Rpt. 4.

REPORT ON MACHINERY.

No. 22797

Port of Hull

Received at London Office FRI. 29 JUL 1910

No. in Reg. Book. Survey held at Hull & Goole Date, first Survey June 21/09 Last Survey 23rd July 1910 (Number of Visits 62.)

Supp. on the Steel Sc. Sr. Thames Tons Gross 403 Net 174

Master Built at Goole By whom built Goole S.B. & R. Coy When built 1910

Engines made at Hull By whom made } Messrs when made 1910

Boilers made at Hull By whom made } Earles Co Ld when made 1910

Registered Horse Power Owners E. P. Hutchinson Port belonging to Hull

Nom. Horse Power as per Section 28 68 ✓ Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted No

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

Dia. of Cylinders 12½" ~ 20" ~ 33" Length of Stroke 24" Revs. per minute 120 Dia. of Screw shaft as per rule 7·65" as fitted 8" ✓ Material of screw shaft Steel

Is the screw shaft fitted with a continuous liner the whole length of the stern tube No ✓ 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 32"

~~Dia. of Tunnel shaft as per rule / as fitted~~ Dia. of Crank shaft journals as per rule 6·6" as fitted 6·75" Dia. of Crank pin 6·75" Size of Crank webs 13½" × 4⅜" Dia. of thrust shaft under collars 6·75" Dia. of screw 9'~3" Pitch of Screw 10'~3" No. of Blades 4 State whether moveable No Total surface 28 □ft

No. of Feed pumps One Diameter of ditto 2½" Stroke 10" ~~Can one be overhauled while the other is at work~~

No. of Bilge pumps One Diameter of ditto 2½" Stroke 10" ~~Can one be overhauled while the other is at work~~

No. of Donkey Engines One Sizes of Pumps 7½" × 5" × 6" No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room Two 2½" One 3½" In Holds, &c. Two 2½" fore hold, One 2½" N°1 tank, One 2½" N°2 tank, One 2½" fore peak.

No. of Bilge Injections 1 sizes 3½" Connected to condenser, or to circulating pump pump Is a separate Donkey Suction fitted in Engine room & size Yes 2½"

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 None ✓ How are they protected —

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 21·6·10 of Stern Tube 21·6·10 Screw shaft and Propeller 21·6·10

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 Co Westphalia

Total Heating Surface of Boilers 1200 □ft Is Forced Draft fitted No No. and Description of Boilers One cyl. Multi Single Ended.

Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 21·3·10 No. of Certificate 1737

~~Can each boiler be worked separately~~ Area of fire grate in each boiler 33 □ft No. and Description of Safety Valves to each boiler Two Spring 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 9" ~~Mean~~ Int. dia. of boilers 12'~3" Length 10'~0" Material of shell plates Steel

Thickness 1 1/32" Range of tensile strength tons 28·32 Are the shell plates welded or flanged No Descrip. of riveting: cir. seams L.D.R. long. seams D.B.S.J.R Diameter of rivet holes in long. seams 1 1/16" Pitch of rivets 4" ~~Lap of plates or~~ width of butt straps 15¾"

Per centages of strength of longitudinal joint rivets 91·5 plate 84·8 Working pressure of shell by rules 183 lbs Size of manhole in ~~shell~~ End Plate 16" × 12"

Size of compensating ring End Pl Flgd No. and Description of Furnaces in ~~each~~ boiler Two plain Material Steel Outside diameter 41"

Length of plain part top 6'~5⅛" bottom — Thickness of plates crown 49/64" bottom — Description of longitudinal joint Welded. No. of strengthening rings None

Working pressure of furnace by the rules 186 lbs Combustion chamber plates: Material Steel Thickness: Sides 11/16" Back 11/16" Top 11/16" Bottom 11/16"

Pitch of stays to ditto: Sides 8¾" × 10" Back 9" × 10" Top 8¾" × 10" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 180 lbs

Material of stays Steel Diameter at smallest part Margin 1¾" Area supported by each stay 105·75 □" Working pressure by rules 204 lbs End plates in steam space:

