



**“SIMPLEX UNIT”  
SYSTEM  
of  
GEARED TURBINES  
for  
CARGO BOATS**

**THE PARSONS MARINE STEAM TURBINE COMPANY LTD.**

**TURBINIA WORKS  
WALLSEND-ON-TYNE**

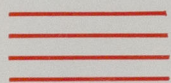
© 2020

Lloyd's Register  
Foundation

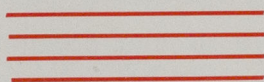
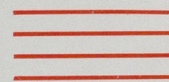
W1014-0125



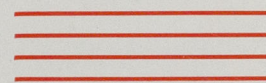
# PARSONS' "SIMPLEX UNIT" SYSTEM of GEARED TURBINES FOR CARGO BOATS



TO meet the ever increasing demand for greater economy and efficiency in propelling machinery for low-powered cargo vessels, and in response to various requests for some simplified all-turbine design for this class of tonnage, The Parsons Marine Steam Turbine Company have recently developed an arrangement of geared turbines which, it is considered, will fulfil all requirements of high efficiency and low first cost.



THE PARSONS MARINE STEAM  
TURBINE COMPANY LTD.



TURBINIA WORKS, WALLSEND-ON-TYNE



© 2020

Lloyd's Register  
Foundation



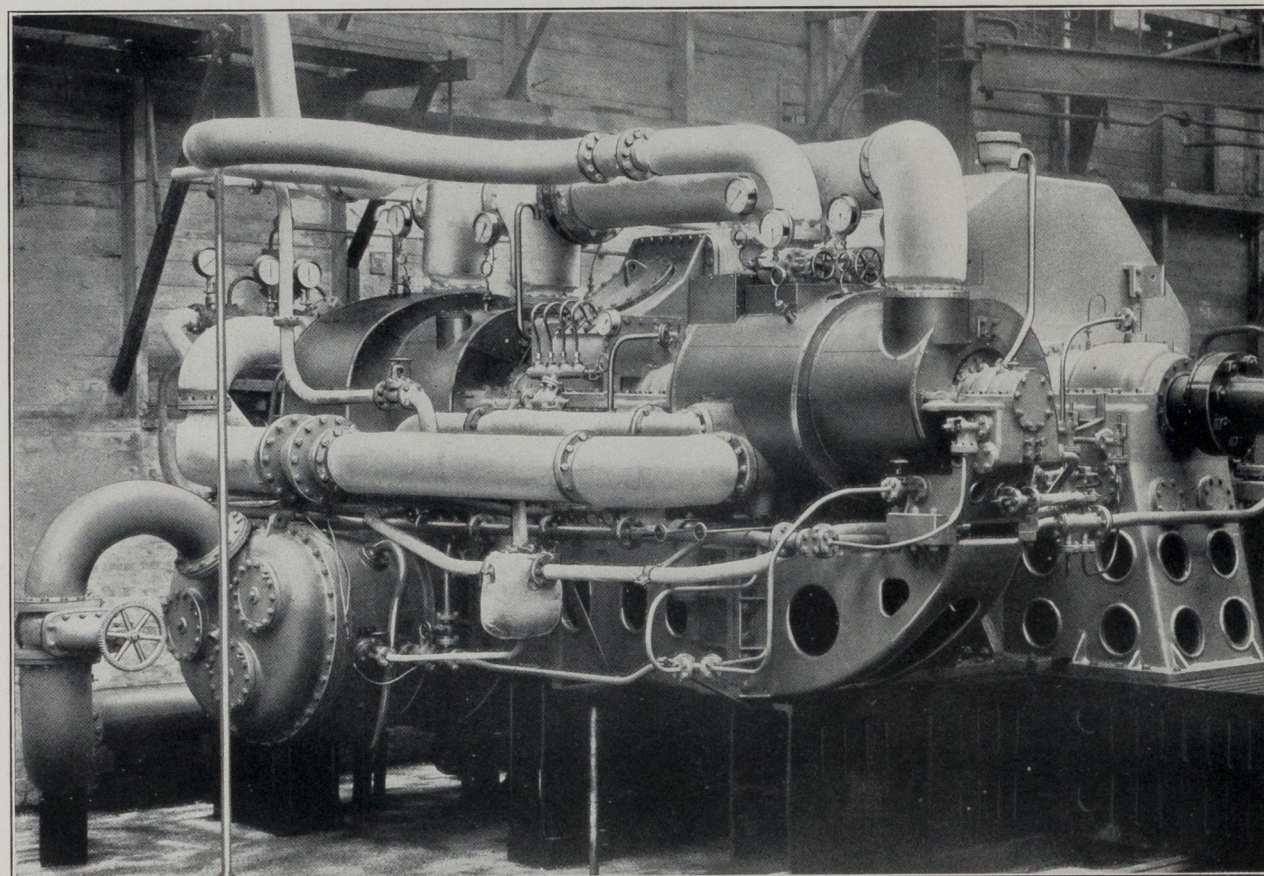


Fig. 1.

The illustration (Fig. 1) shows a design of turbines and reduction gearing which the Company have constructed in their Works at Wallsend for test and demonstration purposes, suitable for an installation of 2,000 shaft horse-power, or the equivalent to 2,200 indicated horse-power of reciprocating engines, and 70 to 80 revolutions per minute for the propeller.

The advantages of the turbine drive are well known, and the conditions affecting low speed cargo boat work, such as the possible running at powers considerably below the full horse-power, have been taken into special consideration in this design.

Very exhaustive independent tests have been carried out with the installation at the Company's Works, and Fig. 2 shows a curve of the steam consumption of the main engines at a range of powers from full to half.

Whilst the "Unit" has been specially developed for cargo boats of small powers, such as tramp steamers of from 1,500 to 2,000 S.H.P., it should be pointed out that no experimental principles are involved, and that the only features embodied in this design are those of which experience has been gained under actual service conditions.

A moderate steam pressure has been adopted in order that any type of boiler can be used in conjunction with this unit.

One of the main objects which the Company has in view is to standardise the installation to provide a simple, cheap and reliable plant for the power required with a minimum of component parts, and a minimum of assembly, connecting up, or alignment to be done when erecting the installation in the vessel.

The total weight of the machinery of this ~~unit~~ <sup>arrangement</sup> is 140 tons less than for similar outfit with reciprocating engines.

Fig. 3 shows an arrangement of the machinery for a 2,000 horse-power installation.

