

LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

ENGINEER SURVEYOR'S CERTIFICATE.

ENGINES.

Description *Compound Direct Acting Inverted* ✓
 Made by *Mepo Laird & Co. Greenock* ✓
 In the year *1875* ✓
 Present condition *New* ✓
 Diameter of cylinder *22" - 44"* ✓
 Length of stroke *27"* ✓
 No. of revolutions per minute *85* ✓
 Point of cut off *1/2 to 5/8th of stroke* ✓
~~Paddle, or~~ Screw
 Nominal Horse Power *85* ✓
 Diameter of screw, ~~or of paddle wheel~~ *8" - 6"* ✓
 Pitch of screw *13 ft. to 14 ft.* ✓
 No. of blades, *4* total surface *28.5* ✓
 No. of bilge pumps *2* and size *3" dia x 7" stroke* ✓
 Do they pump from each compartment *Yes* ✓
 Is there provision made for pumping }
 from the wings of the stoke hole } *Yes* ✓

Are all the bilge suction pipes fitted with roses *Yes* ✓
 What vacuum and steam gauges are }
 there attached to the engines } *One Vacuum one Steam and*
 and boilers..... } *one Compound Vacuum pressure*
 No. of feed pumps *2* and sizes *3" dia. x 7" stroke* ✓
 Description and size of } *Inverted, Direct, Double acting,*
 Donkey Engine... }
 Will it feed the boilers, pump }
 from the bilges, and pump } *Yes* ✓
 on deck }
 Can it be driven by steam }
 from a separate boiler } *Yes* ✓
 No. of bilge injections *one* and sizes } *Connected to Air pump*
 Are they fitted with non return valves } *By a 3" pipe, Sluice Valve on deck*
 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* ✓

CONNECTIONS ON HULL.

Are all connections with the sea }
 direct on the skin of the ship } *Yes* ✓
 Are they Kingston valves or common cocks, *Common Cocks & Screws* ✓
 Are they fixed sufficiently high on }
 the ship's side to be seen } *down valves* ✓
 without lifting the stokehole }
 plates } *No* ✓
 Are the discharge pipes above or }
 below the deep water line } *Above* ✓
 Are they each fitted with a discharge }
 valve on the plating of the vessel } *Yes* ✓

Are any pipes carried through the bunkers *No* ✓
 If so state how protected _____
 When was the stern tube, }
 propellor, screw shaft, } *While being fitted* ✓
 and all connections }
 examined in dry dock }
 How are the pipes, cocks, and valves }
 arranged so as to prevent } *The main & branch bilge*
 an unintentional connection } *suction pipes have intermediate*
 between the sea and the bilge } *cocks fitted. Donkey bilge*
 Have the bilge suction non- } *suction has non return valves*
 return valves fitted or not } ✓

BOILERS.

Number *2* *One Coal Horizontal Multi-*
 Description } *- tubular with 2 furnaces* ✓
 Made by *Mepo Laird & Co. Greenock* ✓
 In the year *1875* ✓
 Present condition *New* ✓
 When last extensively repaired _____
 Working pressure *65 lbs* ✓
 When tested by Hydraulic pressure *January 1875* ✓
 To what pressure tested *Reported to be 130 lbs not present*
 Any super-heating apparatus *No* *personally* ✓
 Describe it _____
 Can each boiler be worked separately *One boiler* ✓
 Is each boiler fitted with a separate steam gauge *Yes* ✓

Can the super-heater be shut off and }
 the boilers worked separately } _____
 No. of safety valves on each boiler *2* ✓
 Description and area of each safety valve *Lower & weights 19.5"*
 No. of square feet of fire-grate }
 surface in each boiler } *40 ft.* ✓
 Is there a separate blow off and }
 brine cock on each boiler, } *Yes* ✓
 independent of those }
 on the vessel's skin }
 Is the screw shaft tunnel water }
 tight and fitted with a } *Yes* ✓
 sluice door on bulkhead }
 Are all pipes, cocks, and roses in con- }
 nection with these boilers acces- } *Blow off & surface cocks under*
 sible to the engineer at all times } *stokehole plates have hand*
 } *holes, and those under*
 } *Engine Room platform have*
 } *Hatches with covers fitted.*

Laird & Co. Manufacturer.

I hereby certify that the whole of the above Machinery and Boilers of the Iron (or Wood) Screw (or Paddle)
 Steam Vessel *Karang* owned by *The Netherlands, Indian, S. Nav. Coy.*
 of the Port of *Batavia* of *221 2/3* Tons Register, and *85* Nominal Horse Power,
 have been carefully inspected and examined by *me* at *Greenock* and found to be
 at this date, viz., *April 29th 1875* in good order and safe working condition.

James Morrison
 Engineer Surveyor to Lloyd's Register of Shipping.