Rpt. 4.

REPORT ON MACHINERY.

No. 6805.

Received at London Office SAT. 27 AUG 1910

Date of writing Report ____ 19__ When handed in at Local Office 26/8/ 1910 Port of Grimsby

No. in Reg. Book. ____ Survey held at Grimsby Date, First Survey Feb 14 - 1910 Last Survey Aug 23rd 1910. (Number of Visits 33.)

on the Steam Trawler "Arian" Tons Gross ____ Net ____

Master ____ Built at Selby By whom built Cochrane & Sons When built 1910

Engines made at Grimsby By whom made P. Central Co-operative E. & S. R. Co.ld when made 1910

Boilers made at do. By whom made do. when made 1910

Registered Horse Power ____ Owners P. Central Co-op. Eng.g & Ship Repair C.L. Port belonging to Grimsby

Nom. Horse Power as per Section 28 75 Is Refrigerating Machinery fitted for cargo purposes no. Is Electric Light fitted no.

ENGINES, &c.—Description of Engines Triple Expansion Inverted No. of Cylinders 3 No. of Cranks 3

Dia. of Cylinders 12, 21½, 34 Length of Stroke 24" Revs. per minute ____ Dia. of Screw shaft as per rule 7.05 as fitted 7 3/8 Material of screw shaft Cp. Iron

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 ✓ 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 ✓ Length of stern bush 35"

Dia. of Tunnel shaft as per rule ____ as fitted ✓ Dia. of Crank shaft journals as per rule 6.61 as fitted 7 Dia. of Crank pin 7 Size of Crank webs 4¼"x13 Dia. of thrust shaft under collars 7" Dia. of screw 8-6" Pitch of Screw 10-9" No. of Blades 4 State whether moveable no Total surface 28□'

No. of Feed pumps 1 Diameter of ditto 2⅛ Stroke 24 Can one be overhauled while the other is at work ✓

No. of Bilge pumps 1 Diameter of ditto 2⅛ Stroke 24 Can one be overhauled while the other is at work ✓

No. of Donkey Engines 1 Sizes of Pumps 6×3½×6 No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room 2" sea, Rotrech rbilge In Holds, &c. 2" forepeak, and 2" clushwell.

No. of Bilge Injections 1 sizes 3" Connected ~~to condenser~~ or to circulating pump ____ Is a separate Donkey Suction fitted in Engine room & size 2½ ejector

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

What pipes are carried through the bunkers trinch steam & exhaust How are they protected 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

Dates of examination of completion of fitting of Sea Connections 6/6 at Hull of Stern Tube 6/6 at Hull Screw shaft and Propeller 6/6 at Hull.

Is the Screw Shaft Tunnel watertight none Is it fitted with a watertight door ✓ worked from ✓

BOILERS, &c.—(Letter for record S) Manufacturers of Steel Phoenix Akt. Ges. Abt. Hoerder Verein, Hoerde.

Total Heating Surface of Boilers 1340□' Is Forced Draft fitted no No. and Description of Boilers one S.E. return tube

Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 12.8.10 No. of Certificate 90

Can each boiler be worked separately ✓ Area of fire grate in each boiler 34.7□' No. and Description of Safety Valves to each boiler 2 direct spring Area of each valve 3.98□" Pressure to which they are adjusted 185 Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers or woodwork 4" Mean dia. of boilers 12'-6" Length 10'-0" Material of shell plates S

Thickness 13/32 Range of tensile strength 28/32 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams double long. seams treble butt Diameter of rivet holes in long. seams 1⅛ Pitch of rivets 4¾ ~~Lap of plates or~~ width of butt straps 16⅝

Per centages of strength of longitudinal joint rivets 87.0 plate 85.5 Working pressure of shell by rules 194 Size of manhole in shell 12×16

Size of compensating ring 16×16×1⅛ No. and Description of Furnaces in each boiler 2 plain Material S Outside diameter 43"

Length of plain part top 70" bottom 70" Thickness of plates crown 13/16 bottom 13/16 Description of longitudinal joint welded No. of strengthening rings none

Working pressure of furnace by the rules 181 Combustion chamber plates: Material S Thickness: Sides 21/32 Back 21/32 Top 21/32 Bottom 13/16

Pitch of stays to ditto: Sides 9¼×8¾ Back 9×8¾ Top 9¼×8¼ If stays are fitted with nuts or riveted heads nuts Working pressure by rules 184

Material of stays S ~~Diameter~~ area at smallest part 2.1 Area supported by each stay 81 Working pressure by rules 207 End plates in steam-space: Material S Thickness 1⅛ Pitch of stays 7½"×8" How are stays secured d. nuts & washers Working pressure by rules 190 Material of stays S

