

LOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

ENGINEER'S CERTIFICATE.

The following is a true Account of the Particulars of the Machinery and Boilers:—

ENGINES.—Here state description of Engines, whether Direct Acting or Geared, Inverted, Horizontal, Diagonal, or Oscillating Cylinders; No. of Cylinders, &c.

The Engines are inverted directacting compound with Surface condensers and one high & one low pressure cylinder.

ENGINES, maker of *Palmer's Shipbuilding*
 age of *new* & *Iron Co. Ltd.*
 last time taken out *-*
 present condition *-*
 Diameter of Cylinder *40 & 80.*
 Length of stroke *42.*
 No. per minute of Engines *58 revs*
 of Screw *58*
 Estimated power *290 H.P. nom.*
 Effective power *1400 indicated.*
 Diameter of Screw (*on Rods*) *18.0*
 Pitch of Screw *17.0 increasing to 21.0.*
 No. of Blades (*on Rods*) *4.*
 Description of Screw (*on Rods*) *moveable blades.*
 Holding down Bolts, size *1 1/2 diam*
 present condition *new.*

Bilge Pumps, No. (*2*) and size *6 diam 2.3 stroke*
 Feed „ No. (*2*) and size *6 2.3*
 Spare gear, if usual quantity on board Vessel *yes*
 Fuel, where stowed *In Side & Cross bunkers.*
 „ space between Coal Bunkers and Boilers *8.*
 „ for what quantity is space provided *406 tons*
 Donkey Engine and Boiler *are both provided*
 „ if fitted in Engine Room or on Deck *Donkey in Engine room*
 „ can pump be worked by hand *Boiler 2 stroke*
 „ size of pump (*6*) and stroke *8* *A Ballast donkey*
 „ is hose of sufficient length to reach every part of the Vessel *yes* *is also provided*
 No. (*1*) and continuation of hand pumps, if fitted in Engine Room *yes* *and placed in Engine room.*

BOILER.—Here state description of Boiler, and No.; if Tubular, or Flues; No. of Furnaces; if fitted with superheating apparatus; if Fired athwartships, or from fore, or after end of Boiler, &c.

There are two cylindrical tubular double ended Boilers with 12 circular Furnaces, dry uptakes and two annular inclined Superheaters on top of uptakes. The boilers are fired fore and aft.

BOILER, maker of *Palmer's Shipbuilding*
 age of *new* & *Iron Co. Ltd.*
 when last taken out *-*
 present condition *-*
 working pressure *75 lbs per sq in*
 of surface Blow off Cocks to each Boiler *one*
 SHAFT length *37. 1/2* diameter *12 1/2 x 13 1/2*
 width *if water-tight door on Engine Bulkhead.*

Can each Boiler be used separately *yes*
 What clear space between top of Boiler and woodwork *8.0*
 What clear space between Funnel and woodwork *1.7*
 Are Engine and Boiler Keelsons well connected fore and aft *yes*
 The tunnel is formed by a space below height
 Tunnel, thickness of plating *yes* *an iron deck just above shaft.*

Port Newcastle on Tyne 11th day of December 1872.

We hereby certify, that the whole of the above Machinery and Boilers of the Iron (*Wood*) (*Double*) Steam Vessel "Vaderland." belonging to *Antwerp* of *A. Stuyder* is Master, 2001. 13 Tons Register, and 290 H.P. have been fully inspected and examined by us at *Farrow on Tyne* and we found the same, at this date, in good order and safe working condition.

for *Palmer's Shipbuilding & Iron Co. Ltd.*