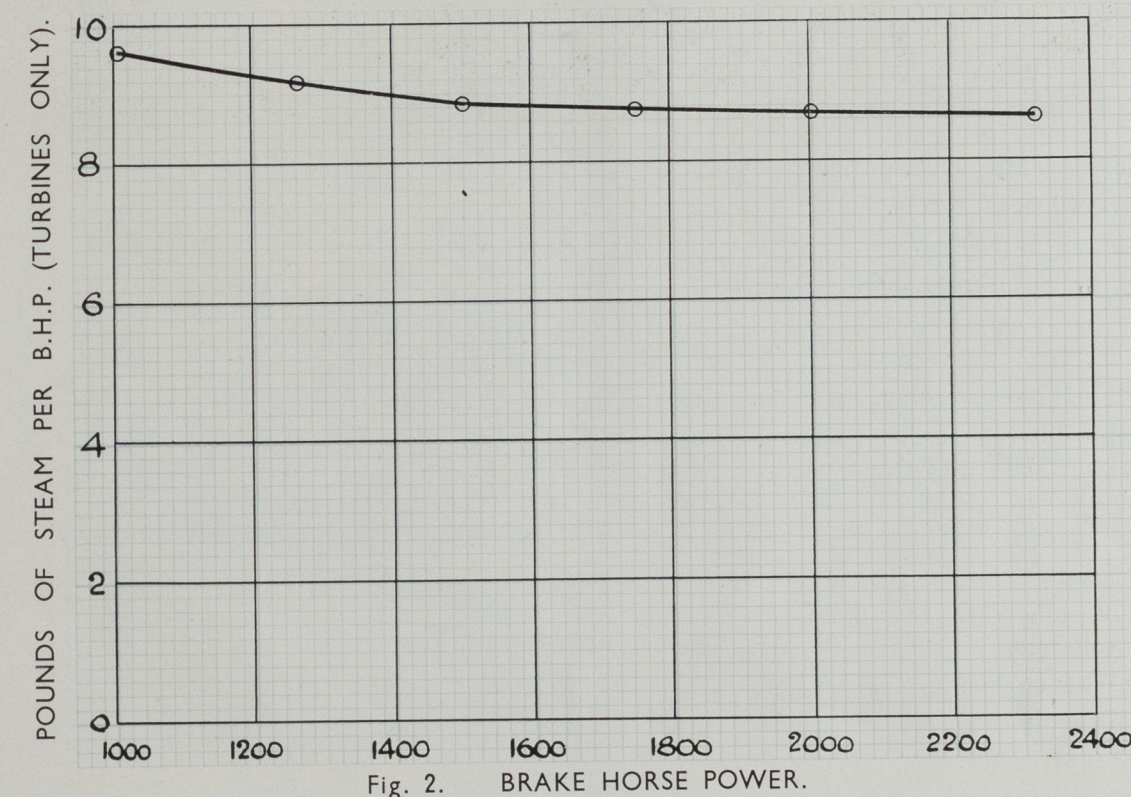


Fig. 2.

*J. Hawkes*  
 PROFESSOR OF ENGINEERING,  
 ARMSTRONG COLLEGE,  
 NEWCASTLE-ON-TYNE,  
 24TH NOVEMBER, 1934.