Material Steel Thickness 13/16" Pitch of stays 16½" × 17½" How are stays secured D.N. Working pressure by rules 185 lbs Material of stays Steel

Diameter at smallest part 2 9/16" Area supported by each stay 288·75 □" Working pressure by rules 186 lbs Material of Front plates at bottom Steel

Thickness ⅞" Material of Lower back plate Steel Thickness 27/32" Greatest pitch of stays 13½" × 9" Working pressure of plate by rules 186 lbs

Diameter of tubes 3½" Pitch of tubes 5⅛" × 5" Material of tube plates Steel Thickness: Front ⅞" Back ⅞" Mean pitch of stays 10⅛"

Pitch across wide water spaces 13½" Working pressures by rules 182 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 7½" — 1¾" Length as per rule 2'~6 25/32" Distance apart 8¾" Number and pitch of stays in each Two 10"

Working pressure by rules 187 lbs ~~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 —

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 Safe

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 Stayed by

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

SPARE GEAR. State the articles supplied :— Two each top and bottom end connecting rod bolts and nuts, two main bearing bolts and nuts, one set coupling bolts and nuts, one set each, air circulating, feed and bilge pump valves, and a quantity of assorted bolts nuts etc.

The foregoing is a correct description,

F. J. Dalethorpe Manufacturer.

SECRETARY.

Dates of Survey while building — During progress of work in shops— 1909:- Jun 21. July 7. 15. 20. 30. Aug 11. 25. 27. Sep. 1. 9. 14. 15. 16. 22. 29. Oct. 7. 9. 16. 21. 26

During erection on board vessel — Nov 2. 5. Dec 11. 16. 22. 24. 30. 1910:- Jan 5. 8. 14. 18. 20. 25. 27. Feb. 3. 10. 17. 23. 26. Mar. 2. 7. 9. 14. 16. 21. Jun 8. 13. 17. 18. 20. 21. 22. 24. 25. 28. 30. Jul 14. 15. 21. 23.

Total No. of visits 62

Is the approved plan of main boiler forwarded herewith Yes

" " " ~~donkey~~ " " "

Dates of Examination of principal parts—Cylinders 14.9.09 Slides 30.10.09 Covers 30.10.09 Pistons 25.8.09 Rods 7.10.09

Connecting rods 29.9.09 Crank shaft 22.9.09 Thrust shaft 13.6.10 ~~Tunnel shafts~~ Screw shaft 20.6.10 Propeller 20.6.10

Stern tube 20.6.10 Steam pipes tested 25.6.10 Engine and boiler seatings 21.6.10 Engines holding down bolts 28.6.10

Completion of pumping arrangements 15.7.10 Boilers fixed 28.6.10 Engines tried under steam 30.6.10

Main boiler safety valves adjusted 30.6.10 Thickness of adjusting washers 5/16" 5/16"

Material of Crank shaft Steel Identification Mark on Do. 2308 ATG Material of Thrust shaft Steel Identification Mark on Do. 96 W.D.H

~~Material of Tunnel shafts~~ ~~Identification Marks on Do.~~ Material of Screw shafts Steel Identification Marks on Do. 96 W.D.H

Material of Steam Pipes Solid drawn Copper Test pressure 400 lbs per sq. inch

General Remarks (State quality of workmanship, opinions as to class, &c. The engines and boiler of this vessel have been constructed under special survey in accordance with the Rules, the materials and workmanship are good. The boiler tested by hydraulic pressure, and with the engines secured on board, they are now in good order and safe working condition and respectfully submitted as being eligible in my opinion to be classed with the notation of ✠ L.M.C. 7.10. in the Register Book.

It is submitted that this vessel is eligible for THE RECORD, ✠LMC 7.10.

The amount of Entry Fee.. £ 1 : : When applied for. 28-7-1910

Special .. .. £ 10 . 4 : :

Donkey Boiler Fee .. .. £ : :

Travelling Expenses (if any) £ : 9 : 6 When received, 11-8-1910

12.8

James Barclay

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

Committee's Minute

WED. 3 AUG 1910

Assigned

✠LMC 7.10

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

Certificate (if required) to be sent to Hull

Form No. 1A.

MACHINERY CERTIFICATE