

# REPORT ON MACHINERY.

No. 15169

Received at London Office

23 OCT 1915

4.

of writing Report 21<sup>st</sup> Oct 1915 When handed in at Local Office 25/10/15 Port of West Hartlepool  
in Survey held at West Hartlepool Date, First Survey 26<sup>th</sup> July Last Survey 1<sup>st</sup> Oct 1915  
g. Book. 25 on the S.S. SPIRAL (Number of Visits 40) Gross 1348  
Tons Net 880  
When built 1906

Master Petersen Built at Christiania By whom built Nylands Vaerksted when made 1906  
Engines made at Christiania By whom made Nylands Vaerksted when made 1906  
Machinery made at Christiania By whom made Nylands Vaerksted when made 1906  
Registered Horse Power Owners Casper, Edgar & Co. Ltd. Port belonging to West Hartlepool  
m. Horse Power as per Section 28 160 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted no

GINES, &c.—Description of Engines Triple Expansion (Inverted) No. of Cylinders Three No. of Cranks Three  
No. of Cylinders 18-29-48 Length of Stroke 33 Revs. per minute 74 Dia. of Screw shaft as per rule 10 1/4 Material of screw shaft Iron  
the screw shaft fitted with a continuous liner the whole length of the stern tube yes Is the after end of the liner made water tight  
the propeller boss yes If the liner is in more than one length are the joints burned If the liner does not fit tightly at the part  
between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive If two  
ers are fitted, is the shaft lapped or protected between the liners Length of stern bush 3-8 (original)  
a. of Tunnel shaft as per rule 8.96 Dia. of Crank shaft journals as per rule 9 1/4 Dia. of Crank pin 9 3/8 Size of Crank webs 14x6 1/2 Dia. of thrust shaft under  
lars 9 3/8 Dia. of screw 12-6 Pitch of Screw 13-3 No. of Blades 4 State whether moveable no Total surface 60 ft<sup>2</sup>  
No. of Feed pumps Two Diameter of ditto 3 Stroke 16 1/2 Can one be overhauled while the other is at work yes  
No. of Bilge pumps Two Diameter of ditto 3 Stroke 16 Can one be overhauled while the other is at work yes  
No. of Donkey Engines Two Sizes of Pumps Feed donkey 3 1/2 x 5 1/2 No. and size of Suctions connected to both Bilge and Donkey pumps  
Engine Room Three 2 1/2 mps One 2 1/2 Dry Tunnel 2 1/2 Tunnel mlt In Holds, &c. Two 2 1/2 in Each Hold

No. of Bilge Injections All sizes 5 Connected to condenser, or to circulating pump pump Is a separate Donkey Suction fitted in Engine room & size yes 2 1/2  
Are all the bilge suction pipes fitted with roses yes Are the roses in Engine room always accessible yes Are the sluices on Engine room bulkheads always accessible none  
Are all connections with the sea direct on the skin of the ship yes Are they Valves or Cocks Both  
Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates yes Are the Discharge Pipes above or below the deep water line above  
Are they each fitted with a Discharge Valve always accessible on the plating of the vessel yes Are the Blow Off Cocks fitted with a spigot and brass covering plate yes  
How are they protected  
Are all pipes carried through the bunkers none  
Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times yes  
Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges yes  
Dates of examination of completion of fitting of Sea Connections 17/10/15 of Stern Tube original Screw shaft and Propeller 14/9/15  
the Screw Shaft Tunnel watertight yes Is it fitted with a watertight door yes worked from top platform

