

LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

ENGINEER SURVEYOR'S REPORT ON MACHINERY.

ENGINES.

To. Description *Compound Inverted*
 Made by *Palmer's Co*
 When 18 *70* At *Newcastle*
 Diameter of cylinder *25 1/4* Length of stroke *30*
 No. of revolutions per minute *65*
 Point of cut off *5/8 stroke*
 Diameter of screw shaft *8 inches*
 Diameter of crank shaft journals *4 3/4*
 Diameter of screw, or of paddle wheel *11 feet*
 Pitch of screw *not ascertained*
 No. of blades, *3* Total surface *—*
 No. of bilge pumps *2* and sizes *3 3/4 dia*
 Do they pump from each compartment *Eng Room only*

Are all the bilge suction pipes fitted with roses *yes*
 No. of feed pumps *2* and sizes *3 3/4 dia*
 What gauges are there attached to the engines and boilers... *1 Steam & each Boiler 1 Steam to Strokehold 1 vac*
 Description and size of Donkey Pumps... *Inv. 4" dia 8" stroke*
 Where do they pump from... *Bilge & Sea*
 No. of bilge injections *one* and sizes *3'*
 Are they connected to air, or circulating pumps *Circulating*
 Is there a hand pump in the engine room *no*
 Can it be worked by the main engines *—*
 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 *Vict Oks Eng Wks*
 When 18 *77* At *London*
 Working pressure *75 lb*
 Tested by hydraulic pressure to *150 lb*, Date *June 15, 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 *none*
 Description and area of safety valves on each boiler *Adam's Spring Two, 3 1/4 dia*
 No. of square feet of fire-grate surface in each boiler *24 3/4 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*

DONKEY BOILER.

Description *Vertical, 2 Cross tubes*
 Where fixed *Deck*
 Working pressure *45 lb*

Tested by hydraulic pressure to *not ascertained*
 Description and area of safety valves *Dead weight 2 1/2 dia*
 No. of square feet of fire grate *8 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... *Conn Cocks & Screw down valves*
 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 *—*
 When were the stern tube, propeller, screw shaft, and all connections examined in dry dock *At this Survey*
 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 *no tunnel*

Manufacturer.

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 *Minerva* owned by *London Steamship Co* of the Port of *London* of *1427* Tons Register, and *140* Registered Horse Power, and that they have been carefully inspected and examined by me at *London* and found to be at this date, viz., *July 15th* 18 *77* in good order and safe working condition.

Amount of Fee for Survey *See attached Report.*
 (Travelling Expenses, if any, £ *—*)

James Multon
 Engineer Surveyor to Lloyd's Register of Shipping.
 London.