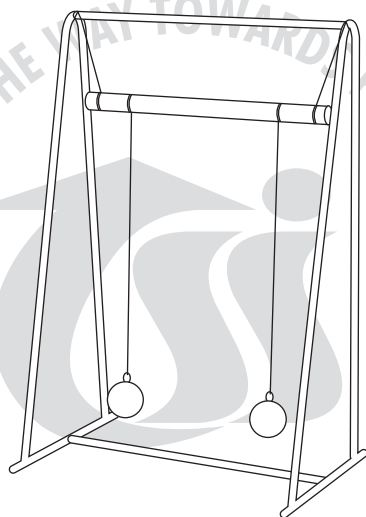


## Coupled Pendulum

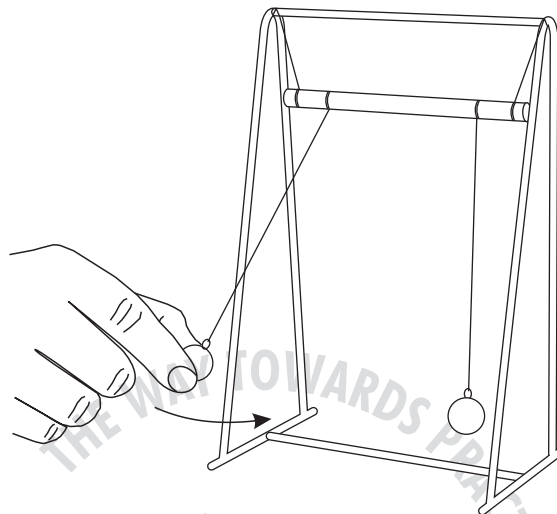
### Assembly :



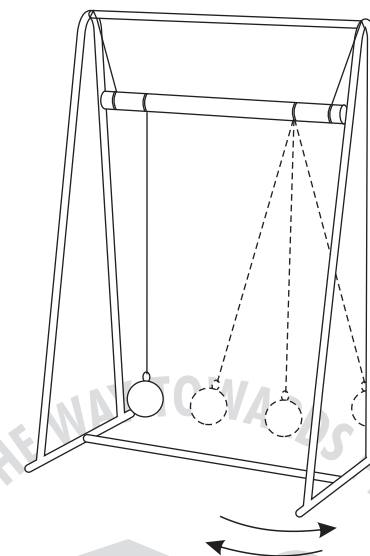
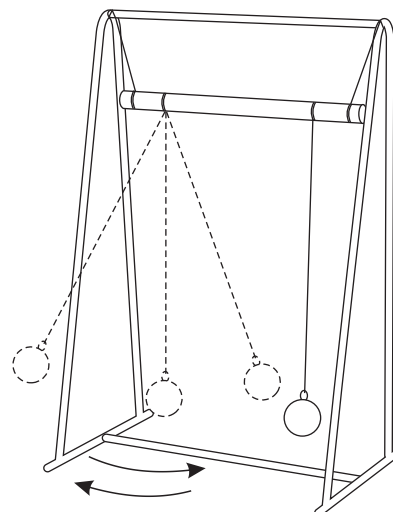
Consists of a metal frame made of MS rod (height 230 mm & width 165 mm). A wooden rod of dia 10 mm & length 140 mm is tied to the metal frame using thread as shown in the diagram. Two pendulums are suspended from the wooden rod at equal distance from the centre of the wooden rod.



### To do and observe :



Give a swing to one pendulum. After few oscillations you will notice that the other pendulum starts swinging automatically and the first one stops. Again after few oscillations, you will notice that the first pendulum starts swinging again automatically and the second one stops. This goes on and on if there is no friction.



### What is going on ?

The wooden rod at the top transfers energy of the one ball to the other.

As soon as first ball starts swinging, second also starts swinging. The amplitude of the first ball goes on decreasing and second one goes on increasing. Finally the first bob stops momentarily, at the same time the second goes to its maximum amplitude.

Now they reverse the roles. The amplitude of the first bob goes on increasing while that of second goes on decreasing. Finally second one comes to rest while first attains maximum amplitude like original situation and the process goes on and on.

The total energy transfer is due to resonance.





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# **COUPLED PENDULUM**

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DHARWAD

Phone : 0836-2775204

Cell : 94482 31960