Rpt. 4.

REPORT ON MACHINERY.

No. 23501

Received at London Office SAT. 25 MAR 1911

Date of writing Report Mar 15 1911 When handed in at Local Office Mar 22 1911 Port of Hull.

No. in Reg. Book. Survey held at Hull. Date, First Survey June 14/10. Last Survey Mar 8th 1911 (Number of Visits 69)

95 Supp on the S/Trawler CHRISTOPHER Tons Gross 386 Net 135

Master Built at Beverley. By whom built Cook, Welton & Gemmell When built 1911

Engines made at Hull By whom made Amos & Smith Ltd when made 5

Boilers made at 5 By whom made 5 when made 5

Registered Horse Power ✓ Owners Pickering & Haldane's Str. Trawling Co Ltd Port belonging to Hull.

Nom. Horse Power as per Section 28 93 ✓ Is Refrigerating Machinery fitted for cargo purposes No ✓ Is Electric Light fitted No ✓

ENGINES, &c.—Description of Engines Inverted triple expansion ✓ No. of Cylinders 3 ✓ No. of Cranks 3 ✓

Dia. of Cylinders 13-22½-37" ✓ Length of Stroke 26" ✓ Revs. per minute 112 ✓ Dia. of Screw shaft as per rule 7.92 as fitted 8¼ ✓ Material of screw shaft 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 ✓ If two liners are fitted, is the shaft lapped or protected between the liners ✓ Length of stern bush 36" ✓

Dia. of Tunnel shaft as per rule 7" ✓ as fitted 7½" ✓ Dia. of Crank shaft journals as per rule 7.35 ✓ as fitted 7½" ✓ Dia. of Crank pin 7½" ✓ Size of Crank webs 14¾"×4¾" ✓ Dia. of thrust shaft under collars 7½" ✓ Dia. of screw 9'-9" ✓ Pitch of Screw 11'-3" ✓ No. of Blades 4 ✓ State whether moveable No. ✓ Total surface 34 ft ✓

No. of Feed pumps One. ✓ Diameter of ditto 2⅞" ✓ Stroke 12" ✓ Can one be overhauled while the other is at work ✓

No. of Bilge pumps One ✓ Diameter of ditto 2⅞" ✓ Stroke 12" ✓ Can one be overhauled while the other is at work ✓

No. of Donkey Engines One. ✓ Sizes of Pumps 6"×4½"×6" ✓ No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room 2-2" (For'd & Aft) ✓ In Holds, &c. 3-2" (Forehold, fish room or deck well) 2" Ejector suction & all bilges will discharge on deck. ✓

No. of Bilge Injections 1 ✓ sizes 3" ✓ Connected to condenser, or to circulating pump Circ. ✓ Is a separate Donkey Suction fitted in Engine room & size 2" 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 Hold Suction ✓ How are they protected 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. ✓

Dates of examination of completion of fitting of Sea Connections 16.1.11 ✓ of Stern Tube 16.1.11 ✓ Screw shaft and Propeller 16.1.11 ✓

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 & Howden ✓

Total Heating Surface of Boilers 1611 ft ✓ Is Forced Draft fitted No ✓ No. and Description of Boilers 1.S.E. Multitubular ✓

Working Pressure 200 lbs. ✓ Tested by hydraulic pressure to 400 lbs. ✓ Date of test 8.12.10. ✓ No. of Certificate 1781 ✓

Can each boiler be worked separately ✓ Area of fire grate in each boiler 48.12 ✓ No. and Description of Safety Valves to each boiler 2 Spring loaded. ✓ Area of each valve 4.9" ✓ Pressure to which they are adjusted 185 lbs. ✓ Are they fitted with easing gear Yes. ✓

Smallest distance between boilers or uptakes and bunkers or woodwork 7" ✓ Mean dia. of boilers 13'-11⅜" ✓ Length 10'-7¼" ✓ Material of shell plates Steel. ✓

Thickness 1 3/16" ✓ Range of tensile strength 29-33. ✓ Are the shell plates welded or flanged No. ✓ Descrip. of riveting: cir. seams D.R. Lap ✓ long. seams D.B.S.R. ✓ Diameter of rivet holes in long. seams 1¼" ✓ Pitch of rivets 8¾" ✓ ~~Lap of plates or~~ width of butt straps 17¾" ✓

Per centages of strength of longitudinal joint rivets 87.83 plate 85.71. ✓ Working pressure of shell by rules 200. ✓ Size of manhole in shell 16"×12" ✓

Size of compensating ring 40"×30"×1 3/16" ✓ No. and Description of Furnaces in each boiler 3 plain ✓ Material Steel. ✓ Outside diameter 3'-4 1/32" ✓

Length of plain part top 69" ✓ bottom 73.5 ✓ Thickness of plates crown 49/64" ✓ bottom 49/64" ✓ Description of longitudinal joint welded. ✓ No. of strengthening rings ✓

Working pressure of furnace by the rules 200. ✓ Combustion chamber plates: Material Steel. ✓ Thickness: Sides 11/16" ✓ Back 23/32" ✓ Top 11/16" ✓ Bottom 13/16" ✓

