Answer on Question #82414, Physics / Molecular Physics | Thermodynamics

Question:

An inventor claims to have constructed an engine that has an efficiency of when operated 75% when operated between the boiling and freezing points of water. Is this possible ? Illustratively explain.

Solution:

The max possible efficiency of a heat engine has one working on Carnot cycle and it equals to $\eta = 1 - \frac{T_l}{T_h}$ what in this case means $\eta = 1 - \frac{273}{273+100} = 0.27$ or 27%.

Evidently the statement isn't not possible and the inventor isn't correct.

The answer:

It's not possible - please see above.