

LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

ENGINEER SURVEYOR'S REPORT ON MACHINERY.

ENGINES.

Rev 26/10/76

Description *Inverted, direct acting, Surface Condensing.*
 Made by *G. Clarke.*
 When *1871* At *Sunderland.*
 Diameter of cylinders *34 1/2* Length of stroke *28.*
 No. of revolutions per minute *70.*
 Point of cut off *3/8 of stroke.*
 Diameter of screw shaft *6 1/2.*
 Diameter of crank shaft journals *7.*
 Diameter of screw, or of paddle wheel *9 1/2.*
 Pitch of screw *12 1/2 to 15 1/2.*
 No. of blades, *4* Total surface *30 sq. feet.*
 No. of bilge pumps *2* and sizes *3 1/2 dia x 18 stroke.*
 Do they pump from each compartment *Engine room & aft well.*

Are all the bilge suction pipes fitted with roses *yes.*
 No. of feed pumps *2* and sizes *3 1/2 dia x 18 stroke.*
 What gauges are there attached to the engines and boilers ... *1 steam gauge on boiler*
1 vacuum on Condenser.
 Description and size of Donkey Pumps ... *one inverted double acting*
4 1/2 dia x 6 stroke.
 Where do they pump from ... *sea, ballast tanks, & bilges*
of the engine room, aft well
& fore hold.
 No. of bilge injections *one* and sizes *3 dia.*
 Are they connected to air, or circulating pumps *to Circulating pump*
 Is there a hand pump in the engine room *yes.*
 Can it be worked by the main engines *no.*
 Is there a deck hose of sufficient length to reach to any part of the vessel *yes.*

MAIN BOILERS.

Number *one* Description *Cylindrical & Multitubular*
 Made by *The North Eastern Marine Engineering Co. Ltd.*
 When *Sept 1876* At *Sunderland.*
 Working pressure *35 lbs per sq. inch.*
 Tested by hydraulic pressure to *70 lbs*, Date *July/76*
 Description of super-heating apparatus *none*
 Can each boiler be worked separately *only 1 boiler*

Can the super-heater be shut off and the boilers worked separately
 Description and area of safety valves on each boiler *2 spring safety valves*
4 1/2 dia = 33.6 sq. ins
 No. of square feet of fire-grate surface in each boiler *53.*
 Are there separate blow off and brine cocks on each boiler, independent of those on the vessel's skin *yes.*
 Are all pipes, cocks, roses, and pumps in connection with the machinery accessible at all times. *Blow off cock and donkey*
bilge discharge in Coal bunker

DONKEY BOILER.

Description *Upright Cylindrical with 2 cross tubes.*
 Where fixed *on the deck.*
 Working pressure *40 lbs per sq. inch.*

Tested by hydraulic pressure to _____, Date _____
 Description and area of safety valves *blow & weight 2 dia = 3.1*
(a small donkey valve)
 No. of square feet of fire grate *5.*

PIPES, COCKS, AND CONNECTIONS.

Are all connections with the sea direct on the skin of the ship *The donkey sea cock & the injection*
Valves have cast iron pieces.
 Are they Kingston valves or common cocks ... *stop valves and cocks*
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stoke hold plates ... *yes.*
 Are the discharge pipes above or below the deep water line *below.*
 Are they each fitted with a discharge valve on the plating of the vessel *yes.*

What pipes are carried through the bunkers *donkey bilge discharge & the boiler blow off.*
 How are they protected *by wood casings.*
 When were the stern tube, propeller, screw shaft, and all connections examined in dry dock *Sept. 1876*
new propeller & shaft.
 Are the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilge *yes. by non return*
valves.
 Is the screw shaft-tunnel water tight and fitted with a sluice door on bulkhead *sluice door fitted*
tunnel not watertight

Pro H. E. M. E. & Co (Ld) Manufacturer of the main Boilers.

I hereby certify that the whole of the above are correct particulars of the Machinery and Boilers of the Iron (or Wood) Screw (or Paddle) Steam Vessel *"Hartlepool"* owned by *E. J. Gourley*
 of the Port of *Sunderland* of *415* Tons Register, and *70* Registered Horse Power,
 and that they have been carefully inspected and examined by me at *Sunderland & Tyne Dock.*
 and found to be at this date, viz., *October 24* 1876. in good order and safe working condition.

Amount of Fee for Survey *£ 3 : 10 :* Received at *Sunderland*
 (Travelling Expenses, if any, £ *5*) *3.15* by *W. H. 16/10/76.*

William Allison
 Engineer Surveyor to Lloyd's Register of Shipping.