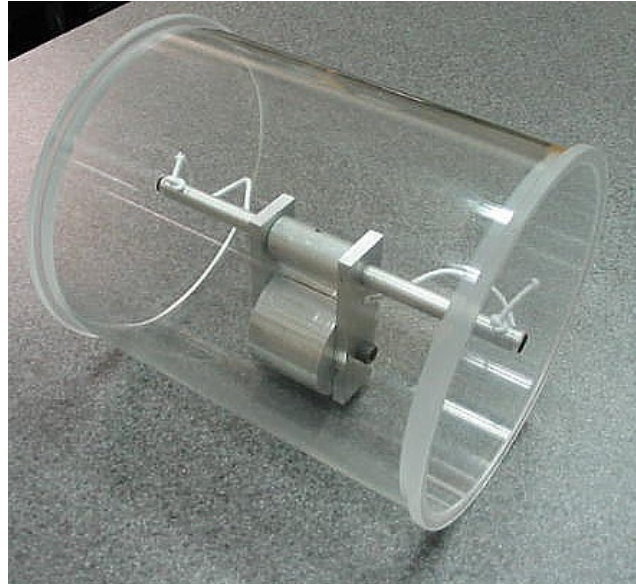


Boomerang Can



Purpose: Demonstrates the conversion of kinetic to internal energy, and then back again.

This is fun. Roll the can away from you (if you do not roll it too hard), and it will slow, stop, and then return.

As the can rolls an elastic cord winds around the inner shaft which eventually begins to lift the counterweight. In time all the original kinetic energy is converted into internal potential energy and it stops:

Kinetic \leftrightarrow Elastic \leftrightarrow Gravitational

The energy is then returned to kinetic as the weight lowers and the cord unwinds.

If you roll it too hard, a curious thing happens. There is enough energy to raise the weight all the way up. It flops over the top and uses the stored elastic energy to continue rotating about the inner shaft. All the potential energy is converted into internal kinetic energy and lost to friction in the bushing.

So, instead of returning, the can stops dead in its tracks:

Kinetic → Elastic → Gravitational → internal kinetic → Heat

Note: Please be nice to the can. Do not roll it off of a table, drop it, etc.

Extra Equipment: None.

Location: Shelf A2.