ILERS, &c.—(Letter for record 5) Manufacturers of Steel  
Total Heating Surface of Boilers 2412 ft<sup>2</sup> Is Forced Draft fitted no No. and Description of Boilers Two single ended cyl & mult  
Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 13/9/15 No. of Certificate  
In each boiler be worked separately yes Area of fire grate in each boiler 39.85 ft<sup>2</sup> No. and Description of Safety Valves to  
each boiler two Direct spring Area of each valve 4.070 Pressure to which they are adjusted 180 lbs Are they fitted with easing gear yes  
Smallest distance between boilers or uptakes and bunkers or woodwork 7 ft 6 in Paton's Mean dia. of boilers 12-1 1/2 Length 10-0 Material of shell plates Steel  
Thickness 1.06 Range of tensile strength 28 tons Are the shell plates welded or flanged no Descrip. of riveting: cir. seams 2 1/2 x 1 1/2  
g. seams 5/8 x 1 1/2 Diameter of rivet holes in long. seams 1 3/32 Pitch of rivets 4 3/4 Lap of plates or width of butt straps 18 3/4  
Percentage of strength of longitudinal joint rivets Working pressure of shell by rules 189 lbs Size of manhole in shell 16 x 12  
No. of compensating ring 9 1/2 x 1 No. and Description of Furnaces in each boiler Two Brighton Material steel Outside diameter 45 1/2  
Length of plain part top Thickness of plates crown 3 1/4 Description of longitudinal joint Weld No. of strengthening rings 29  
bottom Thickness of plates bottom 3 3/4 Working pressure of furnace by the rules 181 lbs Combustion chamber plates: Material steel Thickness: Sides 19 Back 5 1/2 Top 19 Bottom 32  
Pitch of stays to ditto: Sides 6 3/4 x 7 3/8 Back 7 3/4 x 7 3/8 Top 11 1/4 x 6 3/8 If stays are fitted with nuts or riveted heads riveted Working pressure by rules 181 lbs  
Material of stays Steel Diameter at smallest part 1 1/2 Area supported by each stay 6 3/4 x 7 3/8 Working pressure by rules 202 lbs End plates in steam space  
Material 5 Thickness 29 1/2 Pitch of stays 14 1/2 x 14 How are stays secured 1571 Working pressure by rules 182 lbs Material of stays steel  
Diameter at smallest part 2 1/6 Area supported by each stay 14 1/2 x 14 Working pressure by rules 181 lbs Material of Front plates at bottom steel  
Thickness 1 Material of Lower back plate steel Thickness 25 Greatest pitch of stays 11 1/4 x 7 Working pressure of plate by rules 180 lbs  
Diameter of tubes 3 1/4 Pitch of tubes 4 1/2 x 4 3/8 Material of tube plates 5 Thickness: Front 1 Back 7/8 Mean pitch of stays 13 1/2 x 8 3/4  
Pitch across wide water spaces 13 3/4 Working pressures by rules 189 lbs Girders to Chamber tops: Material steel Depth and  
Thickness of girder at centre 8 x 1 1/2 Length as per rule 2-3 Distance apart 4 1/4 Number and pitch of stays in each Three 6 3/4  
Working pressure by rules 193 lbs Superheater or Steam chest; how connected to boiler Can the superheater be shut off and the boiler worked  
separately Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivet  
holes Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness  
If stiffened with rings Distance between rings Working pressure by rules End plates: Thickness How stayed  
Working pressure of end plates Area of safety valves to superheater Are they fitted with easing gear

IS A DONKEY BOILER FITTED?

yes.

If so, is a report now forwarded?

yes.

SPARE GEAR. State the articles supplied:—

Two each Top End, Bottom End + Main Bearing Bolts + nuts one set of coupling bolts one set each feed + help valve. One crank, one propeller, Assorted Bolts + Wm.

The foregoing is a correct description.

Manufacturer.

Dates of Survey while building { During progress of work in shops -- 1915 July 26. 27. 29. Aug 5. 9. 10. 11. 13. 18. 20. 23. 24. 26. 27. Sep 2. 9. 10. 13. 15. 17. 20. 21. 22. 24. 25. 27. 28. 29. 30. Oct 1. 4. 5. 8. 9. 11. 14. 15. 16. 17. During erection on board vessel -- 24. 25. 27. 28. 29. 30. Oct 1. 4. 5. 8. 9. 11. 14. 15. 16. 17. Total No. of visits 40

Is the approved plan of main boiler forwarded herewith yes.

" " " donkey " " " yes.

Dates of Examination of principal parts—Cylinders 27/8/15 Slides 27/8/15 Covers 27/8/15 Pistons 27/8/15 Rods 29/7/15

Connecting rods 27/8/15 Crank shaft 26/7/15 Thrust shaft 29/7/15 Tunnel shafts 13/8/15 Screw shaft 10/9/15 Propeller 10/9/15

Stern tube original Steam pipes tested 8/10/15 Engine and boiler seatings 17/10/15 Engines holding down bolts 25/9/15

Completion of pumping arrangements 14/10/15 Boilers fixed 28/9/15 Engines tried under steam 14/10/15

Main boiler safety valves adjusted 14/10/15 Thickness of adjusting washers 7/8 3/4 3/4

Material of Crank shaft steel Identification Mark on Do. — Material of Thrust shaft steel Identification Mark on Do. —

Material of Tunnel shafts steel Identification Marks on Do. 5702 29/9/15 Material of Screw shafts Am Identification Marks on Do. 5703 15/9/15

Material of Steam Pipes Copper (solid brass) 1/2 lb Test pressure 360 lbs

Is an installation fitted for burning oil fuel — Is the flash point of the oil to be used over 150°F. —

Have the requirements of Section 49 of the Rules been complied with. —

Is this machinery duplicate of a previous case — If so, state name of vessel —

General Remarks (State quality of workmanship, opinions as to class, &c.)

The Machinery of this vessel has been thoroughly overhauled & repaired & placed in efficient working condition & the Boilers have been examined & tested by hydraulic pressure to 360 lbs per sq inch together with their steam pipes & all mountings, the whole of the machinery work well in trial trip & the Safety Valves have been adjusted under steam to their working pressure and easing gear fitted, considering the vessel eligible in our opinion to have the Notation 2 M C. 10/15 in the Register Book

The amount of Entry Fee ... £ — : — : When applied for, 25/10/15  
Special ... £ 15 : 0 :  
Donkey Boiler Fee ... £ : : :  
Travelling Expenses (if any) £ : : : When received, 29/10/15

Committee's Minute FRI. 29. OCT. 1915

Assigned 20/6/15