

REPORT ON MACHINERY.

No. 47346

Port of Newcastle on Tyne

Received at London Office MON. 25 JUL 1904

No. in Survey held at Newcastle Date, first Survey Jan 7th Last Survey 28 July 1904

Reg. Book. on the Steel S.S. "CROSTAFELS" (Number of Visits 442) Tons { Gross 4982 Net 3176

Master H. M. Miller Built at Newcastle By whom built Swan Hunter & W Richardson & Co. When built 1904

Engines made at Newcastle By whom made Swan Hunter & W Richardson & Co. when made 1904

Boilers made at Newcastle By whom made Swan Hunter & W Richardson & Co. when made 1904

Registered Horse Power Owners Harmsa Deutsche Dampf Gesellschaft Port belonging to Bremen

Nom. Horse Power as per Section 28 492 Is Refrigerating Machinery fitted No Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Quadruple Expansion No. of Cylinders 4 No. of Cranks 4
Dia. of Cylinders 23-32-48-72 Length of Stroke 54 Revs. per minute 64 Dia. of Screw shaft as per rule 14-86 as fitted 15 Material of screw shaft Steel

Is 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 in the propeller boss Yes If the liner is in more than one length are the joints burned Yes 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 Yes If two

liners are fitted, is the shaft lapped or protected between the liners Yes Length of stern bush 72

Dia. of Tunnel shaft as per rule 13-15 as fitted 14 Dia. of Crank shaft journals as per rule 13-8 as fitted 14-2 Dia. of Crank pin 14-2 Size of Crank webs 9-22 Dia. of thrust shaft under collars 14-3/4 Dia. of screw 18-6 Pitch of screw 19-9 No. of blades 4 State whether moveable Yes Total surface 104 ft

No. of Feed pumps 2 Diameter of ditto 4 Stroke 28 Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 4-1/2 Stroke 28 Can one be overhauled while the other is at work Yes

No. of Donkey Engines Two Sizes of Pumps Duplex FD 6x12 BD 15-1/2 x 23-5/8 No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Six 3-1/2 In Holds, &c. In all holds, two 3-1/2

Tunnel well one 3-1/2

No. of bilge injections 1 sizes 8 Connected to condenser or to circulating pump CP Is a separate donkey suction fitted in Engine room & size Yes 3-1/2

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 Yes

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

What pipes are carried through the bunkers forward bilge pipes How are they protected Strong wood casing

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

When were stern tube, propeller, screw shaft, and all connections examined in dry dock while building Is the screw shaft tunnel watertight Yes

Is it fitted with a watertight door Yes worked from Top platform.

BOILERS, &c.—(Letter for record (R)) Total Heating Surface of Boilers 6462 ft² Is forced draft fitted Yes

No. and Description of Boilers 3 Cylindrical Working Pressure 213 Tested by hydraulic pressure to 426

Date of test 12-5-04 Can each boiler be worked separately Yes Area of fire grate in each boiler 51-5 ft² No. and Description of safety valves to each boiler Two spring Area of each valve 9-62 Pressure to which they are adjusted 218 Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 24 Mean dia. of boilers 13-11 Length 12-0 Material of shell plates S

Thickness 1-1/2 Range of tensile strength 2834 Are they welded or flanged No Descrip. of riveting: cir. seams L & d lap long. seams double Shear

Diameter of rivet holes in long. seams 1-1/8 Pitch of rivets 9-7/8 Lap of plates or width of butt straps 22-1/2

Per centages of strength of longitudinal joint rivets 96 plate 84-2 Working pressure of shell by rules 248 Size of manhole in shell 16 x 12

Size of compensating ring 7-1/2 x 1-1/2 No. and Description of Furnaces in each boiler 3 Morrison Material S Outside diameter 41

Length of plain part top bottom Thickness of plates crown 5/8 Description of longitudinal joint welded No. of strengthening rings 1

Working pressure of furnace by the rules 245 Combustion chamber plates: Material S Thickness: Sides 21/32 Back 21/32 Top 21/32 Bottom 17/8

Pitch of stays to ditto: Sides 7-3/8 x 7-3/4 Back 7-3/4 x 7-3/4 Top 7-3/8 x 7-5/8 If stays are fitted with nuts or riveted heads Yes Working pressure by rules 244

Material of stays Iron Diameter at smallest part 2-3/8 Area supported by each stay 61 Working pressure by rules 290 End plates in steam space:

Material S Thickness 65/64 Pitch of stays 14-7/8 x 12 How are stays secured d & w Working pressure by rules 220 Material of stays S

Diameter at smallest part 5-5/8 Area supported by each stay 223 Working pressure by rules 249 Material of Front plates at bottom S

