

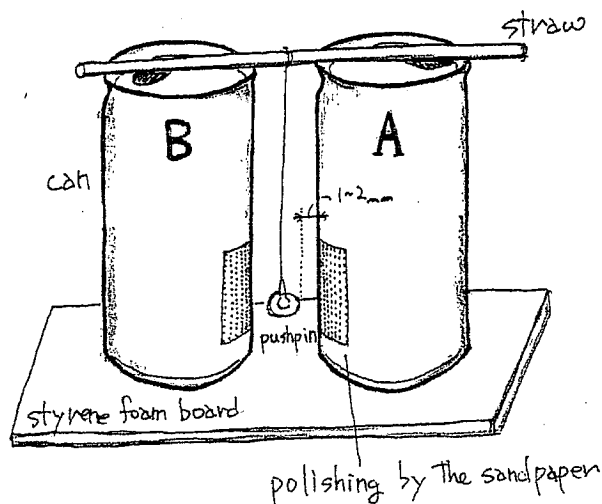
Experiment 4 Pendulum bell

Materials

empty can (2) and straw, pushpin, string, polystyrene foam board, adhesive tape, vinyl pipe, kitchen paper or tissue paper and sand paper

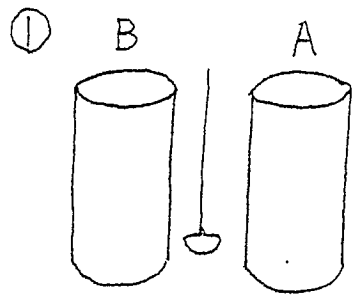
Fabrication

- (1) Both of the two empty cans are polished with sand paper at the position of figure about 5cm square.
- (2) The parts where the cans were polished are set up face to face on the polystyrene foam board.
- (3) The pushpin is dangled from the center of the straw on a string. Hang it between the two cans. The distance between each can and the pushpin is 1-2mm. The height of the pushpin is adjusted so that it is at the level of the polished parts of the cans.

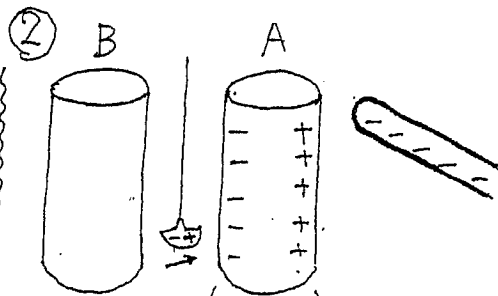


Science

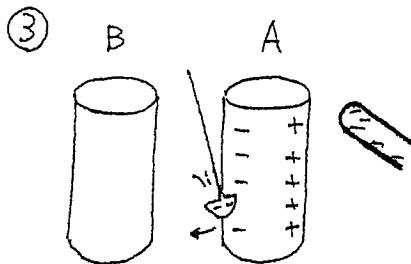
The vinyl pipe is negatively charged from rubbing it with the kitchen paper. The pipe is brought close to can A. The positive charge of can A moves to the side near the pipe. A negative charge moves to the opposite side of can A. The pushpin is attracted to can A. When the pushpin sticks to empty can A, the pushpin gets a negative charge. The pushpin and empty can A are repelled. The pushpin sticks to can B. A negative charge moves from the pushpin to can B. The pushpin sticks to empty can A again. The pushpin carries a negative charge from empty can A to B many times. The movement stops when the amount of the charge on both cans becomes the same. The balance of the charge shifts when the pipe is brought close to the other side, and the pushpin begins to move again.



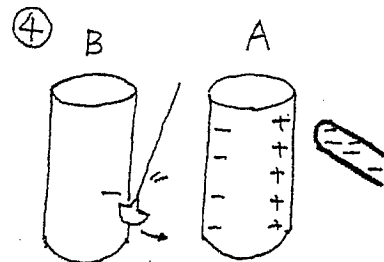
① The rubbed pipe is brought close to can A



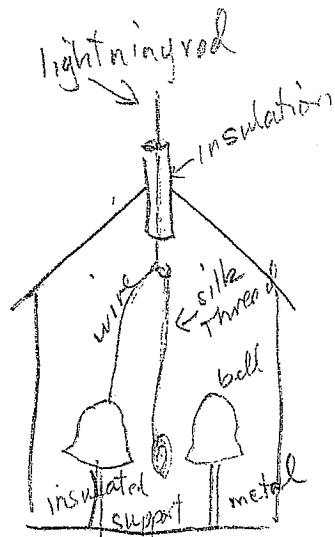
② The pushpin attracts to can A



③ The pushpin receives negative charge and repels.



④ The pushpin transfers negative charge to can B and attracts A again.



"... a wire connects the lightning rod with the insulated ball, and a small metallic ball, suspended by a silken thread, rings the bells when the insulated rod & ball become electrized by a wave which a passing cloud produces"