

LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

ENGINEER SURVEYOR'S REPORT ON MACHINERY.

ENGINES.

Rec 2/10/76

Description *Inverted, Direct Acting, Surface Condensing.*
 Made by *The North Eastern Marine Engineering Coy.*
 When *1869* At *Sunderland.*
 Diameter of cylinders *36" 2 off* Length of stroke *30"*
 No. of revolutions per minute *60.*
 Point of cut off *about 7th of the stroke.*
 Diameter of screw shaft *8"*
 Diameter of crank shaft journals *8"*
 Diameter of screw, or of paddle wheel *11 feet.*
 Pitch of screw *12 to 16 feet*
 No. of blades, *4* Total surface *40 sq. ft.*
 No. of bilge pumps *2* and sizes *3 1/2" dia. x 30" stroke.*
 Do they pump from each compartment *from Engine room & aft well.*

Are all the bilge suction pipes fitted with roses *yes.*
 No. of feed pumps *2* and sizes *2 1/2" dia. x 30" stroke.*
 What gauges are there attached to the engines and boilers ... *1 steam gauge on boiler*
 Description and size of Donkey Pumps ... *2. Inverted, double acting, large one 4" dia. x 9" stroke, small one 3" x 6" stroke.*
 Where do they pump from ... *the large one from tanks, bilges & sea. Small one from sea, bilges and hotwell.*
 No. of bilge injections *1* and sizes *3" dia.*
 Are they connected to air, or circulating pumps. *Circulating pump*
 Is there a hand pump in the engine room *no (Donkey can be used)*
 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 Coy.*
 When *Sept. 1876.* At *Sunderland.*
 Working pressure *40 lbs per sq. inch.*
 Tested by hydraulic pressure to *80 lbs*, Date *Aug 21/76*
 Description of super-heating apparatus *Steam done partly in the uptake.*
 Can each boiler be worked separately *only 1 boiler*

Can the super-heater be shut off and the boilers worked separately *no*
 Description and area of safety valves on each boiler *2. Spring valves 4 1/2" dia*
 No. of square feet of fire-grate surface in each boiler *49 sq. feet.*
 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. *yes, except the air pipes from hotwell, when coals are in.*

DONKEY BOILER.

Description *Upright Cylindrical, with 2 brass tubes.*
 Where fixed *in the stokehole.*
 Working pressure *40 lbs per sq. inch*

Tested by hydraulic pressure to *120 lbs*, Date *Aug 7/76*
 Description and area of safety valves *1 loaded direct 2 1/2" = 4.4 sq. in.*
 No. of square feet of fire grate *8 1/2.*

PIPES, COCKS, AND CONNECTIONS.

Are all connections with the sea direct on the skin of the ship *Cast iron pieces, between inlet valve to circulating pumps, blow off, and ash cock.*
 Are they Kingston valves or common cocks ... *stop valves & 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 *2 air pipes from hotwell*
 How are they protected *Close up to the deck.*
 When were the stern tube, propeller, screw shaft, and all connections examined in dry dock *August 1876.*
 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 *Tunnel is watertight no sluice door.*

P. H. & M. E. & Co. (Ld) Manufacturer. *except of the Donkey boiler.*

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 *"Usworth"* owned by *J. Johansson.*
 of the Port of *London* of *331* Tons Register, and *80.* Registered Horse Power,
 and that they have been carefully inspected and examined by me at *Sunderland.*
 and found to be at this date, viz., *September 14th* 1876. in good order and safe working condition.

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

Certification.
P.H.
3.10.76.

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