**PARSONS' "SIMPLEX UNIT" SYSTEM OF GEARED TURBINES**



Lloyd's Register  
 Foundation



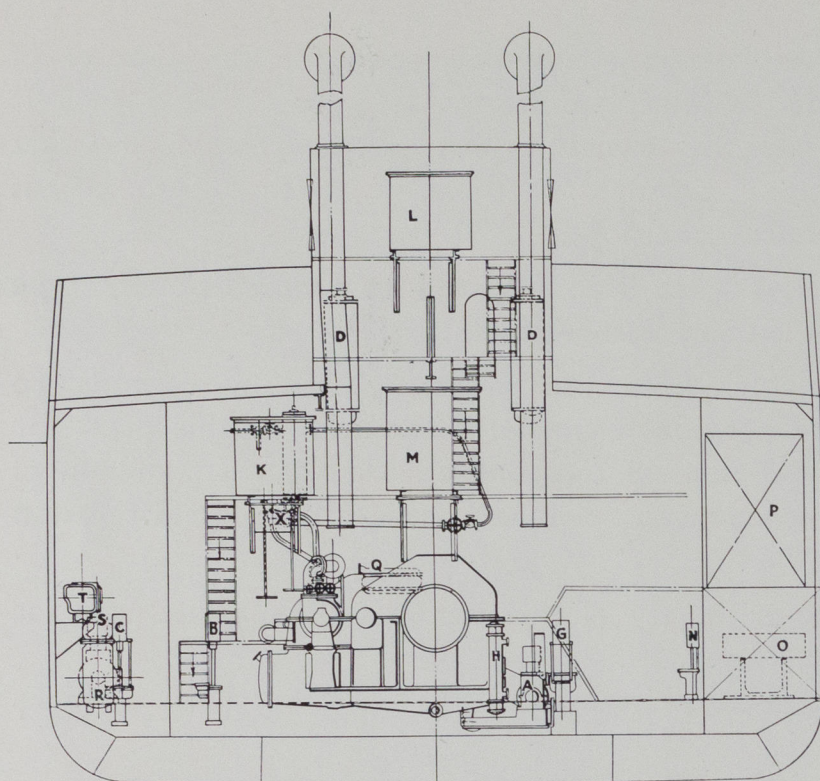
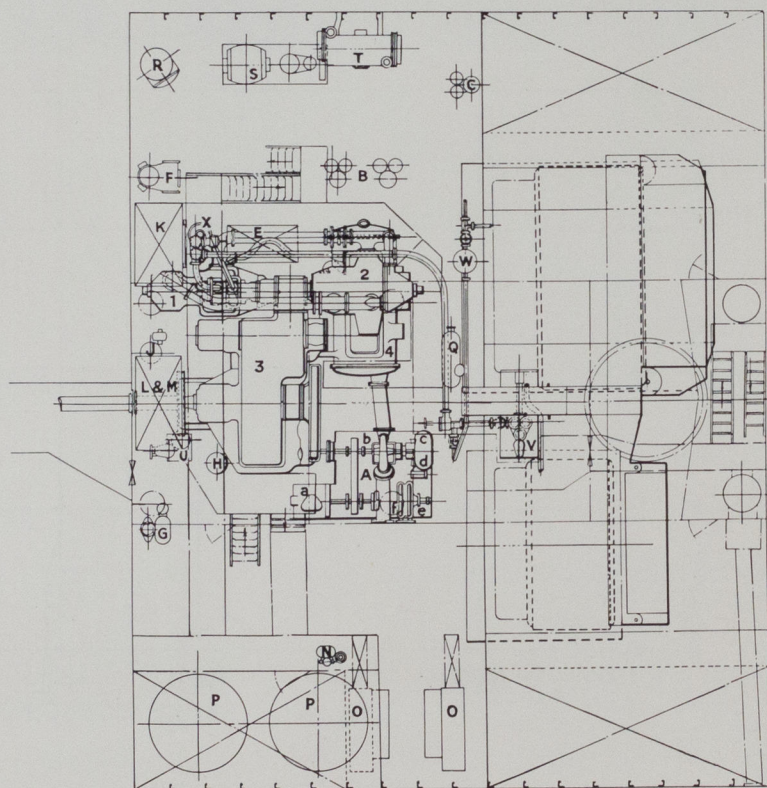


