

## REPORT ON MACHINERY.

No. 2454  
MON. DEC. 20 1920

Received at London Office

Date of writing Report 18<sup>th</sup> Decr 20 When handed in at Local Office 18<sup>th</sup> Decr 20 Port of Cardiff  
 No. in Survey held at Cardiff Date, First Survey 2<sup>nd</sup> Decr. Last Survey 13<sup>th</sup> Decr 1920  
 Reg. Book. 577 on the Steel S. S. Falkenfels, now Fredenham (Number of Visits 4)  
 Master Built at Bremen By whom built Act. Ges. Weser Tons Gross 8322 Net 5259  
 Engine made at Bremen By whom made Act. Ges. Weser when made 1915  
 Boilers made at " By whom made " when made 1915  
 Registered Horse Power Owners Hain & S. C. Ltd. (6 Hain Sns Myn Port belonging to St. Lues.  
 Npm. Horse Power as per Section 28 750 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

**ENGINES, &c.**—Description of Engines Quadruple Expansion No. of Cylinders 4 No. of Cranks 4  
 Dia. of Cylinders 40<sup>9</sup>/<sub>16</sub> Length of Stroke 55<sup>5</sup>/<sub>8</sub> Revs. per minute 66<sup>6</sup>/<sub>7</sub> Dia. of Screw shaft 16<sup>7</sup>/<sub>8</sub> Material of screw shaft 17<sup>0</sup>/<sub>8</sub>  
 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  
 If the liner is in more than one length are the joints burned one length 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 liners are fitted, is the shaft lapped or protected between the liners Length of stern bush  
 Dia. of Tunnel shaft 15<sup>11</sup>/<sub>16</sub> Dia. of Crank shaft journals 15<sup>9</sup>/<sub>16</sub> Dia. of Crank pin 16<sup>5</sup>/<sub>16</sub> Size of Crank webs 12<sup>3</sup>/<sub>16</sub> Dia. of thrust shaft under collars 16<sup>5</sup>/<sub>16</sub> Dia. of screw 20<sup>0</sup>/<sub>8</sub> Pitch of Screw 17<sup>9</sup>/<sub>16</sub> No. of Blades 4 State whether moveable Yes Total surface 127<sup>0</sup>/<sub>8</sub>  
 No. of Feed pumps 2 Diameter of ditto 5<sup>1</sup>/<sub>2</sub> Stroke 27<sup>1</sup>/<sub>4</sub> Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps 2 Diameter of ditto 5<sup>1</sup>/<sub>2</sub> Stroke 27<sup>1</sup>/<sub>4</sub> Can one be overhauled while the other is at work Yes  
 No. of Donkey Engines Four Sizes of Pumps one duplex 11<sup>3</sup>/<sub>4</sub> x 22<sup>1</sup>/<sub>4</sub> x 15<sup>3</sup>/<sub>4</sub> No. and size of Suctions connected to both Bilge and Donkey pumps In the Room 5-3<sup>3</sup>/<sub>4</sub>, one 8<sup>5</sup>/<sub>16</sub>, one 7<sup>5</sup>/<sub>16</sub> x 6<sup>1</sup>/<sub>2</sub> x 5<sup>1</sup>/<sub>2</sub> In Holds, &c. Two in H<sup>o</sup> 1, Two in H<sup>o</sup> 2, Two in H<sup>o</sup> 3, Two in H<sup>o</sup> 4, Two in tunnel, all 3<sup>3</sup>/<sub>4</sub> dia.  
 Bilge Injections 1 sizes 8<sup>3</sup>/<sub>16</sub> dia. Connected to condenser, or to circulating pump pump Is a separate Donkey Suction fitted in Engine room & size Yes 4<sup>1</sup>/<sub>2</sub> dia.  
 Are all the bilge suction pipes fitted with roses Yes in holds Are the sluices on Engine room bulkheads 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 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  
 Are the pipes carried through the bunkers None How are they protected  
 Are the 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  
 Is the Screw Shaft Tunnel watertight Is it fitted with a watertight door Yes worked from upper deck  
**BOILERS, &c.**—Letter for record Manufacturers of Steel Messrs. Krupp, Essen  
 Total Heating Surface of Boilers 10320<sup>0</sup> Is Forced Draft fitted Yes No. and Description of Boilers Four, Multi Single Ended  
 Working Pressure 213 lbs Tested by hydraulic pressure to Date of test No. of Certificate  
 Can each boiler be worked separately Yes Area of fire grate in each boiler 57<sup>0</sup>/<sub>8</sub> No. and Description of Safety Valves to boiler Two Spring Area of each valve 12<sup>1</sup>/<sub>16</sub> Pressure to which they are adjusted 218 lbs Are they fitted with easing gear Yes  
