

MECHANICAL EQUIVALENT OF HEAT.

The mechanical equivalent of heat is the quantity of heat required to raise the temperature of one pound of water one degree, or will raise seven hundred and seventy-two pounds one foot high ; or the weight of one pound descending seven hundred and seventy-two feet is equal to one degree of heat.

Then, seven hundred and seventy-two foot-pounds is what is called the mechanical equivalent of heat, the number expresses the whole work due to the quantity of heat which is able to raise one pound of water one degree of heat.

Heat is a peculiar motion of the particles which prevents their contact. Heat and mechanical power are convertible forces. The force of the heat that raises one pound of water one degree F. will lift a weight of seven hundred and seventy-two pounds one foot high. The power of a weight of seven hundred and seventy-two pounds descending one foot if applied to a small paddle-wheel turning in one pound of water, will by friction, raise the temperature of the water one degree Fahrenheit. A heat unit is the amount of heat that raises a pound of water 1°F. or that lifts a weight of seven hundred and seventy-two pounds one foot high.

Then, seven hundred and seventy-two foot-pounds equals one heat unit—one heat unit equals seven hundred and seventy-two foot-pounds.

