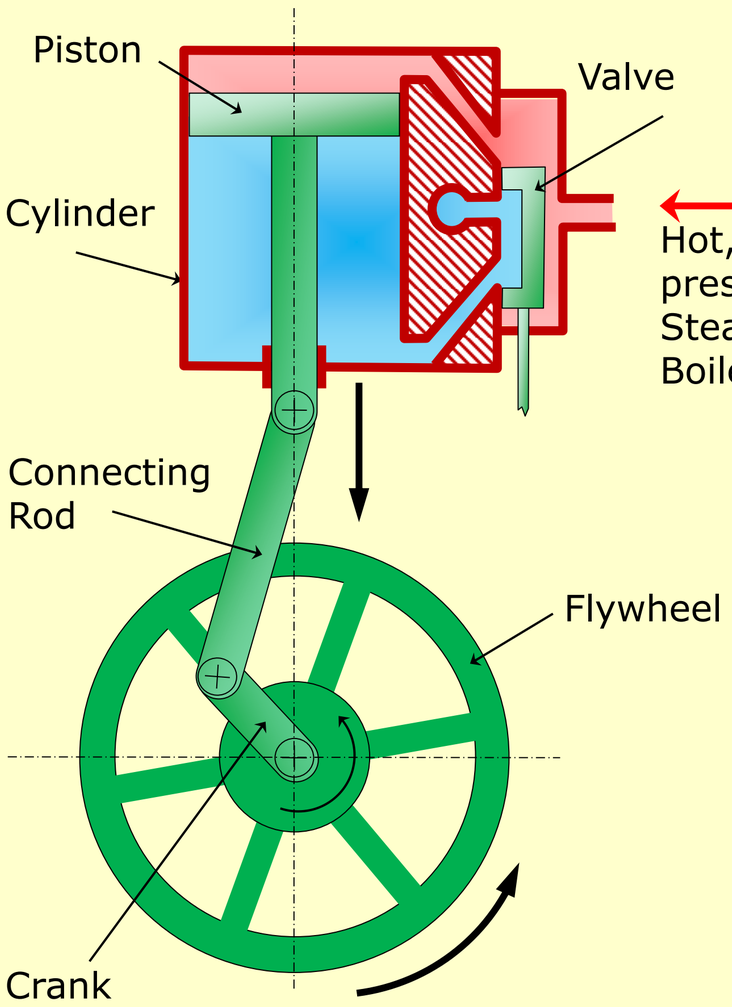
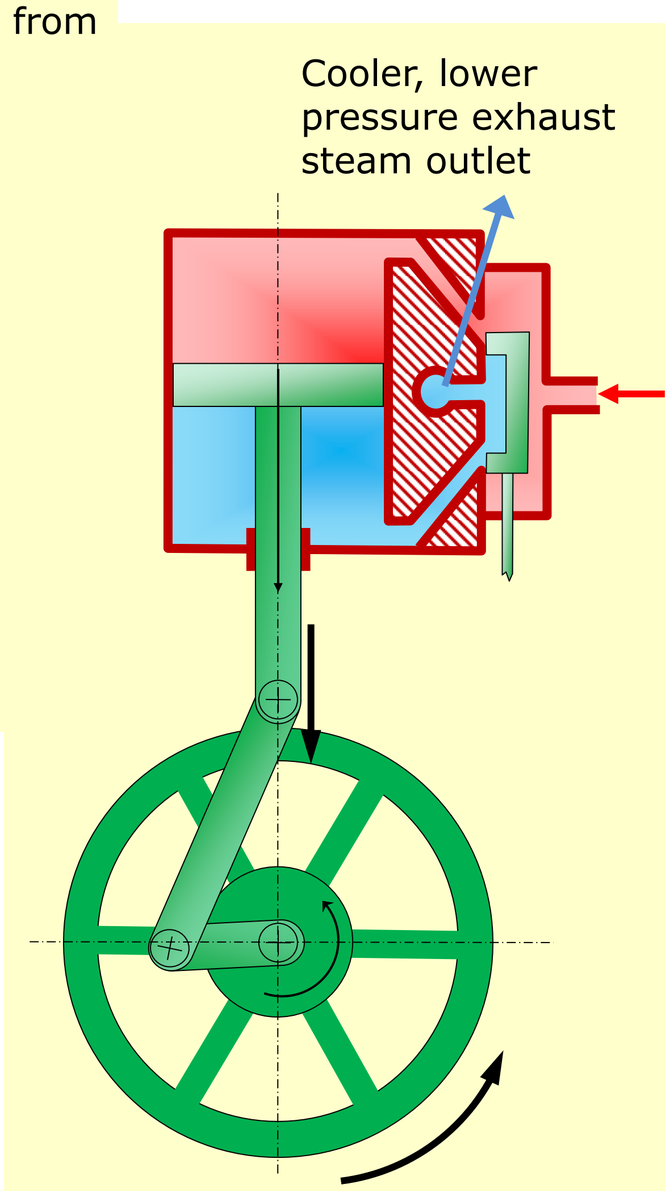
The Steam Engine

