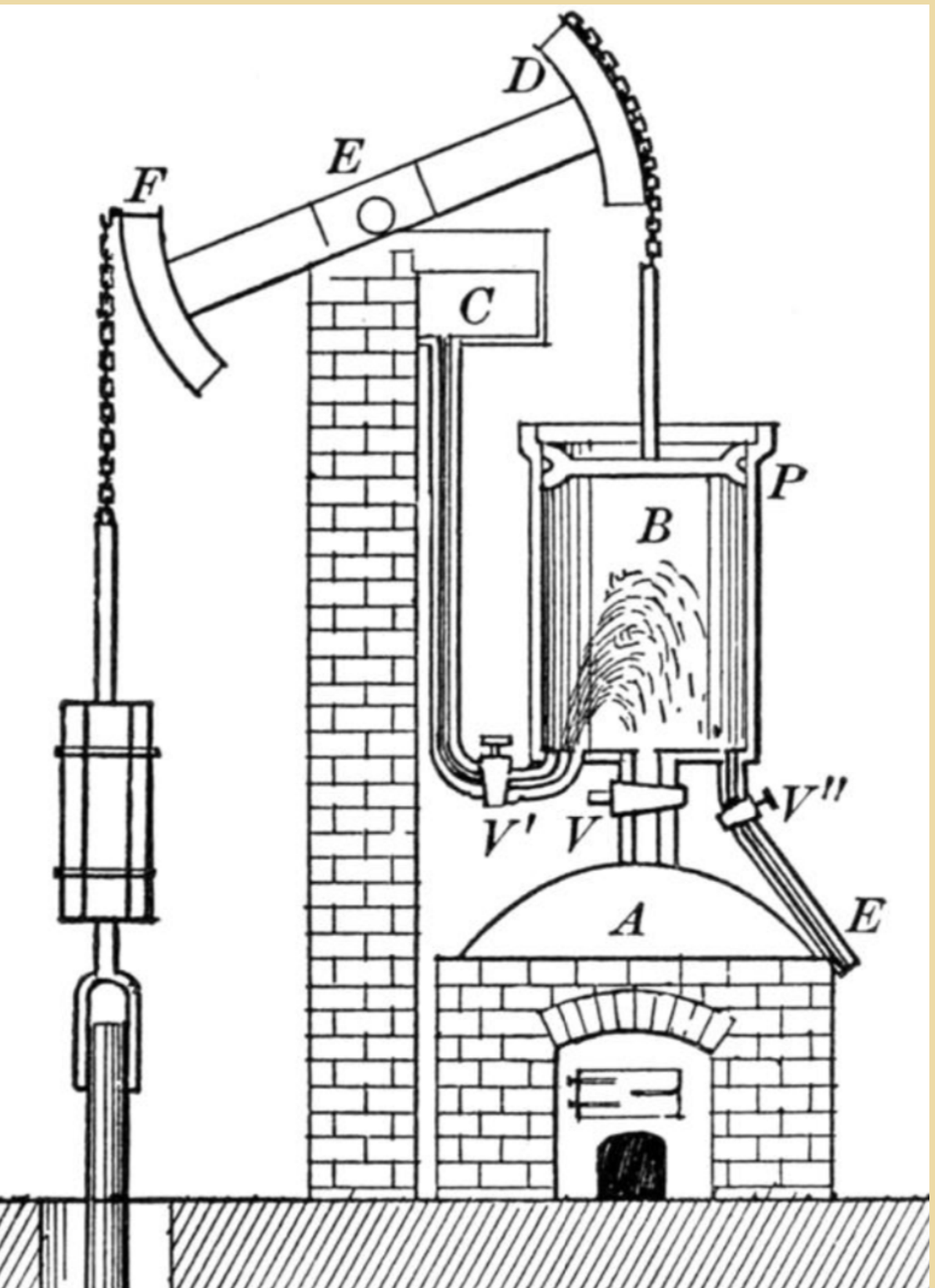
HOW STEAM ENGINES WORK

In 1705, a blacksmith named Thomas Newcomen invented the first steam engine whilst looking for a way to pump water out of mines.

His **‘atmospheric engine’** used atmospheric pressure and steam to alternately push a piston, enabling a pumping action to take place. The engine worked by heating up water to create steam before condensing the steam again. This created a vacuum in the cylinder and allowed atmospheric pressure to act on the piston. This continued at regular intervals, with the injection of heat and cold water being controlled by valves to create an up and down movement on a rocker arm.



Thomas Newcomen’s Atmospheric Engine

A is the firebox. A fire heats up water above.

B is the cylinder where the steam is condensed using brief injections of cold water delivered from **C**.

V are valves.

P is the piston. It is pushed up and down by steam pressure and atmospheric pressure.

D is the rocker arm which subsequently moves, carrying this movement over to **F.**