

JAMES HOWDEN FOUNDER OF THE FIRM

by Brian Roberts, CIBSE HERITAGE GROUP



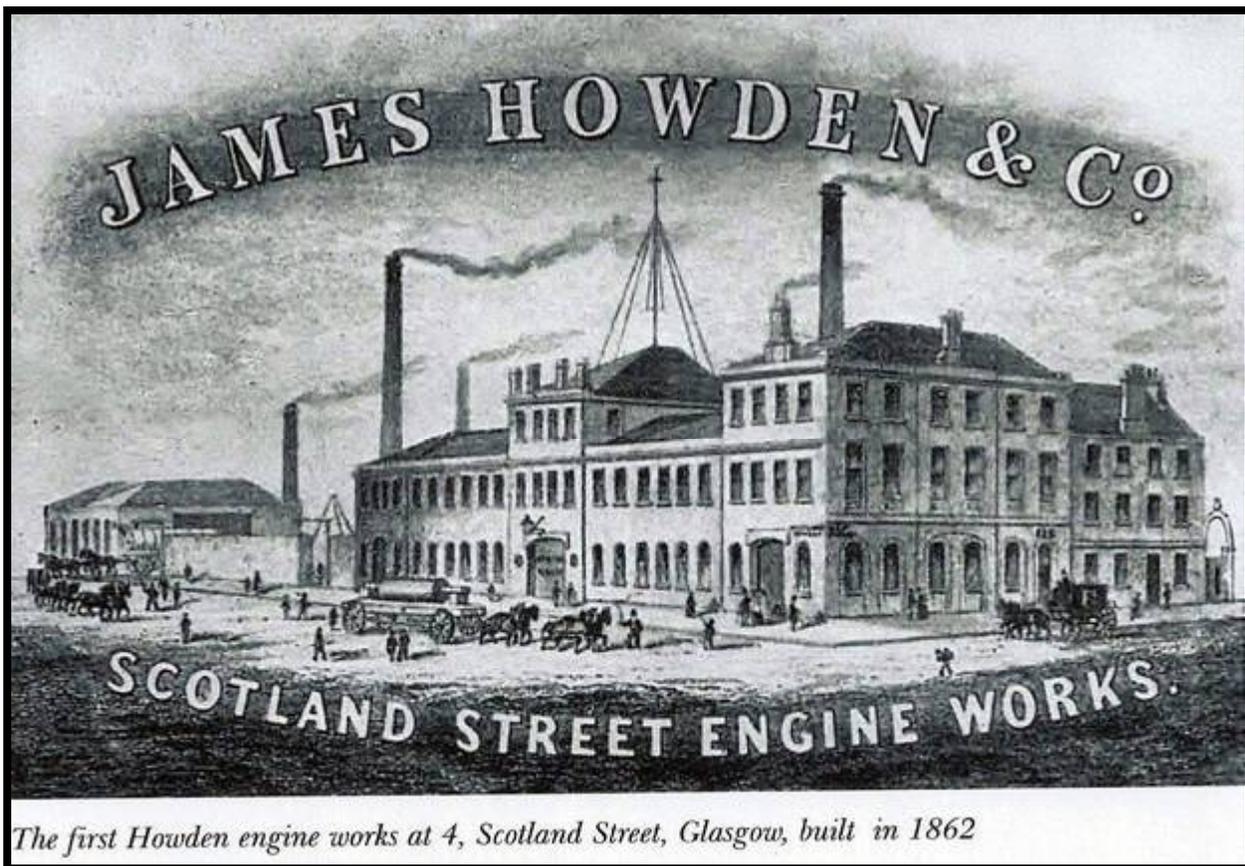
James Howden, 1832-1913

James Howden was born in Scotland in Prestonpans, East Lothian, on 29th February 1832, the son of James Howden and his wife, Catherine Adams. He was educated at the local parish school. His first marriage was to Helen Burgess Adams and his second to Allison Moffat Hay. His two wives, with whom he had two sons and a daughter, both predeceased him.

From 1847, Howden served an apprenticeship with the Glasgow engineering firm of James Gray & Company where he eventually became Chief Draughtsman. He next worked with the civil engineers, Bell & Miller, and then with Robert Griffiths, who designed marine screw propellers.

In 1854, Howden set up as a consulting engineer and designer, his first major invention being a rivet-making machine, selling the patent rights to a Birmingham company. This gave him financial security and in this same year he established James Howden & Company as a manufacturer of marine equipment.