Fig. 3

1. H.p. ahead and h.p. astern turbine.
2. L.p. ahead and l.p. astern turbine.
3. Reduction gearing.
4. Condenser.
- A. Auxiliary unit—
  - a. Engine.
  - b. Circulating pump.
  - c. Extraction pump.
  - d. Main forced lubrication pump.
  - e. Sanitary pump.
  - f. Bilge pump.
- B. Main feed pump.
- C. Aux. feed pump.
- D. Feed heaters.
- E. Filter tank.
- F. Ballast pump.

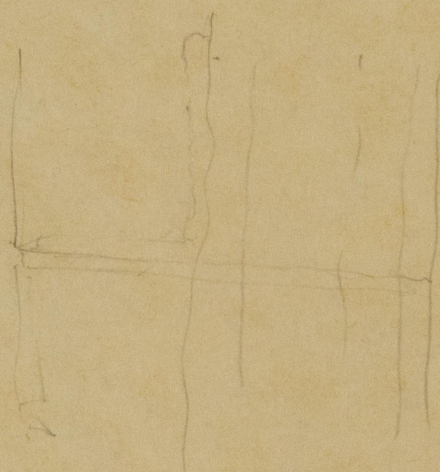
- G. Auxiliary forced lub. pump.
- H. Forced lub. oil cooler.
- J. „ purifier.
- K. „ storage tank.
- L. „ gravity tank.
- M. „ reserve tank.
- N. Oil fuel transfer pump.
- O. Oil fuel burning units.
- P. „ settling tank.
- Q. Air ejector.
- R. Evaporator.
- S. Generator.
- T. Aux. condenser and drain collector.
- U. Turning engine.
- V. Fan engine.
- W. De-superheater.
- X. Manœuvring gear.



© 2020

Lloyd's Register  
Foundation





© 2020

Lloyd's Register  
Foundation

DOIG BROS. & CO. LTD.  
53, STOWELL STREET  
NEWCASTLE-ON-TYNE