 Smallest distance between boilers or uptakes and bunkers or woodwork 23<sup>1</sup>/<sub>2</sub> Mean dia. of boilers 14<sup>1</sup>/<sub>2</sub> Length 12<sup>0</sup>/<sub>8</sub> Material of shell plates steel  
 Thickness 1<sup>1</sup>/<sub>2</sub> Range of tensile strength 28 to 33 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams L. O.  
 Long. seams D. S. and R. R. Diameter of rivet holes in long. seams 1<sup>5</sup>/<sub>16</sub> Pitch of rivets 11<sup>3</sup>/<sub>4</sub> Lap of plates or width of butt straps 26<sup>3</sup>/<sub>4</sub>  
 Per centages of strength of longitudinal joint rivets 117<sup>0</sup>/<sub>8</sub> plate 86<sup>6</sup>/<sub>8</sub> Working pressure of shell by rules 223 lbs Size of manhole in shell 11<sup>8</sup>/<sub>16</sub> x 15<sup>7</sup>/<sub>16</sub>  
 Size of compensating ring 13<sup>0</sup>/<sub>8</sub> x 1<sup>4</sup>/<sub>8</sub> No. and Description of Furnaces in each boiler 3, Horisons Material steel Outside diameter 42<sup>6</sup>/<sub>8</sub>  
 Length of plain part top Thickness of plates crown 5<sup>1</sup>/<sub>8</sub> bottom 8<sup>1</sup>/<sub>8</sub> Description of longitudinal joint welded No. of strengthening rings  
 Working pressure of furnace by the rules 214 lbs Combustion chamber plates: Material steel Thickness: Sides 4<sup>5</sup>/<sub>16</sub> Back 4<sup>5</sup>/<sub>16</sub> Top 4<sup>5</sup>/<sub>16</sub> If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 270 lbs  
 Pitch of stays to ditto: Sides 7<sup>8</sup>/<sub>16</sub> x 7<sup>8</sup>/<sub>16</sub> Back 7<sup>8</sup>/<sub>16</sub> x 7<sup>8</sup>/<sub>16</sub> Top 7<sup>8</sup>/<sub>16</sub> x 7<sup>8</sup>/<sub>16</sub> If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 270 lbs  
 Material of stays steel Area at smallest part 1<sup>6</sup>/<sub>8</sub> Area supported by each stay 63<sup>5</sup>/<sub>16</sub> Working pressure by rules 247 lbs End plates in steam space: Material steel Thickness 1<sup>6</sup>/<sub>8</sub> Pitch of stays 17<sup>3</sup>/<sub>16</sub> x 14<sup>5</sup>/<sub>16</sub> How are stays secured D. N. + W. Working pressure by rules 250 lbs Material of stays steel  
 Area at smallest part 2<sup>9</sup>/<sub>16</sub> Area supported by each stay 252<sup>3</sup>/<sub>16</sub> Working pressure by rules 292 lbs Material of Front plates at bottom steel  
 Thickness 1<sup>1</sup>/<sub>2</sub> Material of Lower back plate steel Thickness 1<sup>1</sup>/<sub>2</sub> Greatest pitch of stays 16<sup>1</sup>/<sub>8</sub> x 16<sup>1</sup>/<sub>8</sub> Working pressure of plate by rules 236 lbs  
 Diameter of tubes 2<sup>1</sup>/<sub>2</sub> Pitch of tubes 3<sup>7</sup>/<sub>8</sub> Material of tube plates steel Thickness: Front 1<sup>1</sup>/<sub>2</sub> Back 2<sup>7</sup>/<sub>8</sub> Mean pitch of stays 7<sup>1</sup>/<sub>2</sub> x 7<sup>1</sup>/<sub>2</sub>  
 Pitch across wide water spaces 13<sup>7</sup>/<sub>8</sub> Working pressures by rules 260 lbs Girders to Chamber tops: Material steel Depth and thickness of girder at centre 9<sup>4</sup>/<sub>8</sub> x 7<sup>4</sup>/<sub>8</sub> Length as per rule 33<sup>1</sup>/<sub>2</sub> Distance apart 8<sup>0</sup>/<sub>8</sub> Number and pitch of stays in each Three 7<sup>8</sup>/<sub>16</sub>  
 Working pressure by rules 245 lbs Steam dome: description of joint to shell None % of strength of joint  
 Diameter Thickness of shell plates Material Description of longitudinal joint Diam. of rivet holes  
 Pitch of rivets Working pressure of shell by rules Crown plates Thickness How stayed  
**SUPERHEATER.** Type None Date of Approval of Plan Tested by Hydraulic Pressure to  
 Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler  
 Is Easing Gear fitted

