

LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

ENGINEER SURVEYOR'S REPORT ON MACHINERY.

ENGINES.

Rev 8/12/77

Description *Compound Inverted*
 Made by *John Shaw & Co*
 When *Nov 18 77* At *Newcastle*
 Diameter of cylinder *32 x 57* Length of stroke *36*
 No. of revolutions per minute *about 60*
 Point of cut off *5/8th stroke*
 Diameter of screw shaft *10 inches*
 Diameter of crank shaft journals *10 inches*
 Diameter of screw, or of paddle wheel *15 feet*
 Pitch of screw *From 15 to 18 feet*
 No. of blades, *4* Total surface *52 sq feet*
 No. of bilge pumps *2* and sizes *4 1/2 x 18*
 Do they pump from each compartment *From E. Room, Condenser Sea, tanks, fore hold and aft hold.*

Are all the bilge suction pipes fitted with roses *yes*
 No. of feed pumps *2* and sizes *4 1/2 x 18*
 What gauges are there attached to the engines and boilers *1 Steam to each boiler in stokehold, 1 Steam Vacuum in Eng Room*
 Description and size of Donkey Pumps *(1) D. A Cyl. 6" dia, Pump 1 1/2" dia x 6" stroke (2) D. A Cyl. 12 1/2" dia, Pump 1 1/2" dia x 12" do*
 Where do they pump from *(1) Sea, tanks, bilges, fore & aft holds. (2) sea, hotwell and sump*
 No. of bilge injections *two* and sizes *3/8*
 Are they connected to air, or circulating pumps *Condenser*
 Is there a hand pump in the engine room *yes*
 Can it be worked by the main engines *from deck only.*
 Is there a deck hose of sufficient length to reach to any part of the vessel *yes.*

MAIN BOILERS.

Number *Two* Description *Cylindrical*
 Made by *John Shaw & Co*
 When *Nov 18 77* At *Newcastle*
 Working pressure *70 lbs*
 Tested by hydraulic pressure to *140 lbs*, Date *Oct. 27 1877*
 Description of super-heating apparatus *none, Hor. Steam Chest*
 Can each boiler be worked separately *yes*

Can the ~~super-heater~~ *Steam Chest* be shut off and the boilers worked separately *no*
 Description and area of safety valves on each boiler *2 Spring valves area 14.8" each*
 No. of square feet of fire-grate surface in each boiler *54 Square 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 roses in fore hold.*

DONKEY BOILER.

Description *Vertical 4 cross tubes*
 Where fixed *Stokehold*
 Working pressure *45 lbs.*

Tested by hydraulic pressure to *90 lbs.*, Date *11/6/77*
 Description and area of safety valves *1 Spring 8" dia*
 No. of square feet of fire grate *19.6 sq feet.*

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 *17 valves, real 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 *none*
 How are they protected *new*
 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.*

John Shaw & Co Manufacturer.
Neptune Engine Works
Newcastle on Tyne

Safety valve can 70 lbs
acct 43
claw 70 lbs

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 *Senny Otto* owned by *Mr George Otto*
 of the Port of *North Shields* of *941.67* Tons Register, and *160* Registered Horse Power,
 and that they have been carefully inspected and examined by *me* at *Newcastle on Tyne*
 and found to be at this date, viz., *November 23rd* 18 *77* in good order and safe working condition.

Amount of Fee for Survey ... £ *8 : 0 : 0*
Certificate ... £ *0 : 5 : 0*
 Travelling Expenses, if any, £ *0 : 10 : 0*
 Paid by *W. M. Munn & James*
 At *30/11/77*

Engineer Surveyor to Lloyd's Register of Shipping.

North Shields
 Lloyd's Register Foundation

IRON 475-0039