Hints for Problem 3 in Assignment 3:

Total energy $\equiv \varepsilon = \frac{1}{2} m\left(v_x^2 + v_y^2\right) - eE_0 x = \frac{1}{2} m\left(v_x^2 + \Omega^2 x^2\right) - eE_0 x$

$\varepsilon\left(x = 0\right) = \frac{1}{2} m u_0^2 = \varepsilon(\text{elsewhere})$

What is $v_x(x)$?