Steam engines take energy from steam at high pressure and temperature and convert it to mechanical power. Traditional reciprocating engines do this with a piston and crank similar to those in a petrol or diesel engine

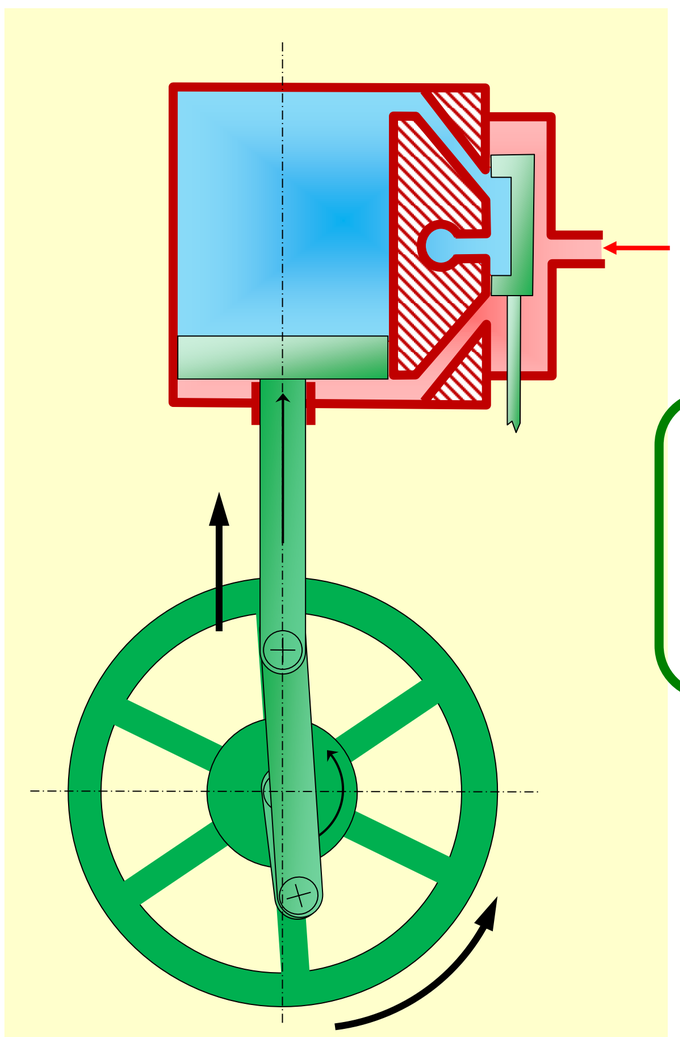


1 Hot, high pressure steam from the boiler comes through a valve into the space above the piston.



2 The steam forces the piston down, turning the crankshaft by means of the connecting rod.

Colder, lower pressure steam from the previous stroke is let out from below the piston.



3 When the piston gets near the bottom, the valve changes the steam supply from the top to the space below the piston, forcing it up again. The crank keeps turning the same way.

The lower pressure steam above the piston is allowed to escape.

4 When the piston gets near the top, the valve changes over again, and the process repeats.

The energy of the flywheel helps to keep the engine rotating at the ends of the stroke. The valve is driven from the crankshaft, so the whole thing is automatic.

Shamrock's engine has two sets of pistons and cylinders working on the same shaft – a *twin high pressure* engine. Between them, they keep the shaft turning continuously, so a flywheel is not needed (though the propeller and its shaft act rather like one).