

Knap Down Engine House and Chimney at Combe Martin

A General Historical Summary

September 2026

Site: Combe Martin Knap Down Silver Mines

Historic England [Listed Building: Grade II](#)

County: Devon, England

District: North Devon (District Authority)

Parish: Combe Martin

National Grid Reference: SS 59718 46683

Introduction

The ruined engine house and chimney unit standing on private farmland at Knap Down is dated to around 1859. It was built specifically to accommodate a Sims tandem compound pumping engine, sourced from a Hayle foundry.

Structural Layout: The engine house has a rectangular plan and was built gable-end directly into a bank (Historic England 1168925).

- Key Features: A front bob-wall with a tall, narrow, semi-circular arched opening.
- A tall, circular chimney shaft is incorporated directly into the rear wall, complete with drip ledge oversailing brick courses at the cap.

While research indicates an earlier engine was originally installed on the site in 1843, the surviving structure and its integrated chimney were probably constructed anew in 1859 for the unique requirements of the Sims compound.

The Sims compound was an unusual development of the Cornish beam engine, designed to improve efficiency by expanding steam in two stages rather than one.

Evidence indicates that a 26"/50" Sims Patent Compound Engine—featuring a 26-inch high-pressure cylinder vertically stacked above a 50-inch low-pressure cylinder—was delivered and installed at the Knap Down shaft.

The Sims compound engine was quite tall yet it performed reasonably well. Cornish engines are non-rotative engines, i.e., the straight-line motion of a power piston is transmitted to the straight-line motion of a pump piston, without a crank or flywheel.

The piston moved up and down in a straight line, directly pulling and pushing a pump rod that went down into a mine shaft to pump out water (Cruquius Museum, Netherlands, 2026).

The term “compound” engine refers to its two cylinders: a small high-pressure cylinder mounted above a much larger low-pressure cylinder. The steam first entered the high-pressure cylinder, where it expanded partially, and then passed to the low-pressure cylinder for further expansion before being condensed.

The two cylinders operated through a common piston rod, making this a tandem compound engine.

This arrangement explains the unusually tall engine house at Knap Down. The building had to accommodate the vertically stacked cylinders as well as the large working beam and associated pumping machinery.

The engine house had a substantial bob wall at the front, while a tall circular chimney was incorporated into the rear wall.

The Sims design is significant because it represents an attempt to combine the deep pumping capabilities of the Cornish beam engine with the greater steam economy of compound expansion. It was a short-lived design.

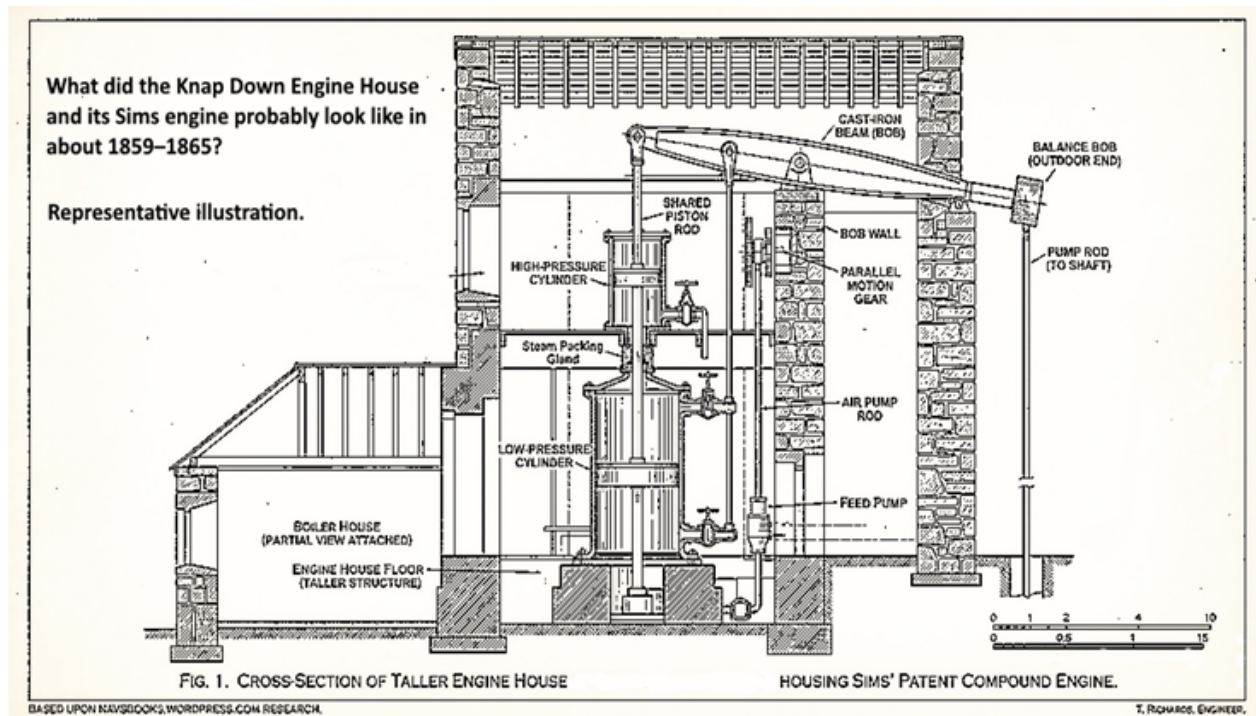
Although the exact details of the Knap Down engine's valve gear, pipework and ancillary machinery remain uncertain, the surviving building and contemporary descriptions provide a strong basis for reconstructing its principal arrangement ([Historic England, 1168925](#)).



