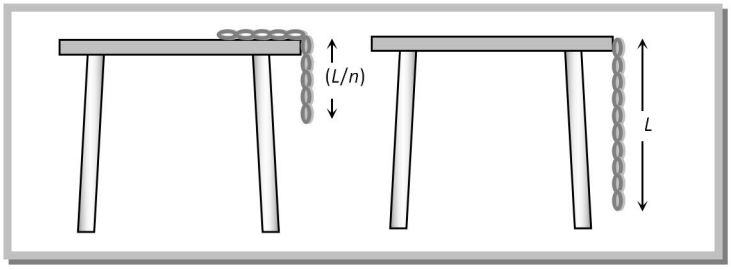
Velocity of Chain While Leaving the Table.



Taking surface of table as a reference level (zero potential energy)

Potential energy of chain when 1/nth length hanging from the edge $= \dfrac{-MgL}{2n^2}$

Potential energy of chain when it leaves the table $= -\dfrac{MgL}{2}$

Kinetic energy of chain = loss in potential energy

$$\Rightarrow \qquad \frac{1}{2}Mv^2 = \frac{MgL}{2} - \frac{MgL}{2n^2}$$

$$\Rightarrow \qquad \frac{1}{2}Mv^2 = \frac{MgL}{2}\left[1 - \frac{1}{n^2}\right]$$

$\therefore$ Velocity of chain $v = \sqrt{gL\left(1 - \dfrac{1}{n^2}\right)}$