

hydrogen and that of a weight elevated from the earth's surface, in the respect that both possess energy of position. Let us trace for a moment the processes used in attaining the position in both cases. When we apply heat to a boiler, a part of this heat is converted, through the medium of a steam-engine, into mechanical rotary motion. By the energy of this motion we are enabled, through the medium of a rope and a pulley, to wind up a weight to an elevated position. A part of the heat that has been generated by the burning of the fuel appears simply as sensible heat, while another passes into mechanical energy, which is used in winding up the weight.

To produce chemical separation we also may apply heat, a part of which will appear as sensible heat, measurable by means of a thermometer, and a part will be absorbed in the work of separating atom from atom. In the case of the wound-up weight the energy set free by the burning of the fuel exists partly as sensible heat that has radiated off into space and partly as stored energy in the wound-up weight. If the weight is allowed to fall it becomes molecular or heat energy when it strikes the earth; and the sum of the energy—to wit, the heat developed by the fall of the weight and that which radiated into space during the process of winding up the weight