

take into account the fact that the food which an animal eats and the air that it breathes sustains the relation, in a sense, to animal locomotion that coal burned under a boiler does to the propulsion of a steam engine. In both cases there is oxidation caused by the union of oxygen with the carbon, the result of which is the production of heat. Many ingenious automatons were constructed that would simulate the movements of men and animals in the performance of certain kinds of work; and their ingenious constructors had in view the solution of a greater problem than that of the construction of a mere mechanical toy.

History speaks of a mechanical duck that was the wonder of the last century, that fed and digested its own food. The same inventor is said to have constructed a flute-player that would move its fingers in the proper manner to produce a certain melody. Later on another ingenious mechanician constructed a writing boy who would go through all the motions of writing accompanied by the proper movement of fingers, arms, and eyes, and so perfectly was this piece of mechanism adapted to the purpose for which it was intended that when the "boy" and his father (who invented and constructed him) were traveling and giving exhibitions in Spain they were both arrested for being in league