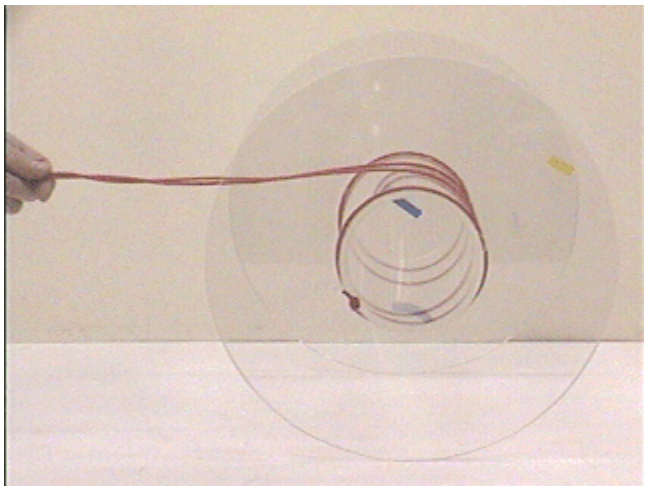
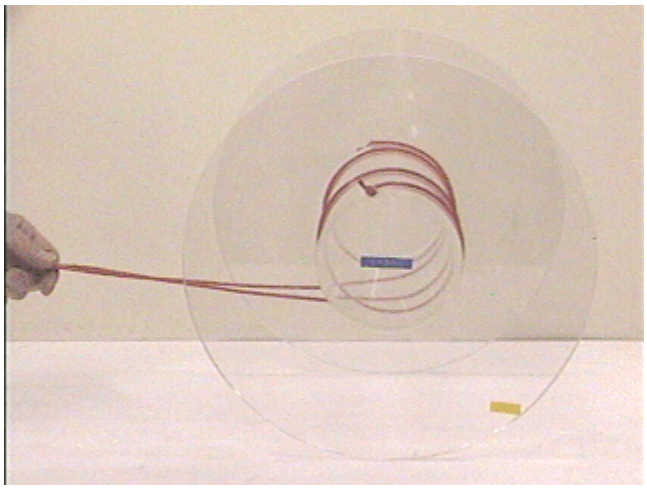
Question #50

A spool has a rope wrapped around the narrow axle, extending **over** the top and parallel to the ground as seen in the photograph below. When the rope is gently pulled the spool moves in the direction of the applied force, as seen in an mpeg video by clicking on the photograph.



Now suppose that the spool is inverted so that the rope again leaves parallel to the ground but *from the bottom of the axle*, as seen in the photograph below. What will the spool do when the rope is pulled in with the same manner as above but with the rope leaving from the bottom of the axle? Will the spool move in the same way (forward) as when the rope leaves from the top? Will it move in the opposite direction to the applied force (backward)? Or will it simply remain in place and slip on the surface as the rope is pulled and unwinds?



If the rope leaves the spool from the bottom of the axle, when the rope is gently pulled the spool will:

- (a) move in the forward direction.
- (b) move in the backward direction.
- (c) stay in place while the spool rotates.

Click here for Answer #50 after February 5, 2001.

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.