630-0236

IS A DONKEY BOILER FITTED?

No

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:— Two top and two bottom end connecting rod bolts etc, two main bearing bolts and nuts, one set coupling bolts and nuts, one set each ft + bilge pump valves, assorted bolts and nuts, and iron various sizes, one piston for each piston, one segment crank shaft, one valve spindle and nuts, one air pump rod one each front and back pump link and brass, one screw shaft and nut, four propellers (two phosphor bronze and two steel) One pair each top and bottom end connecting brasses, 50 condenser tubes, also spare gear for the auxiliaries.

The foregoing is a correct description,

Manufacturer.

Dates of Survey while building { During progress of work in shops - - }  
{ During erection on board vessel - - }  
Total No. of visits

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

" " " " " " " "

Dates of Examination of principal parts—Cylinders 16.12.1920 Slides 16.12.1920 Covers 16.12.1920 Pistons 16.12.1920 Rods 16.12.1920

Connecting rods 16.12.1920 Crank shaft 16.12.1920 Thrust shaft 16.12.1920 Tunnel shafts 16.12.1920 Screw shaft 9.1.20 Propeller 16.12.1920

Stern tube ✓ Steam pipes tested by steam 3.1.1921 Engine and boiler seatings 22.12.1920 Engines holding down bolts 22.12.1920

Completion of pumping arrangements 4.1.1921 Boilers fixed fittings 22.12.1920 Engines tried under steam 3.1.1921

Completion of fitting sea connections 16.12.1920 Stern tube 16.12.1920 Screw shaft and propeller 9.1.20 16.12.1920

Main boiler safety valves adjusted 3.1.1921 Thickness of adjusting washers P 5/16 5/32 P 5/16 5/32 P 5/16 5/32 P 5/16 5/32

Material of Crank shaft ✓ Identification Mark on Do. ✓ Material of Thrust shaft ✓ Identification Mark on Do.

Material of Tunnel shafts ✓ Identification Marks on Do. ✓ Material of Screw shafts ✓ Identification Marks on Do.

Material of Steam Pipes *Steel* Test pressure *Steam 218 lbs*

Is an installation fitted for burning oil fuel *No* 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 *Not known* If so, state name of vessel ✓

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

The machinery of this vessel is in good condition and eligible in my opinion to be classed with the notation of *L.A.B. 1.21.* in the Register Book.

The pumping plan is enclosed.

FRI. 19 FEB 1926

FRI. 7 AUG 1925

TUE. 16 MAR 1926

TUES. 5 JAN 1926

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

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

TUE. 24 OCT. 1922 TUES. 25 AUG 1925

Committee's Minute

TUE. 15 FEB. 1921

FRI. JAN. 13 1922

Assigned

*Offc. 1.21*  
*with 300 marks (3)*

FRI. 24 AUG 1925

FRI. 8 JUN 1923

FRI. 19 DEC 1924

Lloyd's Register Foundation