Old photograph of Knap Down Engine House at Combe Martin.
A historical snapshot from a time when the building's primary walls were still standing.

Representative Illustration of a Sims Compound Pumping Engine

Not an exact proof of the Knap Down engine's internal layout.



Sources accessed September 2026:

[A Cornish beam-engine house showing the engine in position. In... | Download Scientific Diagram](#)

<https://cruquiusmuseum.nl/EN/precursors/?utm>

<https://navsbooks.wordpress.com/tag/sims-compound-engine/>

https://www.emerald.com/jmipi/article-pdf/23/1864/54/2647856/imotp_1864_23279.pdf

<https://www.combemartinville.co.uk/combe-martin-industrial-history/early-silver-mining-in-combe-martin>

Exmoor Heritage Monument MDE8272; <https://www.exmoorher.co.uk/Monument/MDE8272>.

<https://cdn.cornishmining.org.uk/media/Resources/Learning%20Content%20PDFs/>

[Cornish Mining WHS Theme 3b Engineers and inventors.pdf](#)

https://www.scribd.com/document/1070379979/The-Principles-Construction-And-Application-of-Pumping-Machinery-Steam-and-Water-Pressure-With-Practical-Illustrations-of-Davey-Henry-Z-libra?utm_source=chatgpt.com

The Knap Down Engine was worked by the North Devon Silver Lead Mining Company (Vale of Girt and Nap Down). Douglas Stuckey (1965): *Adventurers Slopes. The Story of The Silver and other mines of Combe Martin in Devon*. Historic England, List Entry No.1168925.

A conventional Cornish pumping engine was fundamentally a reciprocating machine. The beam rocked, the pump rods moved vertically, and the weight of the pumping gear provided the return motion (Cruquius Museum, Netherlands) - <https://cruquiusmuseum.nl/EN/precursors/?utm>.

Because gravity and steam pressure completed the alternating cycle, the engine didn't need a crank or flywheel to maintain motion.

Notes

1. Information is drawn from [The Principles Construction And Application of Pumping-Machinery Steam and Water Pressure With Practical Illustrations of Davey Henry.](#)
2. The diagram above, serves as a representative structural cross-section based on Sims' patent and surviving engine house dimensions (Historic England, listing [1168925](#)), not an exact surviving as-built mechanical survey of Knap Down at Combe Martin.
3. Engine house ruins on private or former industrial land may be unsafe or closed to public access.
4. A conventional Cornish mine pumping engine was not normally a rotary engine.
5. Document copyright: author for [CMVHP North Devon.](#)

Engine House Model at Combe Martin Museum, North Devon

[Visit Combe Martin Museum on Cross Street, EX34 0DH, nr Ilfracombe, North Devon.](#)