Thickness 1 Material of Lower back plate S Thickness 1 Greatest pitch of stays as per plan Working pressure of plate by rules 213

Diameter of tubes 2-1/2 Pitch of tubes 3-3/8 x 3-3/4 Material of tube plates S Thickness: Front 1 Back 7/8 Mean pitch of stays 8-7/8

Pitch across wide water spaces 13-1/2 Working pressures by rules 239 Girders to Chamber tops: Material S Depth and

thickness of girder at centre 7-1/2 x 13-1/8 Length as per rule 34-1/2 Distance apart 7-7/8 Number and pitch of Stays in each 3-7-7/8

Working pressure by rules 235 Superheater or Steam chest; how connected to boiler Yes Can the superheater be shut off and the boiler worked

separately Yes Diameter Yes Length Yes Thickness of shell plates Yes Material Yes Description of longitudinal joint Yes Diam. of rivet

holes Yes Pitch of rivets Yes Working pressure of shell by rules Yes Diameter of flue Yes Material of flue plates Yes Thickness Yes

If stiffened with rings Yes Distance between rings Yes Working pressure by rules Yes End plates: Thickness Yes How stayed Yes

Working pressure of end plates Yes Area of safety valves to superheater Yes Are they fitted with easing gear Yes

DONKEY BOILER— No. *One* Description *Cylindrical Multitubular.*
 Made at *Newcastle* By whom made *Swan Hunter & W Richardson* When made *1904* Where fixed *Stokehole*
 Working pressure *120* tested by hydraulic pressure to *240* No. of Certificate *6783* Fire grate area *494* Description of safety valves *Spring*
 No. of safety valves *2* Area of each *70* Pressure to which they are adjusted *120* If fitted with casing gear *Yes* If steam from main boilers can enter the donkey boiler *No* Dia. of donkey boiler *13-0* Length *10-3* Material of shell plates *S* Thickness *14/18* Range of tensile strength *28 3/4* Descrip. of riveting long seams *d butt Skap.* Dia. of rivet holes *15* Whether punched or drilled *Drilled* Pitch of rivets *5 3/4*
 Lap of plates *14 3/4* Per centage of strength of joint *81* Rivets *81* Thickness of shell plates *13/16* Radius of do. *Pitch* of Stays to do. *16 3/8 x 1 1/4*
 Dia. of stays *3-26* Diameter of furnace Top *40 1/2* Bottom *✓* Length of furnace *84 1/2* Thickness of furnace plates *21/32* Description of joint *d shap.* Thickness of furnace crown plates *12 1/2* Stayed by *Iron Skap* *1-73* Working pressure of shell by rules *140*
 Working pressure of furnace by rules *134* Diameter of uptake *3 1/2* Thickness of uptake plates *F 15 B 16* Thickness of water tubes *✓*

SPARE GEAR. State the articles supplied:— *Propeller, blades, crank shaft, tail shaft, two top end, two bottom end, two main bearing, & set of coupling bolts, feed & bilge valves, piston rings, air pump rod, various brasses, assorted bolts & nuts, a few bars of iron & other gear.*

FOR *The foregoing is a correct description,*
SWAN, HUNTER, & WIGHAM RICHARDSON, LTD. Manufacturer.

Dates of Survey while building
 During progress of work in shops— *DIRECTOR 1904 Jan. 7. 21 23 26 29 Feb. 1 24 8 15 18 19 23 29*
 During erection on board vessel— *Mar. 4 8 15 17 21 22 29 Apr. 5 25 May 3*
 Total No. of *44*

Is the approved plan of main boiler forwarded herewith *Yes*
 " " " donkey " " *Yes*

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

The Mach^y is practically a duplicate of that fitted in the S. S. "RABENFELS", Newc Rep. No 46205. The Material & workmanship is good throughout. The Mach^y has been built under Special Survey & is eligible in my opinion for classification & The record I.M.C. 7-04.

It is submitted that this vessel is eligible for THE RECORD I.L.M.C. 7-04 F.D. ELEC. LIGHT

25.7.04

The amount of Entry Fee. £ *3*
 Special £ *44.12*
 Donkey Boiler Fee £ *1*
 Travelling Expenses (if any) £ *1*

When applied for, *23 JUL 1904*
 When received, *25.7.04*

John H. Heck
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute *TUES. 26 JUL 1904*

Assigned *+ L.M.C. 7-04*
F.D. Elec. Light

MACHINERY CERTIFICATE
 WRITTEN.

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Newcastle-on-Tyne

Certificate (if required) to be sent to

(The Surveyors are requested not to write on or below the space for Committee's Minute.)