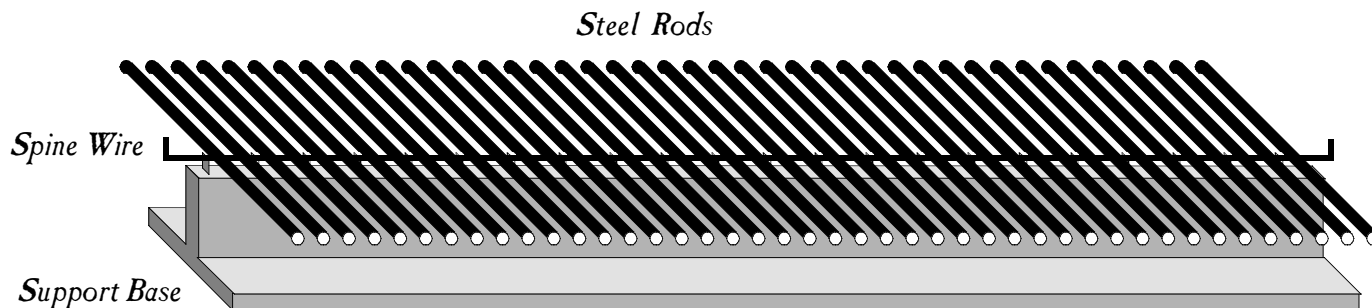


# MORE WITH THE AMAZING WAVE MACHINE

## DEMONSTRATIONS OF REFRACTION AND INTERFERENCE

Name: \_\_\_\_\_ Per: \_\_\_\_\_ Date: \_\_\_\_\_



The wave machine (originally produced by Bell Laboratories), consists of a series of thin, uniform steel rods attached through their centers by a square steel spine wire. Collectively, they act as coupled torsional pendula (when twisted, the spine wire exerts a restoring torque).

### REFRACTION

The slow section is connected to the fast section.

1. Refraction From a Slow Medium to a Fast Medium.

2. Refraction From a Fast Medium to a Slow Medium.

## INTERFERENCE

Observe and sketch a standing wave.

1. Why is it called a standing wave?
  
2. How does a standing wave come about? (What are the ingredients for making one?)
  
3. Identify points of maximum and minimum motion on the standing wave.
  
4. What causes the points of
  - a. maximum motion?
  
  - b. minimum motion?
  
5. The points of minimum motion are called “nodes.” The points of maximum motion are called “antinodes.” Label them (N and A) on your sketch above.
  
6. Complete the statements below.
  - a. \_\_\_\_\_ are the result of constructive interference and are points of \_\_\_\_\_ motion of the medium.
  
  - b. \_\_\_\_\_ are the result of destructive interference and are points of \_\_\_\_\_ motion of the medium.