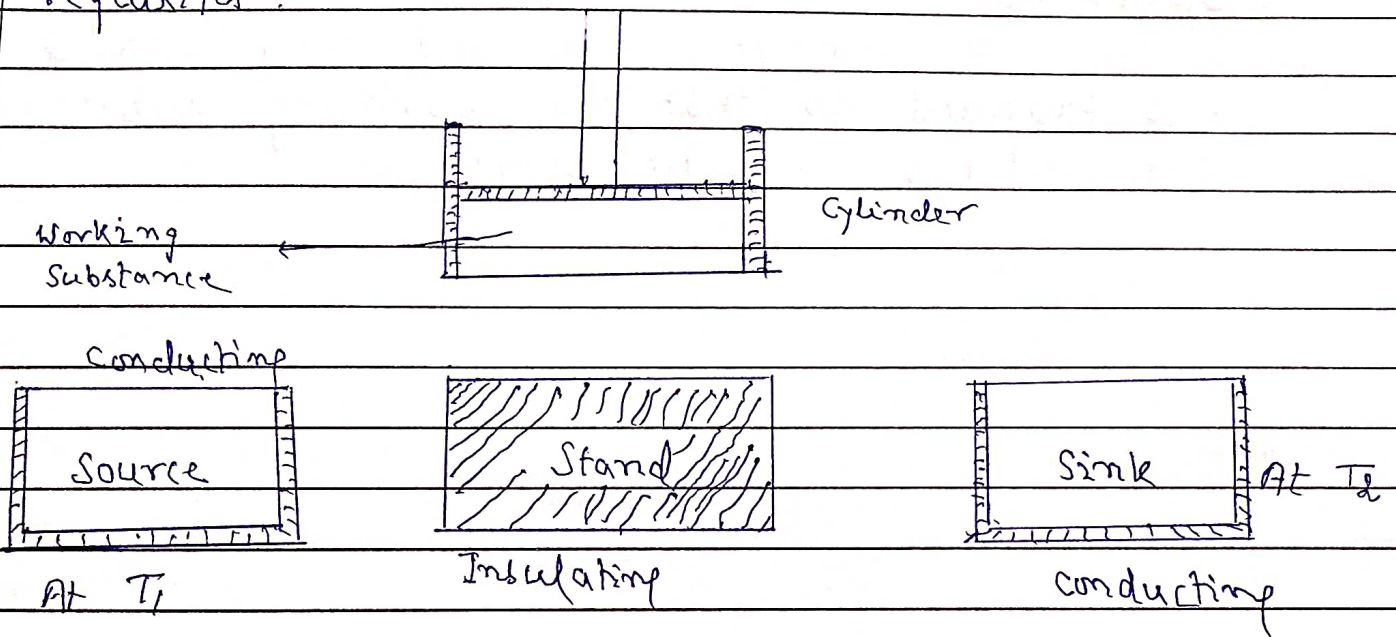


## Carnot's Reversible Engine :-

Heat engines are used to convert heat into mechanical work. Sadi Carnot (French) conceived a theoretical engine which is free from all the defects of practical engines. Its efficiency is maximum and it is an ideal heat engine.

For any engine, there are ~~two~~ three essential requisites :-



(1) Source :- The source should be at a fixed high temperature  $T_1$  from which the heat engine can draw heat. It has infinite thermal capacity and any amount of heat can be drawn from it at constant temperature  $T_1$ .

(2) Sink :- The sink should be at a fixed lower temperature  $T_2$  to which any amount of heat can be rejected. It also has infinite thermal capacity and its temperature remains constant at  $T_2$ .

### (3) Working Substance:—

A cylinder with non conducting sides and conducting bottom ~~and~~ contains the perfect gas as the working substance.

A perfect non-conducting and frictionless piston is fitted into the cylinder. The working substance undergoes a complete cyclic operation.

A perfectly non conducting stand is also provided so that the working substance can undergo adiabatic operations.