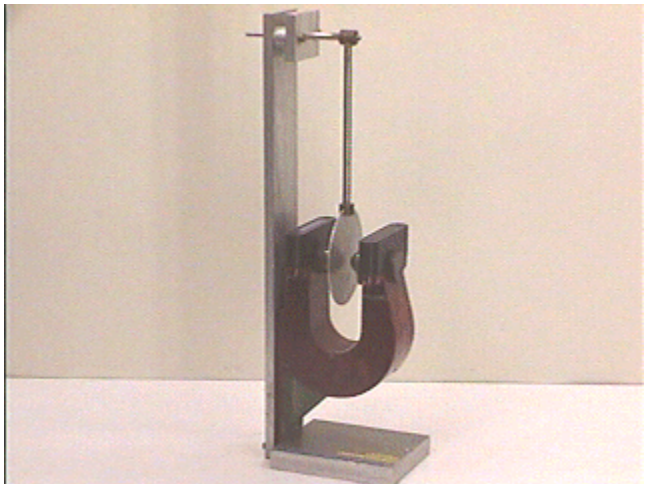
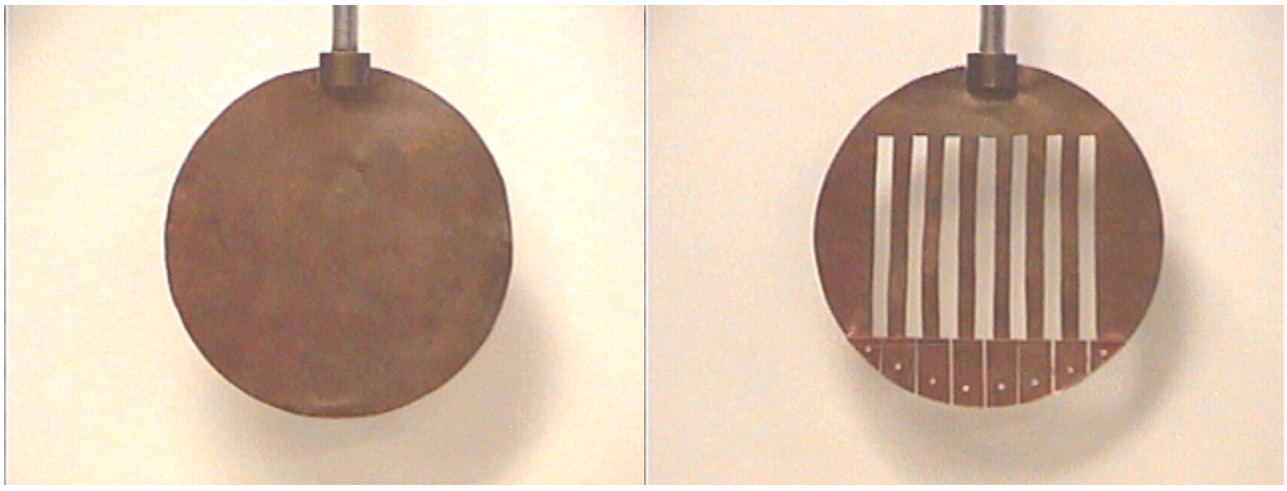
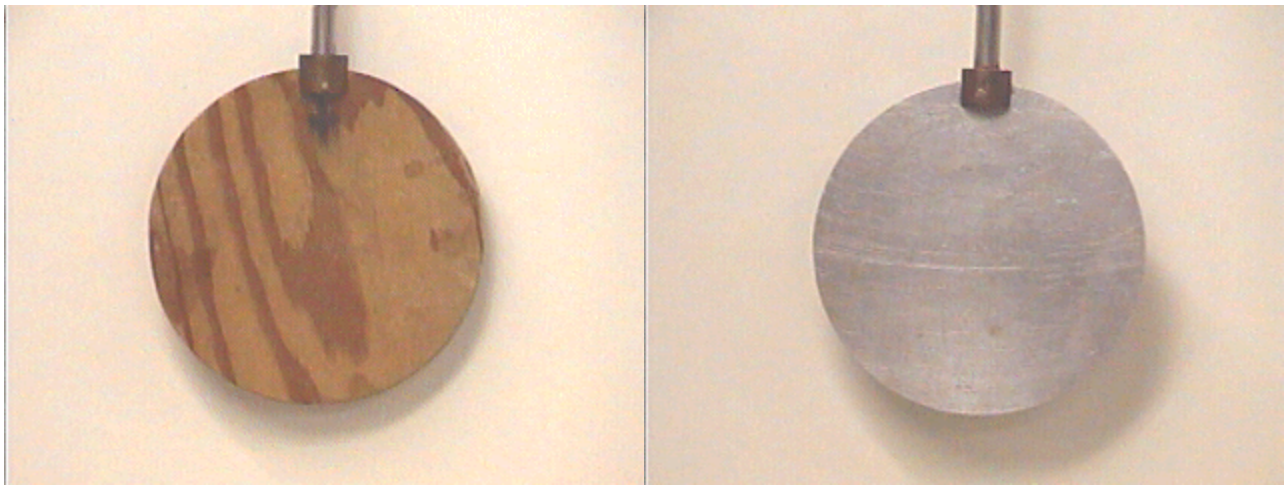
Question #138

Last week we saw that a pendulum swinging in a magnetic field damps out due to eddy currents that occur when the bob passes through a strong magnetic field.



A set of different bobs, constructed of various materials and having varing geometries, are shown in the photographs below.





The four samples include a copper bob (upper left), a copper bob consisting of fingers that do not touch (upper right), a wooden bob (lower left), and an aluminum bob (lower right).

The question this week involves how rapidly the motion of these various bobs will be damped when they are held horizontally and released to oscillate through the pole tips of the magnet.

Rank the bobs in the photograph in order of the time taken for their motion to damp out, with the longest time first and the shortest time last:

- (a) large solid copper bob.
- (b) long copper fingers, not connected at the bottom end.
- (c) wooden bob.
- (d) aluminum bob.

Click here for Answer #138 after February 10, 2003.

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.