

REPORT ON MACHINERY.

No. 61042

Received at London Office

TUE. SEP. 19. 1911

Date of writing Report 26th Aug 1911 When handed in at Local Office 30th Aug 1911 Port of NEWCASTLE ON TYNE

No. in Survey held at South Shields Date, First Survey 20th Apr 1911 Last Survey 29th Aug. 1911

Reg. Book. S/S "Irevalgan" (Number of Visits 21)

Master John Readhead & Sons Built at South Shields By whom built John Readhead & Sons When built 1911

Engines made at South Shields By whom made John Readhead & Sons when made 1911

Boilers made at South Shields By whom made John Readhead & Sons when made 1911

Registered Horse Power 385 Owners E. Hain & Sons Port belonging to St. Ives

Tom. Horse Power as per Section 28 385 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted No

ENGINES, &c.—Description of Engines Triple Expⁿ Surface Cond^r No. of Cylinders 3 No. of Cranks 3

Dia. of Cylinders 26" - 42" - 69" Length of Stroke 48" Revs. per minute 70 Dia. of Screw shaft 14 1/2" 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 Yes

Is 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 4'-10"

Dia. of Tunnel shaft 12.97" Dia. of Crank shaft journals 13.61" Dia. of Crank pin 13 3/4" Size of Crank webs 9x18" Dia. of thrust shaft under collars 14 1/2" Dia. of screw 17'-6" Pitch of Screw 16'-6" / 18'-6" No. of Blades 4 State whether moveable No Total surface 87 sq ft

No. of Feed pumps 2 Diameter of ditto 3 1/2" Stroke 24" Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 4 3/8" Stroke 24" Can one be overhauled while the other is at work Yes

No. of Donkey Engines 2 Sizes of Pumps 13 1/2 x 9 x 13" + 7 1/2 x 5 x 6" No. and size of Suctions connected to both Bilge and Donkey pumps Two in each hold. Port 3 1/2" Star 3 1/2"

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

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

How are they protected None

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 19-7-11 of Stern Tube 21-7-11 Screw shaft and Propeller 2-8-11

Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Top platform

MATERIALS, &c.—(Letter for record S.S. Manufacturers of Steel John Spencers & Sons Ltd.

Total Heating Surface of Boilers 6330 sq ft Is Forced Draft fitted No No. and Description of Boilers Two single Multi: steel

Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 17-7-11 No. of Certificate 8164

Can each boiler be worked separately Yes Area of fire grate in each boiler 66 sq ft No. and Description of Safety Valves to each boiler Two spring loaded Area of each valve 4.06 sq in 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 2'-8" Mean dia. of boilers 17'-1 3/8" Length 11'-6" Material of shell plates Steel

Thickness 1 3/8" Range of tensile strength 28/32 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams D.R. Lap.

Long. seams D.R. Butt Diameter of rivet holes in long. seams 1 3/8" Pitch of rivets 9 3/32" Lap of plates or width of butt straps 1'-9 3/4"

Percentage of strength of longitudinal joint 85.38% Working pressure of shell by rules 182 lbs Size of manhole in shell 12" x 16"

Thickness of compensating ring 7" x 1 3/8" No. and Description of Furnaces in each boiler 3- Morrison Material Steel Outside diameter 4'-3"

Length of plain part 19 1/32" Thickness of plates 19 1/32" Description of longitudinal joint weld No. of strengthening rings Yes

Working pressure of furnace by the rules 185 lbs Combustion chamber plates: Material Steel Thickness: Sides 23/32" Back 23/32" Top 23/32" Bottom 1"

Thickness of stays to ditto: Sides 10x9 1/2" Back 9 1/2 x 9 1/2" Top 10x9" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 192 lbs

Material of stays Iron Diameter at smallest part 2.31 sq in Area supported by each stay 92.5 sq in Working pressure by rules 187 lbs End plates in steam space: Material Steel Thickness 1 7/16" Pitch of stays 21" x 25" How are stays secured D. Nuts + W. Working pressure by rules 185 lbs Material of stays Steel

Area at smallest part 9.82 sq in Area supported by each stay 525 sq in Working pressure by rules 194 lbs Material of Front plates at bottom Steel

Thickness 7/8" Material of Lower back plate Steel Thickness 1" Greatest pitch of stays 16" x 9 1/2" Working pressure of plate by rules 211 lbs

Diameter of tubes 3 1/2" Pitch of tubes 4 3/4 x 4 3/4" Material of tube plates Steel Thickness: Front 7/8" Back 7/8" Mean pitch of stays 9 1/2"