~~Diameter~~ area at smallest part 6.6 Area supported by each stay 320□" Working pressure by rules 215 Material of Front plates at bottom S Thickness 1" Material of Lower back plate S Thickness 15/16 ~~Greatest~~ mean pitch of stays 16" Working pressure of plate by rules 180

Diameter of tubes 3¼ Pitch of tubes 4½ Material of tube plates S Thickness: Front 1" Back ¾ Mean pitch of stays 9"

Pitch across wide water spaces 14¼ Working pressures by rules 190 Girders to Chamber tops: Material S Depth and thickness of girder at centre 9×1½" Length as per rule 31-5 Distance apart 8¼ Number and pitch of stays in each 2-9¼

Working pressure by rules 200 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 ____

In a Report also sent on the Hull of the Ship? If not, state whether, and when, one will be sent?

1m,10,8.—T.

VERTICAL DONKEY BOILER— Manufacturers of Steel

No. Description

Made at By whom made When made Where fixed

Working pressure tested by hydraulic pressure to Date of test No. of Certificate Fire grate area Description of Safety Valves No. of Safety Valves Area of each Pressure to which they are adjusted Date of adjustment

If fitted with easing gear If steam from main boilers can enter the donkey boiler Dia. of donkey boiler Length

Material of shell plates Thickness Range of tensile strength Descrip. of riveting long. seams

Dia. of rivet holes Whether punched or drilled Pitch of rivets Lap of plating Per centage of strength of joint Rivets Plates

Working pressure of shell by rules Thickness of shell crown plates Radius of do. No. of stays to do. Dia. of stays

Diameter of furnace Top Bottom Length of furnace Thickness of furnace plates Description of joint

Working pressure of furnace by rules Thickness of furnace crown plates Radius of do. Stayed by

Diameter of uptake Thickness of uptake plates Thickness of water tubes Dates of survey

SPARE GEAR. State the articles supplied :— 2 top & bottom end & main bearing bolts, a set of coupling bolts & nuts; feed bilge & donkey valves; check, escape & safety valves, a set of pump valves, bolts, nuts & assorted iron

The foregoing is a correct description,

Manufacturer. Fred Lister

Dates of Survey while building — During progress of work in shops— Feb 14·16·18·26 Mar 7·12·22·24 April 4·16·21·28 May 2·4·9·19·30 June 2·6·10·18 July 1·12·25

During erection on board vessel — July 28· Aug 3·5·16·18·22·23. also June 6 & July 7 at Hull.

Total No. of visits Is the approved plan of main boiler forwarded herewith Yes.

" " " donkey " " "

Dates of Examination of principal parts—Cylinders 21/4 Slides 30/5 Covers 30/5 Pistons 22/3 Rods 28/4 . 19/5

Connecting rods 21/4 Crank shaft 21/4 Thrust shaft 12/7 Tunnel shafts ✓ Screw shaft 30/5 Propeller 2/6

Stern tube 2/6 Steam pipes tested Engine and boiler seatings 7/7 at Hull. Engines holding down bolts 5/8

Completion of pumping arrangements 16/8 Boilers fixed 18/8 Engines tried under steam 22/8

Main boiler safety valves adjusted 22/8 Thickness of adjusting washers P 5/16 S 5/16

Material of Crank shaft Pmo steel webs + Journals iron Identification Mark on Do. 264 21.4.10 C.M. Material of Thrust shaft Steel Identification Mark on Do. 3833 4.7.10 MR

Material of Tunnel shafts ✓ Identification Marks on Do. ✓ Material of Screw shafts Iron Identification Marks on Do. 276 30.5.10 C.M.

Material of Steam Pipes Solid drawn copper—6 inch. Test pressure 360 lb.

General Remarks (State quality of workmanship, opinions as to class, &c. This machinery has been built under special survey and the materials and workmanship are good.

The boiler shell has been tested in conformity with rule requirements and the boiler built in accordance with approved plan. On completion it was tested by water to twice the working pressure and found tight & sound.

This machinery has been fitted on board the vessel in an efficient manner and in our opinion is eligible for the record of +LMC 8-10

Certificate (if required) to be sent to

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

It is submitted that this vessel is eligible for THE RECORD. +LMC.8.10.

J.J.M J.W.D 29/8/10

The amount of Entry Fee .. £ 1 : : When applied for, 24. 8. 10 1910 wkmg

Special .. .. .. £ 11 : 5 : :

Donkey Boiler Fee .. .. £ : : When received, 21. 11. 1910

Travelling Expenses (if any) £ : : 22.11

Committee's Minute TUE. 30 AUG 1910

Assigned +LMC 8.10

C Mart M. & W-RM. Aspinall

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