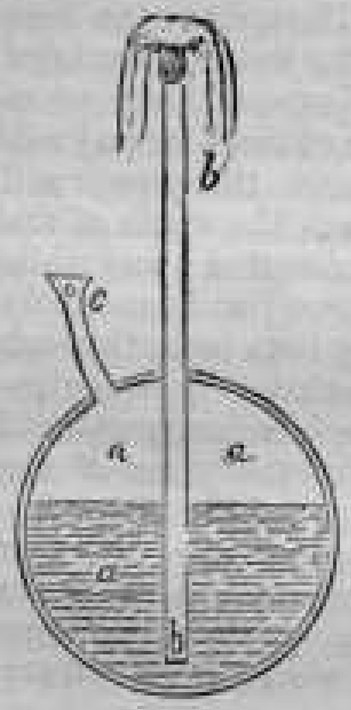
confined for life. There, however, as the story goes, he was visited by the Marquis of Worcester, who ascertained his secret. The Marquis, it is probable, had seen his book, as no doubt he had also seen the treatise of Father Kircher on the same subject; however, he claimed to be the inventor of the steam engine.

In a work entitled, "Exact and True Definition of the most stupendous Water-commanding Engine, invented by the Right Honourable and deservedly to be praised and admired Edward Somerset, Lord Marquis of Worcester, and by himself presented to His Most Excellent Majesty Charles II., our most gracious Sovereign," he gives an enumeration of the marvellous uses of his invention, but no definition or explanation of it. Still it is probable from the ideas suggested in the last three articles of the "Century of Inventions," that he was acquainted with an engine similar to the *atmospheric engine*, the invention of a later period. The following are the articles to which we refer:—



CAUS'S STEAM APPARATUS.

"Invention 98.—An engine so contrived, that working the *primum mobile* forward or backward, upward or downward, circularly or cornerwise, to and fro, straight upright, or downright, yet the intended operation continueth and advanceth, none of the motions above-mentioned hindering, much less stopping, the other; but unanimously, and with harmony, agreeing, they all augment and contribute strength into the intended work and operation; and therefore I call this a semi-omnipotent engine.

"Invention 99.—How to make one pound weight to raise an hundred as high as one pound falleth, and yet the hundred pound descending doth what nothing less than one hundred pound can effect.

"Invention 100.—Upon so potent a help as these two last-mentioned inventions, a water-work is, by many years' experience and labour, so advantageously by me contrived that a child's force bringeth up, an hundred feet high, an incredible quantity of water, even two feet diameter, so naturally, that the work will not be heard even in the next room; and with so great ease and geometrical symmetry, that, though it work day and night from one end of the year to the other, it will not require forty shillings' reparation to the whole engine, nor hinder one day's work: and I may boldly call it the most stupendous work in the whole world; not only, with little charge, to drain all sorts of mines, and furnish cities with water, though never so high-seated—as well as to keep them sweet, running through several streets, and so performing the work of scavengers, as well as furnishing the inhabitants with sufficient water for their private occasions—but likewise supply the rivers with sufficient to maintain and make them portable from town to town, and for the bettering of lands all the way it runs, with many more advantageous, and yet greater effects of profit, admiration, and consequence."

Without entering on the debatable ground as to how far the Marquis forwarded the progress of the application of steam power, we may pass on to notice that the next person who in chronological order interested himself in the subject was Savery—Thomas Savery, gentleman, otherwise called Captain Savery. In 1698 he obtained a patent from William the Third for "raising water and occasioning motion to all sorts of mill-work by the impellent force of fire." As regards the merit of the invention, however, considerable doubts have been entertained. In a book on "Experimental Philosophy" (1734), Dr. Desaguliers gives the following story:—"Captain Savery having read the Marquis of Worcester's book, was the first who put in practice the raising of water by fire, which he proposed for the draining of mines. His engine is described in 'Harris's Lexicon,' which, being compared with the Marquis of Worcester's description, will easily appear to have been taken from him, though Captain

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