In 1857, Howden began work on the design and supply of boilers and steam engines for the marine industry. His first contract was to provide the Anchor Liner *Ailsa Craig* with a compound steam engine and water boilers. In 1860, he patented a method of preheating combustion air described as “improvements in steam engines and boilers, and in the apparatus connected therewith.”



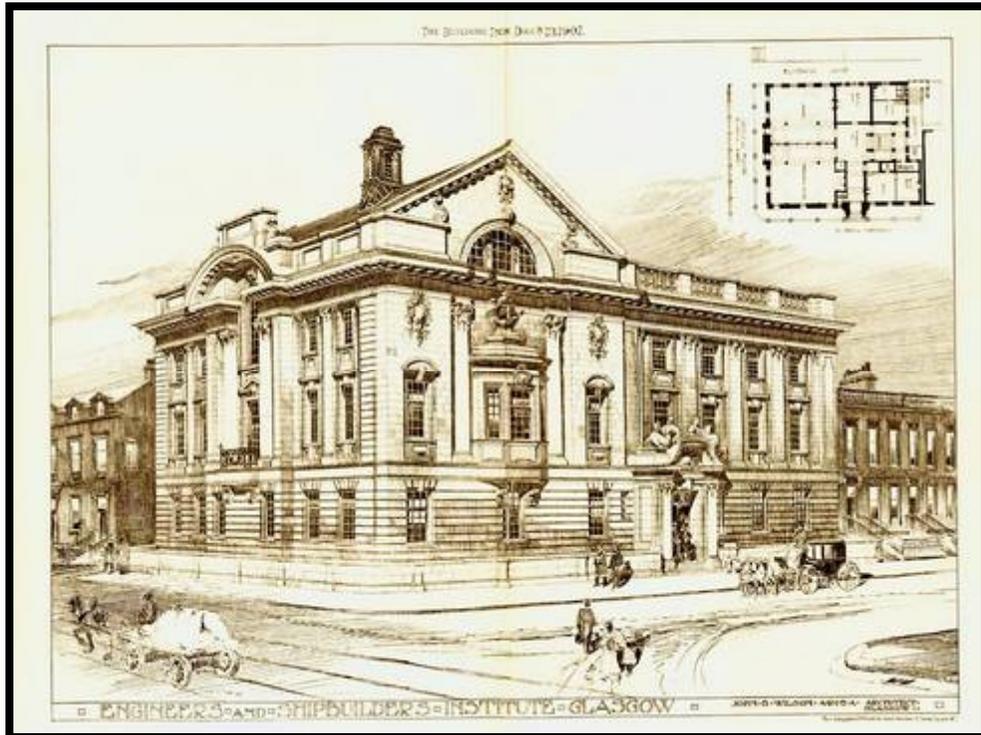
The first Howden engine works at 4, Scotland Street, Glasgow, built in 1862

In 1862, he decided to construct main boilers and engines to his own design and opened his first factory on Scotland Street in Glasgow's Tradeston district. The breakthrough came in 1863 when he introduced a furnace mechanical draught system which used a steam-turbine-driven axial flow fan and dramatically reduced the amount of coal used.

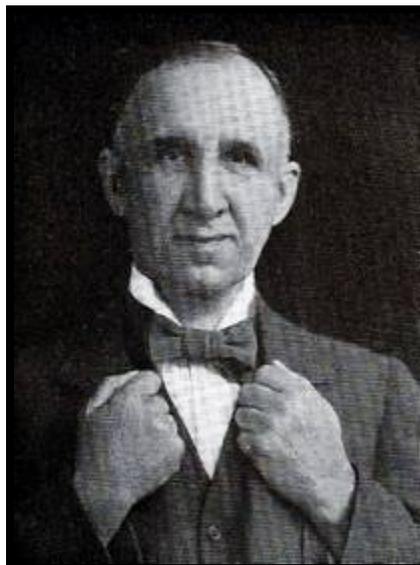
James Howden is chiefly remembered as the inventor, in the 1880s, of the *Howden Forced Draught System*, which forced heated waste gases into the combustion chamber by means of a fan and ductwork. He patented this in 1882, and during the 1880s more than 1000 boilers were provided with this system, the first being the *New York City* in 1885. Amongst the famous liners to use the Howden system in their boilers were the *Lusitania* and *Mauretania*, the fastest liners in the world when they were built.

For the remainder of his life, James Howden's Company developed a significant business in the marine industry and developed steam engines, various auxiliary equipment and were early pioneers in steam turbine manufacture, securing a licence from C A Parsons and later from Escher Wyss. The firm became a private limited company in 1907.

