

struction of an excellent air-pump. A large vessel may be made to communicate with a boiler at one side, and with the pump-receiver on the other, and also with a condenser. Suppose this vessel of ten times the capacity of the receiver; fill it with steam from the boiler, and drive out the air from it; then open its communication with the receiver and the condenser. This will rarefy the air of the receiver ten times. Repeating the operation will rarefy it 100 times; the third operation will rarefy it 1000 times; the fourth, 10,000 times, &c. All this may be done in half a minute.

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PATENT in 1785. "For certain newly improved Methods of constructing Furnaces, or Fire-Places for Heating, Boiling, or Evaporating of Water, and other Liquids, which are applicable to Steam-Engines and other purposes; and also for Heating, Melting, and Smelting of Metals and their Ores, whereby greater effects are produced from the Fuel, and the Smoke is in great measure prevented or consumed."

The specification is dated the 14th June, 1785. W.