Answer on Question#49354 - Physics - Other

Why and how the frequency changes if I put some weight or decrease some weight on a tuning fork?

Explain why it increases if I decrease some weight and why it decreases if I put some weight.

Solution:

The answer on the first part of the question is given in its second part. The explanation to the second part is very simple. The analogue to the tuning fork is a harmonic oscillator, which has the following equation of motion

$$\ddot{x} + \omega^2 x = 0$$

where $\omega = \sqrt{\frac{k}{m}}$ is its circular frequency. k – is the stiffness, and m – is the mass.

It is easy to see from the expression for the frequency ω that it increases if we decrease the mass (weight) and it decreases if we increase the mass (weight).