

LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

ENGINEER SURVEYOR'S REPORT ON MACHINERY.

ENGINES.

Dec 10/5/77

Description *Inverted Compound Surface Condensing.*
 Made by *The North Eastern Marine Engineering Coy.*
 When *May 18 77* At *Sunderland.*
 Diameter of cylinder *29" x 56"* Length of stroke *33"*
 No. of revolutions per minute *about 60.*
 Point of cut off *1/2 stroke.*
 Diameter of screw shaft *9 1/2 inches*
 Diameter of crank shaft journals *9 1/2*
 Diameter of screw, or of paddle wheel *13.6.*
 Pitch of screw *14 0*
 No. of blades, *4* Total surface *60 sq. feet.*
 No. of bilge pumps *2* and sizes *3 1/2 dia. x 33 stroke.*
 Do they pump from each compartment *after well & engine room.*

Are all the bilge suction pipes fitted with roses *yes.*
 No. of feed pumps *2* and sizes *3 1/2 dia. x 33 stroke.*
 What gauges are there attached to the engines and boilers ... *1 steam gauge on each boiler, in stokehold. 1 in engine room. 1 vacuum.*
 Description and size of Donkey Pumps ... *2 inverted double acting. large one 6" dia. x 9 stroke. Small one 4" dia. x 6 stroke. Both from sea tanks. Condenser &*
 Where do they pump from ... *bilges of engine room and after well.*
 No. of bilge injections *one* and sizes *3 dia.*
 Are they connected to air, or circulating pumps *to circulating pumps.*
 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 *Two* Description *Cylindrical & Multitubular*
 Made by *The North Eastern Marine Engineering Coy.*
 When *May 18 77* At *Sunderland.*
 Working pressure *70 lbs per sq. inch.*
 Tested by hydraulic pressure to *140 lbs*, Date *April 9/77*
 Description of super-heating apparatus *none*
 Can each boiler be worked separately *yes.*

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 3 1/2 dia. 19.2 sq. ins Area*
 No. of square feet of fire-grate surface in each boiler *34 1/2.*
 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.*

DONKEY BOILER.

Description *Upright Cyl. with 3 cross tubes.*
 Where fixed *in the stokehold.*
 Working pressure *45 lbs*

Tested by hydraulic pressure to *100 lbs (reported)*, Date *March 18/77*
 Description and area of safety valves *loaded direct 3 dia. = 7.06 sq. ins*
 No. of square feet of fire grate *12.*

PIPES, COCKS, AND CONNECTIONS.

Are all connections with the sea direct on the skin of the ship *yes.*
 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 (all except the cock for small donkey of wash bilge)*
 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 *none.*
 How are they protected
 When were the stern tube, propeller, screw shaft, and all connections examined in dry dock *new.*
 Are the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilge *yes.*
 Is the screw shaft-tunnel water tight and fitted with a sluice door on bulkhead *yes.*

Prof. C. H. E. V. L. S. J. Manufacturer. Except of the Donkey boiler I was present on May 3rd when steam was raised and the engines worked. (all well safety valves adjusted & tested. n.a.)

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 *"Elsie"* owned by *J. Gordon and Stamp.*
 of the Port of *Sunderland* of *759.6* Tons Register, and *120* Registered Horse Power,
 and that they have been carefully inspected and examined by me at *Sunderland*
 and found to be at this date, viz., *May 5th* 18 *77* in good order and safe working condition.

Amount of Fee for Survey *£ 6.0* Received
 (Travelling Expenses, if any, £ *£ 6.5* 4 May 1877. *H.W.*)

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