "rotator" and the other side is connected to the large circular wire segment in the photograph.



The question this week is whether this one will work in a manner any way similar to the *dc* Franklin's wheel. Note that the spikes in the rotating arm in this one are pointing in the opposite direction, so if this version works the same as the *dc* version it would move clockwise.

When the transformer is turned on, the wheel will:

- (a) rotate clockwise.
- (b) rotate counterclockwise.
- (c) remain at rest.
- (d) try to move back and forth following the *ac* voltage.
- (e) fall off the pivot.

Click here for Answer #181 after March 29, 2004.

Question of the Week

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For questions and comments regarding the *Question of the Week* contact
Dr. Richard E. Berg by e-mail or using phone number or regular mail address
given on the Lecture-Demonstration Home Page.