

REPORT ON MACHINERY.

Port of Newcastle on Tyne Received at London Office THES. 8 DEC 1903

No. in Survey held at Newcastle Date, first Survey May 28 Last Survey 7 Dec 1903

Reg. Book. on the Steel S.S. "RABENFELS" (Number of Visits 47)

Master R.L. Kippner Built at Newcastle By whom built Swan Hunter & W Richardson When built 1903

Engines made at Newcastle By whom made Swan Hunter & W Richardson when made 1903

Boilers made at S By whom made S when made 1903

Registered Horse Power Owners Deutsche Dampfschiffahrts Ges 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 Quaduple Expansion No. of Cylinders 4 No. of Cranks 4

Dia. of Cylinders 23-32-48-72 Length of Stroke 54 Revs. per minute 62 Dia. of Screw shaft as per rule 14-7/8 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 1/2 Dia. of Crank pin 1 1/2 Size of Crank webs 9 1/2 x 22 Dia. of thrust shaft under

collars 1 3/4 Dia. of screw 18-6 Pitch of screw 19-9 No. of blades 4 State whether moveable Yes Total surface 104 sq 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 FD 6 x 12. BD 16 x 24 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 & below

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 for bilge pipes How are they protected Strong wood casings

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 built? 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 sq ft Is forced draft fitted Yes

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

Date of test 7-10-03 Can each boiler be worked separately Yes Area of fire grate in each boiler 51-5 sq ft 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 283/4 32 Are they welded or flanged no Descrip. of riveting: cir. seams L-d lap long. seams d strap

Diameter of rivet holes in long. seams 19/16 Pitch of rivets 9/8 Lap of plates width of butt straps 22 1/4

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 Brown Camels Material S Outside diameter 37 3/4

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

Working pressure of furnace by the rules 246 Combustion chamber plates: Material S Thickness: Sides 2 1/2 Back 2 1/2 Top 2 1/2 Bottom 1 7/8

Pitch of stays to ditto: Sides 7/8 x 7/8 Back 7/8 x 7/8 Top 7/8 x 7/8 If stays are fitted with nuts or riveted heads Nuts 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 15 How are stays secured d h & w Working pressure by rules 220 Material of stays S

Diameter at smallest part 5-56 Area supported by each stay 223 Working pressure by rules 219 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 7/8 x 3 3/4 Material of tube plates S Thickness: Front 1 Back 7/8 Mean pitch of stays 8 5/8

**DONKEY BOILER**— No. 1 Description Cylindrical Multitubular  
 Made at Newcastle By whom made Swan Hunter & W Richardson & Co When made 7-10-03 Where fixed Stokehole  
 Working pressure 120 tested by hydraulic pressure to 240 No. of Certificate 6676 Fire grate area 497 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 14/16 Range of tensile strength 28 3/4 Descrip. of riveting long. seams d shap Dia. of rivet holes 15/16 Whether punched or drilled drilled Pitch of rivets 5 3/4  
 Rivets 8 1/2 Thickness of shell end 13/16 Radius of do. Pitch of Stays to do 16 3/8 x 14  
 In of plating 14 3/4 Per centage of strength of joint Plates 83.7 Thickness of shell end 13/16 Radius of do. Pitch of Stays to do 16 3/8 x 14  
 Dia. of stays. 3-26 S 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 plates 12 1/2 x 1/2 Stayed by Iron Stay 1-73 Area Working pressure of shell by rules 140  
 Working pressure of furnace by rules 134 Diameter of tubes 3 1/4 Thickness of tubes plates F 15/16 B 11/16 Thickness of water tubes ✓

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

The foregoing is a correct description,  
 Manufacturer. Swan Hunter

DIRECTOR.  
 Dates of Survey while building  
 During progress of work in shops— 1903. May 28, June 4, 9, 12, 15, July 3, Aug 5, 12, 19, 24, 25, 27, Sep. 28, 10, 15, 16, 21, Oct. 1, 5, 7, 8, 9, 11, 15, 17, 20, 21, 22, 30, Nov.  
 During erection on board vessel— 2, 3, 4, 6, 9, 10, 12, 16, 17, 18, 19, 21, 27, 30, Dec. 3, 7  
 Total No. of 47  
 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<sup>y</sup> is a duplicate of that fitted in the S.S. "Reichenfels" Nue Rep<sup>t</sup> No 45964.  
The material & workmanship is good throughout.  
The Mach<sup>y</sup> has been built under special Survey & is eligible in our opinion for classification & the record I.M.C. 12-03.

It is submitted that this vessel is eligible for THE RECORD. I.M.C. 12.03. ELEC LIGHT F.D.  
Bel.  
8-12-03  
J.S.  
8.12.03

The amount of Entry Fee. . . £ 3 : . . . : When applied for, 7<sup>th</sup> Dec 1903  
 Special . . . . . £ 44 : 12 : . . . :  
 Donkey Boiler Fee . . . . . £ . . . : . . . : When received, 9/12/03  
 Travelling Expenses (if any) £ . . . : . . . : 10/10/03

Committee's Minute  
 Assigned  
 JOHN H HECK, Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.  
 DEC. 8 DEC 1903  
 + LMC 12.03  
 MACHINERY CERTIFICATE WRITTEN.

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.

