The Launch Boiler

The boiler uses heat from burning fuel (e.g. coal or wood) to boil water to make steam. For good efficiency, a large surface area between the fire and water sides is needed. The boiler must withstand high temperatures around the fire and high pressures in the steam container.

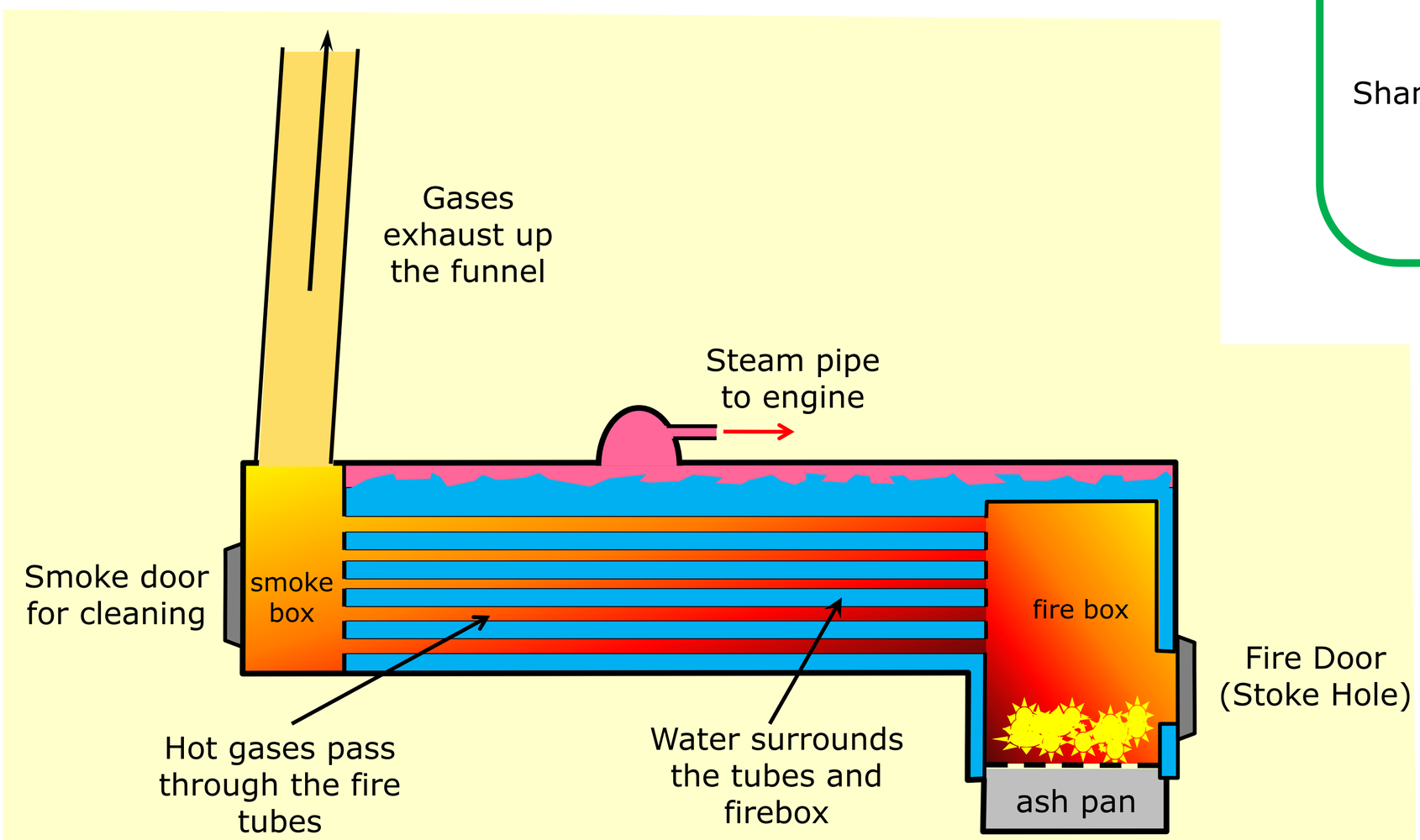
In the early nineteenth century, the design principles for boilers were not well understood, and there were many accidents.

From the middle of the century, experience and better engineering understanding (and new regulations) led to boiler designs which were safe and economical. These are essentially the same as those used today

Boiler types have names which indicate where or for what they were developed:

- *Cornish* boilers for mine pumping;
- *Lancashire* for cotton milling;
- *Scotch* for steamships;
- *Locomotive* for railways and traction engines.

Shamrock's boiler is a *Launch* boiler, a variant on the Locomotive boiler.



The Stoke Hole is at the back for a Locomotive boiler, or at one side for a Launch boiler.

Launch and Locomotive boilers have a large cylindrical drum containing water, with a number of fire tubes running through it from end to end.

At one end is the firebox, which is double-walled with water in between. The hot gases pass from the fire box through the fire tubes to the smoke box and thence up the funnel. Heat is transferred to the water through the walls of the firebox and the fire tubes.

Shamrock's boiler has 32 fire tubes each 32 mm (1¼ inches) in diameter. The drum is 560 mm (1 ft 10 in) diameter and 1470 mm (5 ft 8 in) long.