James Howden died in Glasgow in 1913. He was the last surviving founder member of the Institution of Engineers and Shipbuilders in Scotland, founded in 1857.



The Institution of Engineers & Shipbuilders, Elmbank Crescent, Glasgow

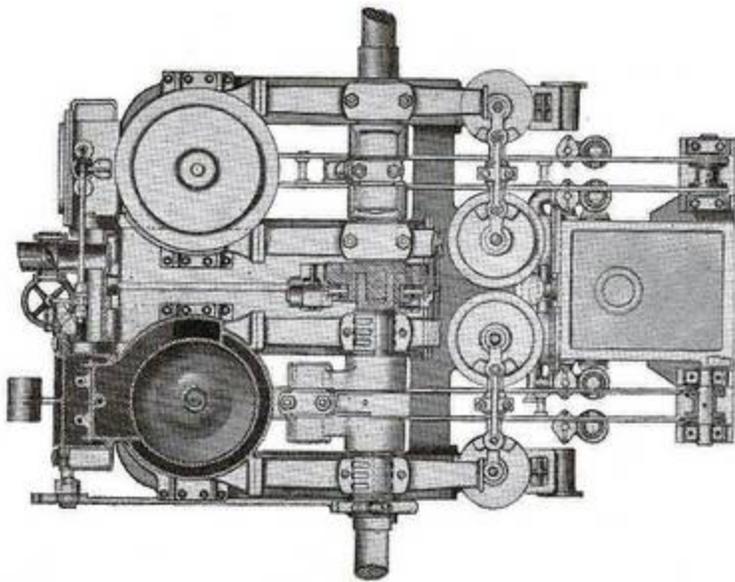
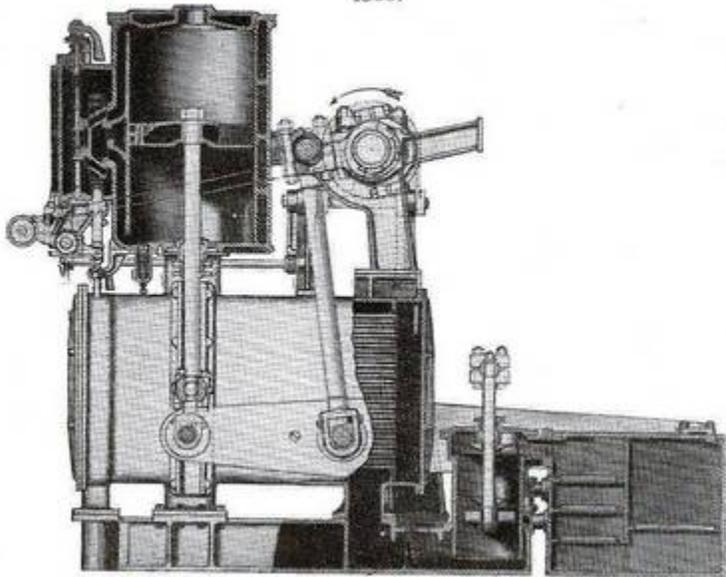


In 1913, James Howden Hume was appointed Chairman of Howden, a post in which he continued until 1938

