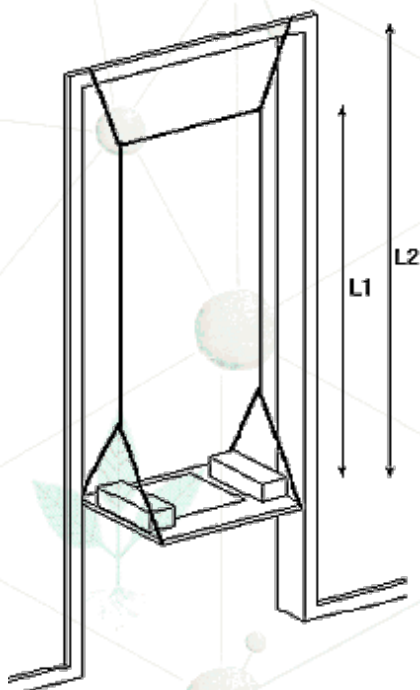


Bizarre Stuff

You Can Make in Your Kitchen

Harmonograph

A harmonograph draws beautiful swirling spirals. A piece of paper is taped to a board which swings below stationary ballpoint pen. Unlike the traditional two-pendulum harmonograph, this design uses a single pendulum which can rotate as well as swing.



Hammer two nails or drawing pins above a door lintel and attach a board with string as shown. The string cross-piece should be tied so that its height is adjustable.

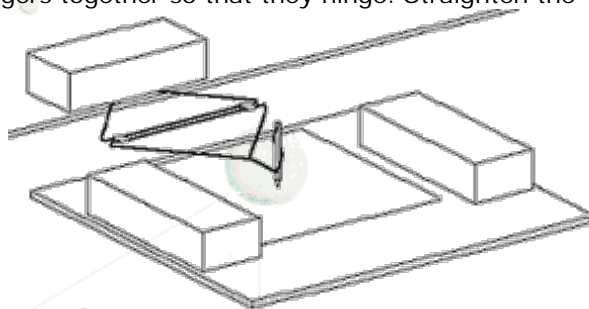
Place two bricks on the board and tape the paper down.

Adjust the length L1 versus L2 so that the period of swing of the board back and forth through the doorway is almost but not quite the same as the period of swing side-to-side.

Slide the bricks together or apart until the period of the board as it twists clockwise and counter-clockwise is almost but not quite the same as its period of swing.

Move a table near to the door and use two wire coathangers to make a carrier for the ballpoint pen.

Tape the coathangers together so that they hinge. Straighten the hook of one coathanger and twist it around the pen. Hold the other on the table with a brick or tape. It is important that the pen should be free to move up and down but it should not wobble in any other direction.



Tape the paper onto the board: thin glossy card works best. Set the board gently swinging and twisting then lower the pen onto the paper.

For different patterns, adjust the positions of the string cross-piece and the bricks. The best designs are obtained when the various periods are all just slightly different. You can also experiment with one of the periods being very close to a harmonic of the others.

This article was written and submitted by Peter Balch.

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