

Antigravity Bowling

Toss the paperclip into the “zero-g” zone



Materials

- __ Radar Magnet or similar high-field magnet
- __ Box large enough to enclose the magnet
- __ Steel Paperclips or equivalent
- __ Plastic or Brass or Copper or Aluminum Paperclips (for comparison)

Introduction

A strong magnetic field is established (and concealed). Paperclips tossed into the high-field area stand on end—appearing to defy gravity.

Assembly

Stand the magnet as shown in figure 1 and cover it with the box. The top of the magnet needs to be as close to the box’s “ceiling” as possible. The top surface (“playing surface”) of the box should be fairly smooth. There should be a bullseye painted on the playing surface. The center of the bullseye should be directly over the center of the magnetic pole.

To Do and Notice

Lay a paperclip on the far end of the playing surface (away from the bullseye) and slide it toward the bullseye. Observe its peculiar behavior. Try another one; try shooting the clip across at an angle (so it should miss the center of the bullseye). Clear the assembly of paperclips and try shooting them all at once. Repeat with other (non-magnetic) paperclips and observe their behavior. Can you balance a paperclip on your finger? (Try doing it when your finger is right above the bullseye.)

What’s Going On? Research!

Why do the paperclips stand up? Why don’t they simply get pulled toward the magnet?

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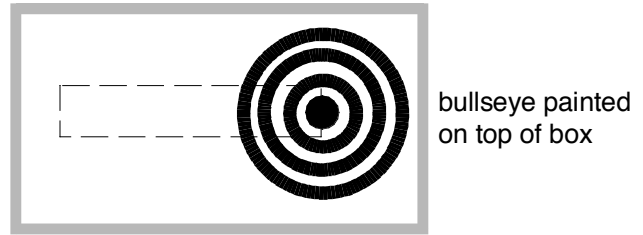
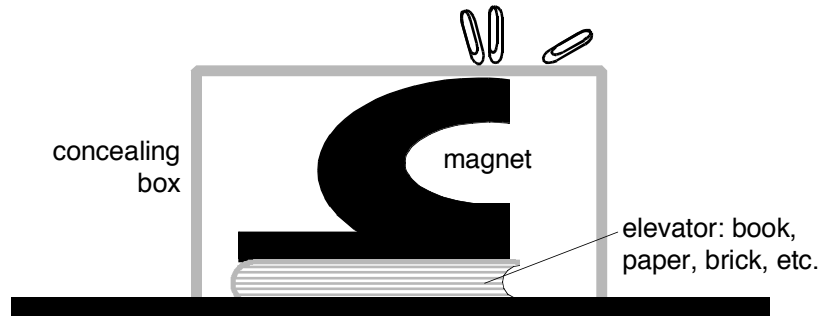


Figure 1