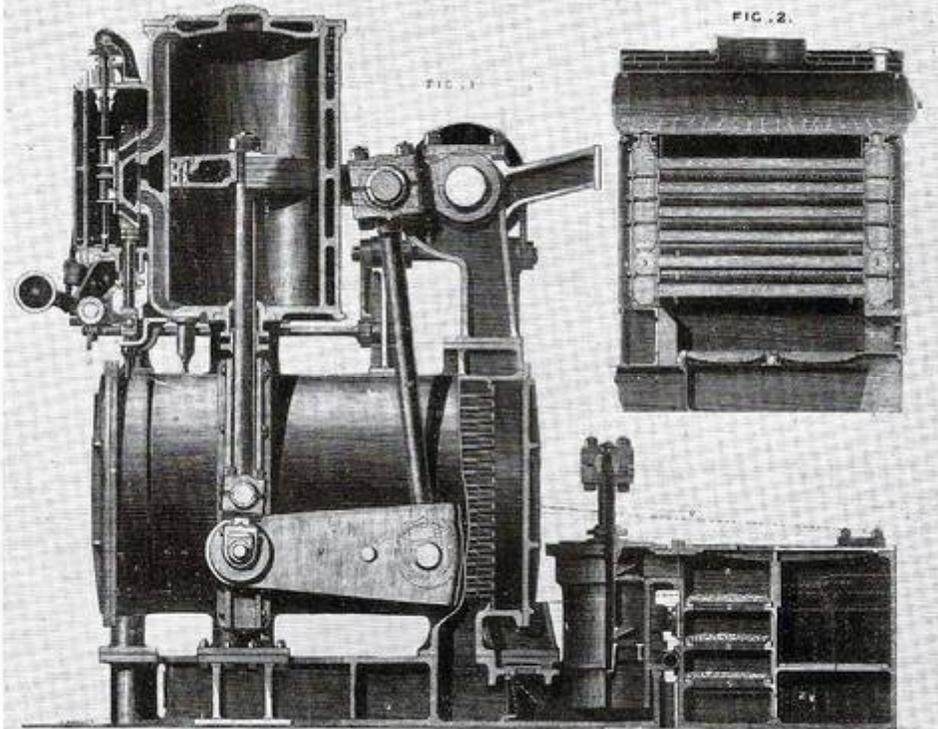
APPENDIX: EXAMPLES OF EARLY HOWDEN MARINE ENGINEERING

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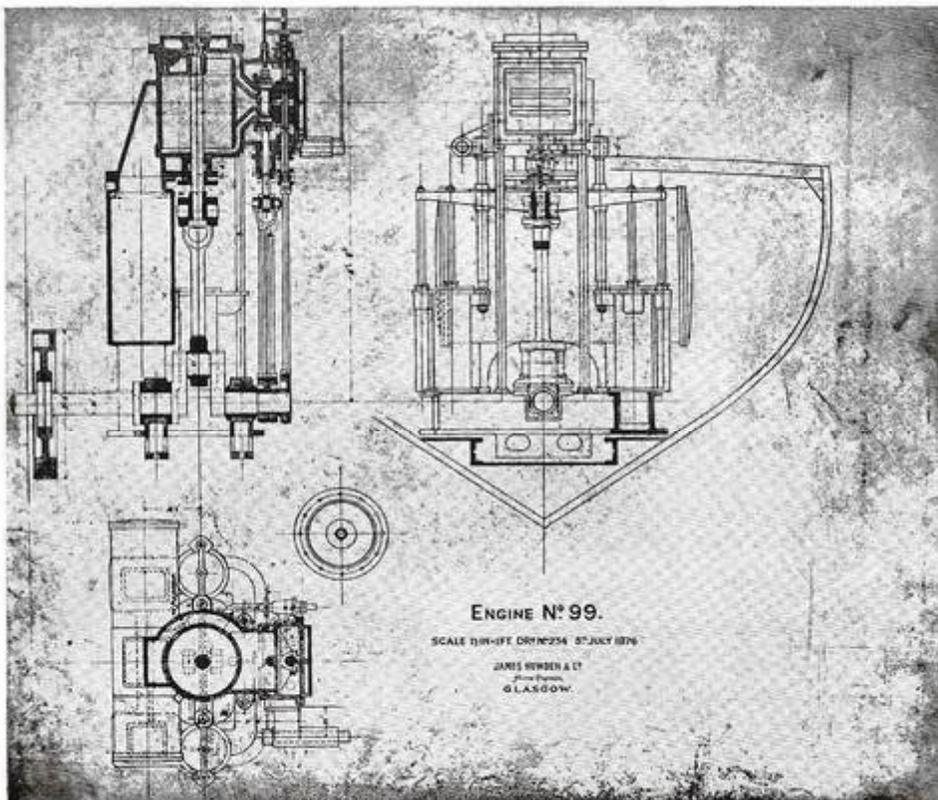
ENGINES OF THE PADDLE STEAMERS
"TEEN-CHANG" & "VULCAN."
90 Horses' Power.
1865.