Thickness across wide water spaces 14" Working pressures by rules 244 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 8 1/2" x 2" Length as per rule 30 1/2" Distance apart 10" Number and pitch of stays in each Two - 9"

Working pressure by rules 247 lbs Superheater or Steam chest; how connected to boiler None Can the superheater be shut off and the boiler worked separately Yes Diameter Yes Length Yes Thickness of shell plates Yes Material Yes Description of longitudinal joint Yes Diam. of rivets Yes Pitch of rivets Yes Working pressure of shell by rules Yes Diameter of flue Yes Material of flue plates Yes Thickness Yes

Stiffened with rings Yes Distance between rings Yes Working pressure by rules Yes End plates: Thickness Yes How stayed Yes

Working pressure of end plates Yes Area of safety valves to superheater Yes Are they fitted with easing gear Yes

Lloyd's Register Foundation
W 398 - 0152

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 end bolts + nuts; two bottom end bolts + nuts; two main bearing bolts; one set coupling bolts; 1/3 crank shaft; spare prop + prop shaft; one set each of feed, bilge, air + cit pump valves; assorted bolts + nuts + iron of various sizes.

The foregoing is a correct description,
John Keach Manufacturer.

Dates of Survey while building: During progress of work in shops - - - - - 1911
 Apr. 20. 25. 28. May. 31. Jun. 9. 14. 19. 24. 30. Jul. 4. 6. 10. 11. 14. 17. 19. 21. 28. 31
 During erection on board vessel - - - - -
 Aug. 2. 4. 8. 9. 11. 14. 17. 18. 23. 28. 29
 Total No. of visits 31

Is the approved plan of main boiler forwarded herewith Yes
 " " " donkey " " " Yes

Dates of Examination of principal parts—Cylinders 9-6-11 Slides 9-6-11 Covers 19-6-11 Pistons 14-6-11 Rods 14-6-11
 Connecting rods 14-6-11 Crank shaft 14-6-11 Thrust shaft 10-7-11 Tunnel shafts 9-6-11 Screw shaft 17-7-11 Propeller 11-7-11
 Stern tube 17-7-11 Steam pipes tested 11-8-11 Engine and boiler seatings 19-7-11 Engines holding down bolts 17-8-11
 Completion of pumping arrangements 18-8-11 Boilers fixed 14-8-11 Engines tried under steam 18-8-11
 Main boiler safety valves adjusted 18-8-11 Thickness of adjusting washers Star^d Bl. S 7/16 P 7/16 Port Bl. S 3/8 P 7/16
 Material of Crank shaft Steel Identification Mark on Do. 233-4 M.B. 5-11 Material of Thrust shaft Steel Identification Mark on Do. 169 J.H. M.B. 4-11
 Material of Tunnel shafts Steel Identification Marks on Do. 4233 J.H. Material of Screw shafts Iron Identification Marks on Do. 4233 J.H.
 Material of Steam Pipes Solid Drawn Copper 4 W.G. Test pressure 360 lbs per sq in

General Remarks (State quality of workmanship, opinions as to class, &c. The engines & boilers of this vessel have been constructed under special survey, the materials & workmanship being sound & good. The main engines & auxiliary machinery have been tried under steam & the safety valves of the main & donkey boilers adjusted to their working pressures. The machinery is in good order & a safe working condition, & eligible in my opinion to have the record + L.M.C. 8-11, in the Register Book.

It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 8-11

The amount of Entry Fee .. £ 3 : 0 : 0 When applied for, SEP 18 1911
 Special £ 39 : 5 : 0
 Donkey Boiler Fee .. £ 2 : 2 : 0 When received, 21-9-1911
 Travelling Expenses (if any) £ : :
 Committee's Minute

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

Assigned
 + L.M.C. 8-11
 FRI. SEP. 22. 1911



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.)

Rpt. 5a.
 Date of writing Reg. No. in Surve Reg. Book. Sup. 19 on the Master Engines made a Boilers made at Registered Hors MULTITUD (Letter for reco Boilers One No. of Certifica safety valves to Are they fitted Smallest distanc Material of she Descrip. of riv Lap of plates rules 97 lb boiler Two Description of l plates. Materi Top 10" X 10" smallest part Pitch of stays Area supported Lower back pla Pitch of tubes water spaces girder at cent Working pressu separately holes ✓ P If stiffened with Working press GENERAL - struct & good safety of 90 Survey Fe Travelling Assig