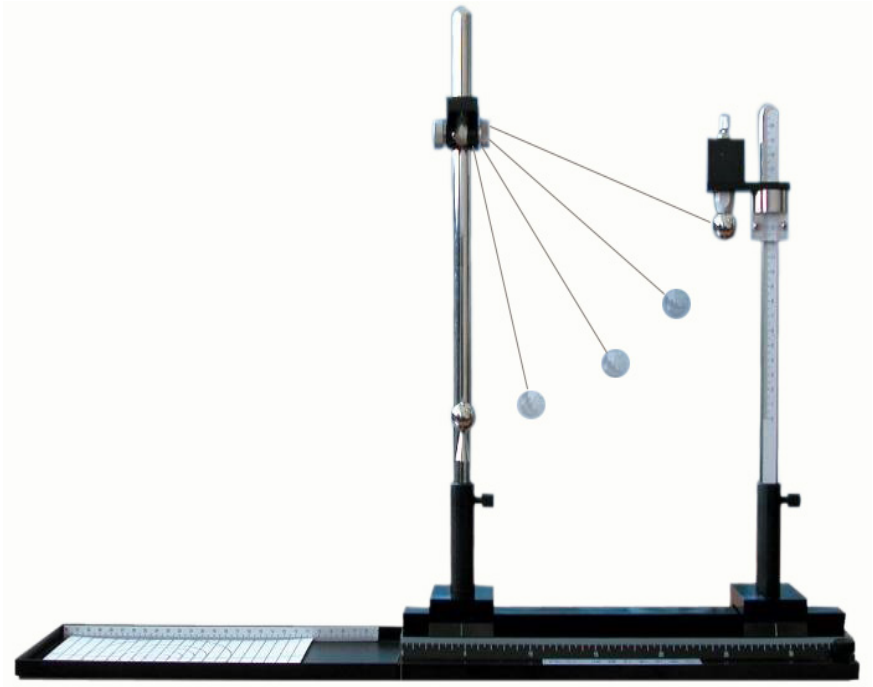
Construct, Conduct & Comprehend Physics Experiments

LEMI-25 Apparatus of Collision & Projectile Motion



- *Clear physics phenomenon*
- *Stable and reliable*
- *Affordable*

Collision between objects is a common phenomenon in nature. Conservation of energy and momentum are important concepts in mechanics. This experiment of collision and projectile motion studies the collision of two balls, as well as the swing motion of the ball before collision and the projectile motion of the other ball after collision, and uses the learned laws of mechanics to solve the actual problem of projectile.

If the final hit position of the collided ball is designated on the ground, the height of the swing ball can be calculated theoretically. From the difference of hit positions between the theoretical calculation and the experimental result, the energy loss of the collision can be calculated, and by correcting the height of the swing ball, the final hit point can be accurately targeted to the designated position. This experimental apparatus has the following features:

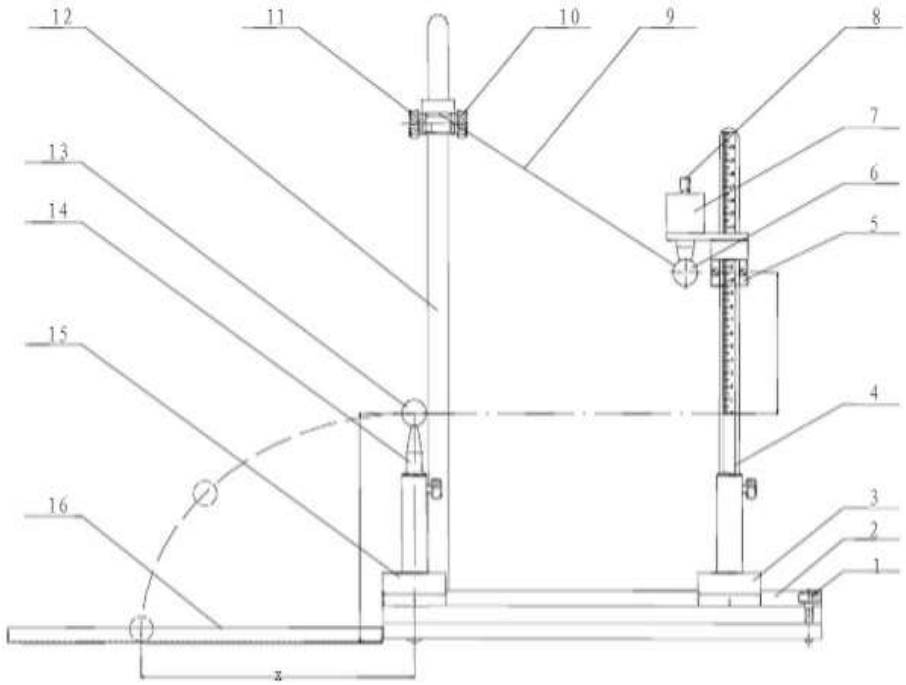
1) The rail is made from aluminum alloy with high strength; the scales on both the rail and the slider are on the same plane to eliminate parallax errors.
2) The ball supporting rod has a conical flat top with weak magnetism. The ball can be stably positioned in the center of the flat top and the frictional resistance after collision can be reduced due to the small contact area.
3) Well position control and adjustment of components ensure repeatable experimental results.

Experimental Contents

1. Observe movement status of swing ball in air, observe the motion of two balls of same mass before and after the collision, and measure energy loss of the two balls due to collision.
2. Observe the motion of two balls of different mass before and after the collision, and measure energy loss of the two balls due to collision.

Specifications and Parts

Description	Specifications
Scaled post	Range: 0 ~ 200 cm
Swing ball	Steel, diameter: 20 mm
Collided ball	Diameter: 20 mm and 18 mm, respectively
Guide rail	Length: 35 cm
Ball bearing post rod	Diameter: 4 mm
Swing post	Length: 45 cm, adjustable
Target ball tray	Length: 30 cm; width: 12 cm



Schematic of system

1. Leveling screw
2. Rail
3. Slider
4. Post
5. Scale
6. Swing ball
7. Electromagnet
8. Magnet screw
9. String
10. Locking screw
11. Adjust screw
12. Post
13. Collided ball
14. Ball support
15. Slider
16. Target ball tray

Note: above product information is subject to change without notice.

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