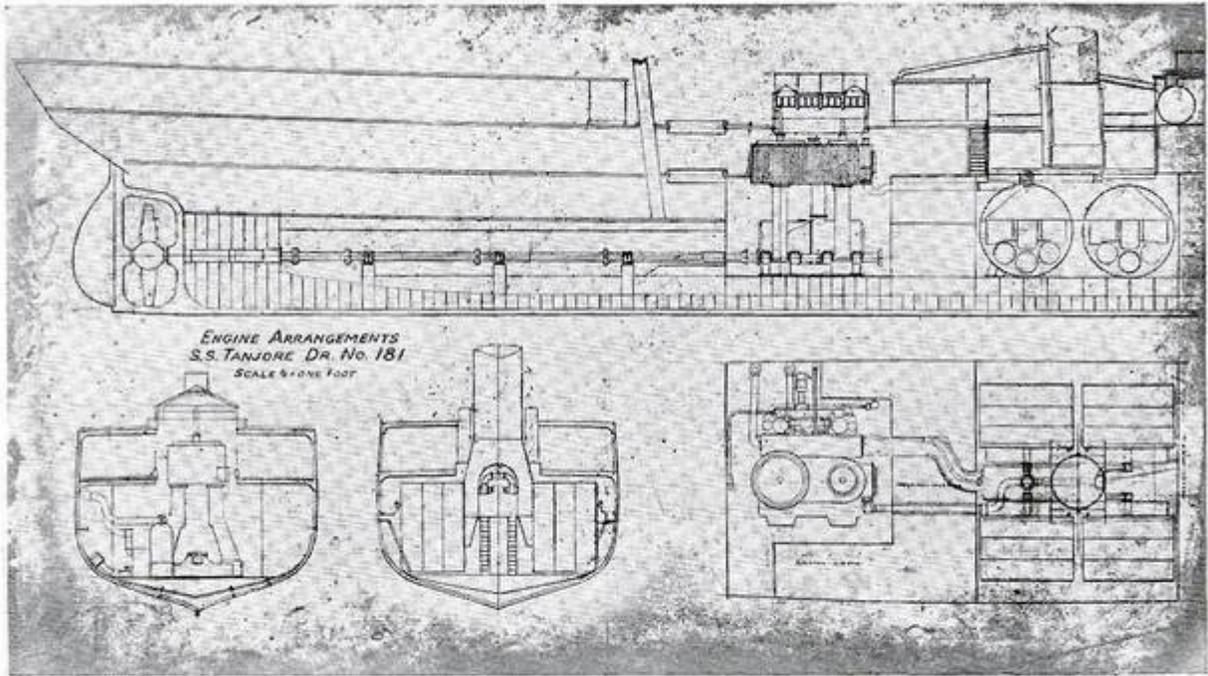
HOWDEN'S STEAM ENGINES AND BOILERS.