Pitch of stays to ditto: Sides 9½"×8" ✓ Back 9⅝"×8½" ✓ Top 8½"×9⅝" ✓ If stays are fitted with nuts or riveted heads Nuts ✓ Working pressure by rules 217 ✓

Material of stays Steel. ✓ Diameter at smallest part 1½" = 2.06 ✓ 1¾" = 2.39 ✓ Area supported by each stay 82 D" ✓ Working pressure by rules 204 ✓ End plates in steam space: Material Steel. ✓ Thickness 1⅛" ✓ Pitch of stays 18"×14½" ✓ How are stays secured Screwed ends & nuts ✓ Working pressure by rules 200. ✓ Material of stays Steel ✓

Diameter at smallest part 6.10 ✓ Area supported by each stay 261 D" ✓ Working pressure by rules 243 ✓ Material of Front plates at bottom Steel. ✓ Thickness 11/16" ✓ Material of Lower back plate Steel. ✓ Thickness 15/16" ✓ Greatest pitch of stays 14"×9½" ✓ 14"×8½" ✓ Working pressure of plate by rules 226. ✓

Diameter of tubes 3½" ✓ Pitch of tubes 4¾"×4 3/4" ✓ Material of tube plate Steel. ✓ Thickness: Front 1 1/16" ✓ Back 27/32" ✓ Mean pitch of stays 9½" ✓

Pitch across wide water spaces 14" ✓ Working pressures by rules 203. ✓ Girders to Chamber tops: Material Steel. ✓ Depth and thickness of girder at centre 9½"×1 3/16" ✓ Length as per rule 2'-10" ✓ Distance apart 9½" ✓ Number and pitch of stays in each 3 D 8½" ✓

Working pressure by rules 216 ✓ Superheater or Steam chest; how connected to boiler None ✓ 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 ✓

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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 :— Two top & two bottom end connecting rod bolts & nuts, two main bearing bolts, one set of coupling bolts & nuts, one set of feed & bilge pump valves, one main & one donkey feed check valve assorted bolts nuts, one propeller, one impeller for circulating pump.

The foregoing is a correct description,

Manufacturer. FOR AMOS & SMITH LTD.

Dates of Survey while building — During progress of work in shops: 1910:- Jan 14. 17. 18. 24. 28 Jul 12. 15. 19. 25. 28. 30 Aug 4. Aug 27. 29 Sep 3. 8. 10. 14. 17. 21. 23. 26. Oct. 3. 6. 8. 13. 14. 17. 18 Oct 22. 27. 31. Nov 2, 5. 9. During erection on board vessel: Nov 10. 15. 17. 19. 22. 24. 26. 29. Dec 2. 8. 13. 16. 20. 22. 30. 1911:- Jan 10. 12. 16. 17. Jan 25. Feb. 20. 21. 23. 28. Mar 1. 6. 7-8. Aug 4. 10. 13. 15. 19. 22.

W S Hyde Managing Director.

Total No. of visits 69.

Is the approved plan of main boiler forwarded herewith Yes ✓

" " " donkey " " " ✓

Dates of Examination of principal parts— Cylinders 8. 10. 10 Slides 18. 10. 10 Covers 8. 10. 10 Pistons 8. 10. 10 Rods 18. 10. 10

Connecting rods 14. 10. 10 Crank shaft 17. 11. 10 Thrust shaft 29. 11. 10 Tunnel shafts ✓ Screw shaft 29. 11. 10 Propeller 29. 11. 10

Stern tube 29. 11. 10 Steam pipes tested 13. 2. 11 Engine and boiler seatings 16. 1. 11 Engines holding down bolts 20. 2. 11.

Completion of pumping arrangements 6. 3. 11 Boilers fixed 1. 3. 11 Engines tried under steam 1. 3. 11

Main boiler safety valves adjusted 1. 3. 11. Thickness of adjusting washers F 3/4 + 1/32 A 7/16.

Material of Crank shaft Steel. Identification Mark on Do. 17. 11. 10. T.W.S 686. Material of Thrust shaft Steel. Identification Mark on Do. 29. 11. 10 T.W.S. 686.

Material of Tunnel shafts ✓ Identification Marks on Do. ✓ Material of Screw shafts Iron Identification Marks on Do. 29. 11. 10 T.W.S. 686.

Material of Steam Pipes Solid drawn copper ✓ Test pressure 450 lbs ✓

General Remarks (State quality of workmanship, opinions as to class, &c. The machinery & boilers of this vessel have been constructed under Special Survey, are of good material & workmanship & have been fitted & secured on board in accordance with the Rules. They are now in good condition and eligible in my opinion to have record of ✠ L.M.C. 3-11 in the Register Book.

With reference to the one feed & one bilge pumps a letter from the owners is attached hereto.

Yes

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 3.11.

JWG 27/3/11

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The amount of Entry Fee ..	£	1 : 0 : 0.	When applied for, 24. 3 1911
Special	£	13 . 19 : 0	
Donkey Boiler Fee	£	: :	When received, 31. 3 1911
Travelling Expenses (if any)	£	2 : 0 :	

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

Committee's Minute TUES. 28 MAR 1911

Assigned ✠LMC 3.11

MACHINERY CERTIFICATE WRITTEN.