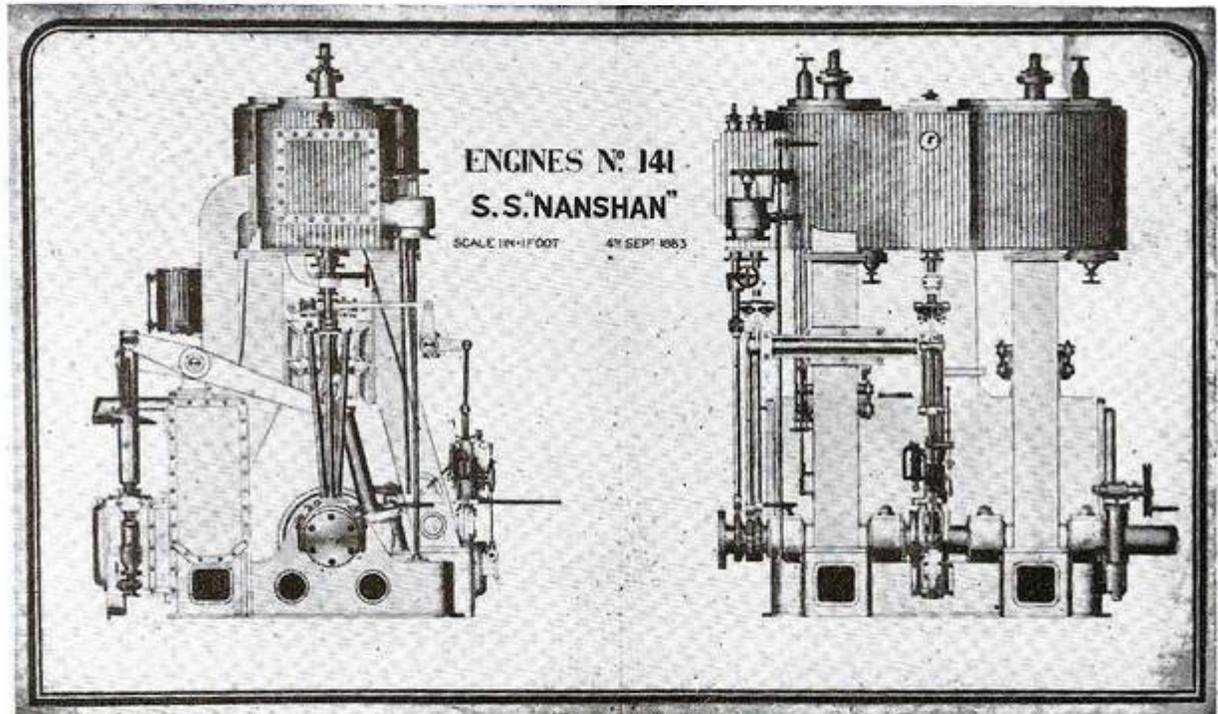
FROM *Engineering*, SEPTEMBER 2ND, 1864



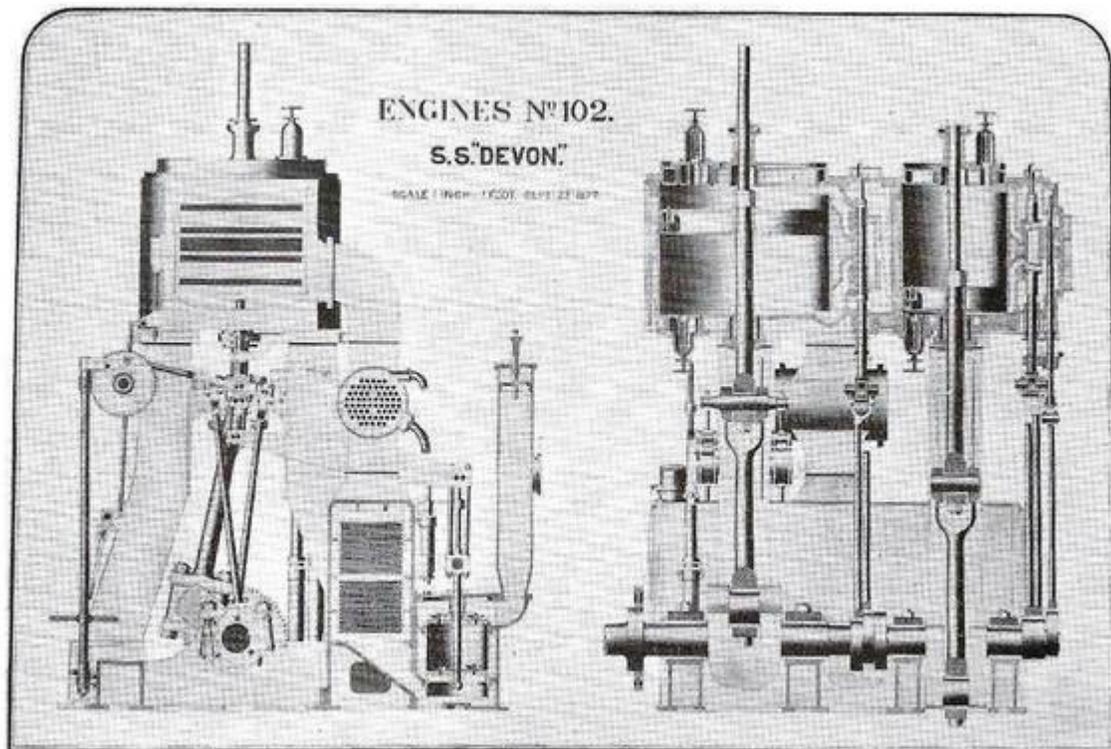
CONTEMPORARY DRAWING OF ENGINE, 1876



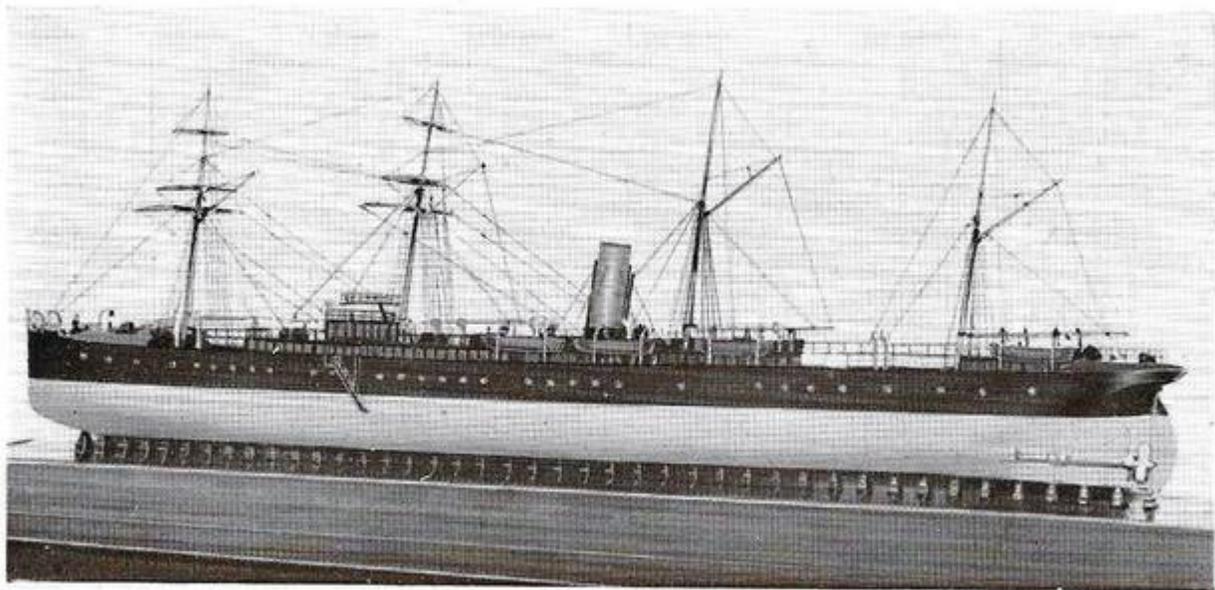
CONTEMPORARY ARRANGEMENT DRAWING, *S.S. Tanjore*, 1876



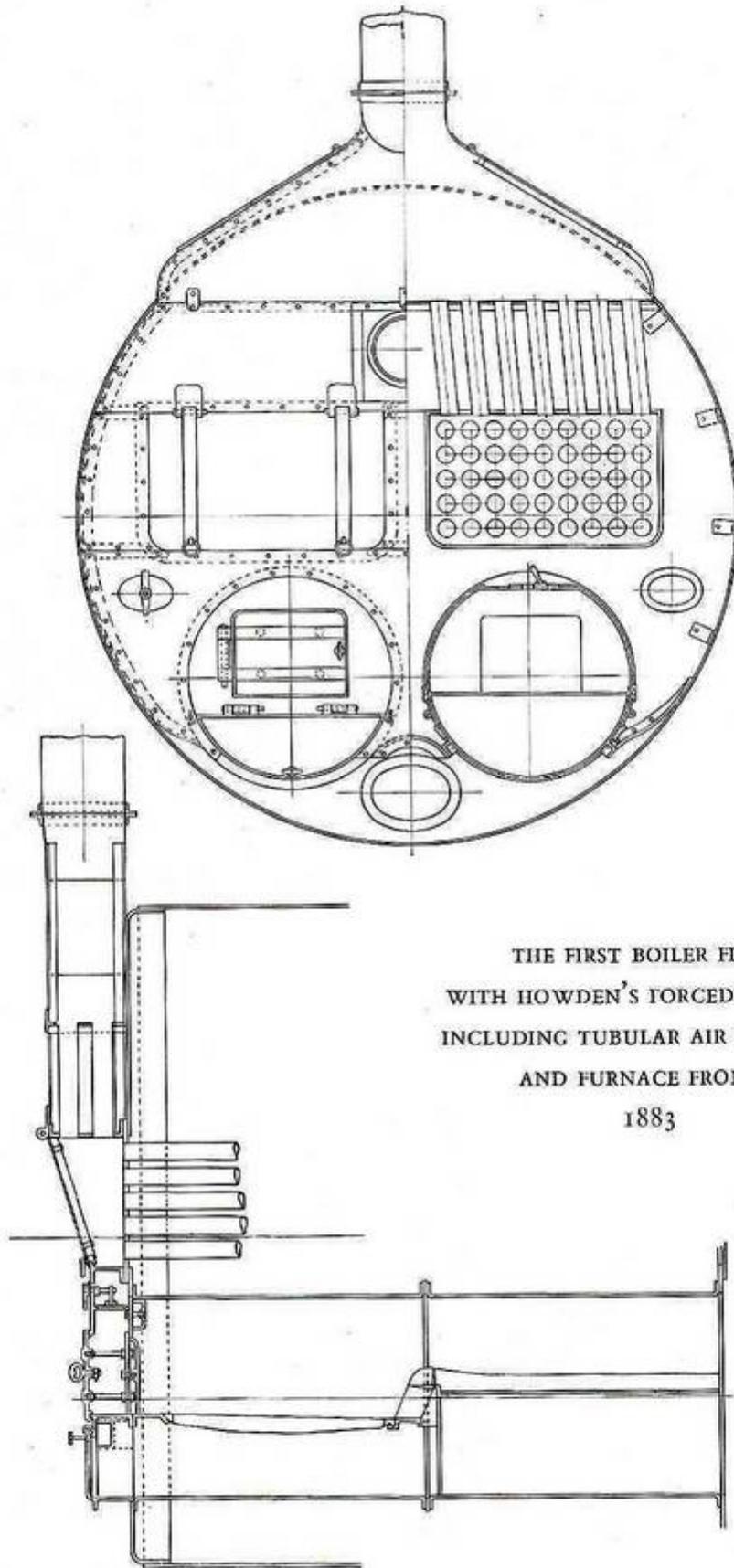
CONTEMPORARY ARRANGEMENT DRAWING
OF THE ENGINES OF *S.S. Nanshan*, 1883



CONTEMPORARY DRAWING OF ENGINES FOR *S.S. Devon*, 1877



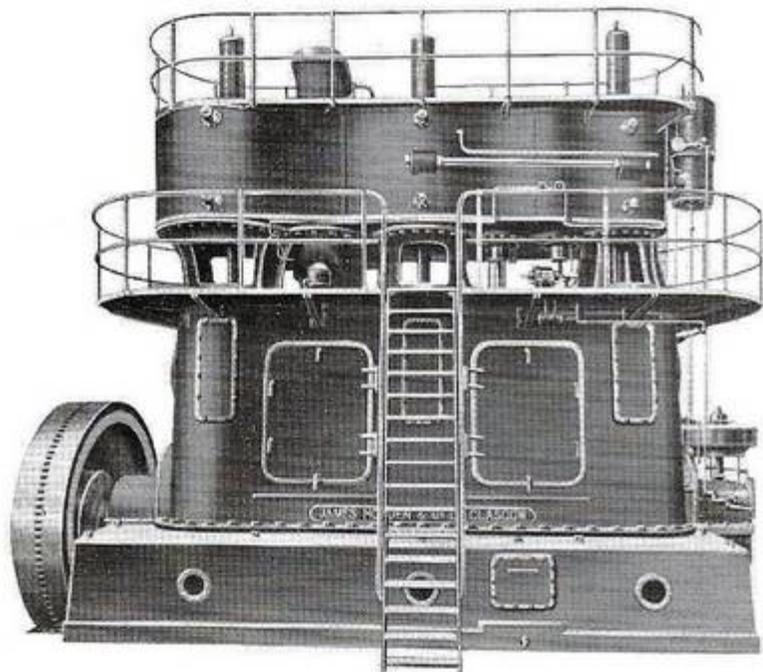
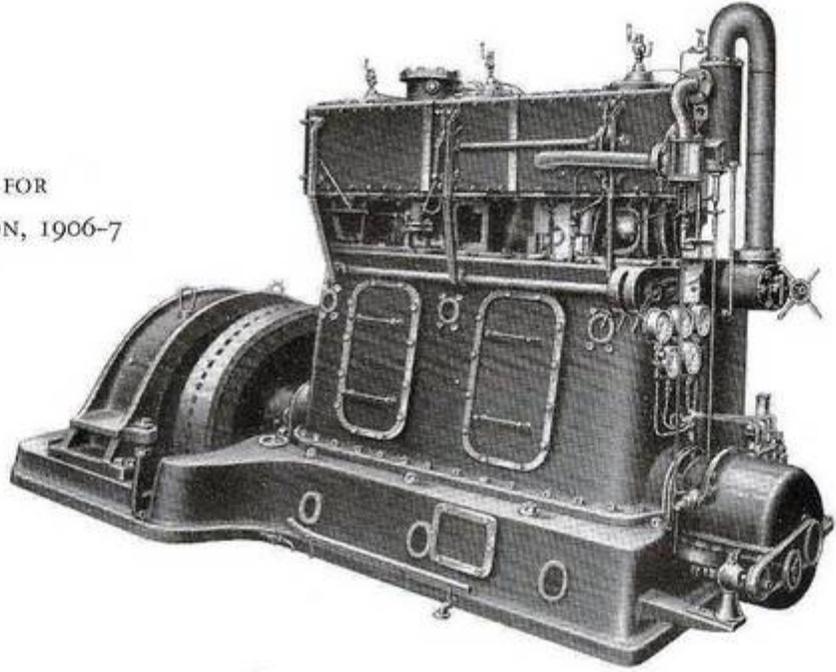
MODEL OF *Notting Hill*, 1881



THE FIRST BOILER FITTED
WITH HOWDEN'S FORCED DRAUGHT
INCLUDING TUBULAR AIR PREHEATER
AND FURNACE FRONTS.

1883

HOWDEN ENGINE FOR
GLASGOW CORPORATION, 1906-7



TRIPLE EXPANSION
HIGH-SPEED ENGINE 2,700 H.P.
FOR WOOLWICH ARSENAL, 1914

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