No. 9026

REPORT ON MACHINERY.

Port of West Hartlepool

MON. 13 MAR 1893

Received at London Office 18

No. in Reg. Book. Survey held at West Hartlepool Date, first Survey 5th April 1892 Last Survey 2 March 1893 (Number of Visits 59)

on the Screw Steamer "CLAM" Tons Gross 3551.92 Net 2310.51

Master W. Daniel Built at West Hartlepool By whom built W. Gray & Co (Ltd) When built 1893

Engines made at West Hartlepool By whom made The Central Marine Eng Works W. Gray & Co when made 1893

Boilers made at West Hartlepool By whom made The Central Marine Eng Works W. Gray & Co when made 1893

Registered Horse Power 299 Owners Marcus Samuel & Co Port belonging to London

Nom. Horse Power as per Section 28 324

ENGINES, &c.— Description of Engines Triple Exp, Inverted, Direct acting, Surface Conden. & No. of Cylinders 3 (3 Cranks)

Diameter of Cylinders 25½" – 40½" – 67" Length of Stroke 45" Revolutions per minute 65 Diameter of Screw shaft as per rule 11.995" as fitted 12.5"

Diameter of Tunnel shaft as per rule 11.395" as fitted 12.5" Diameter of Crank shaft journals 12½" Diameter of Crank pin 12½" Size of Crank webs 17" × 7⅝"

Diameter of screw 17'-0" Pitch of screw Differential No. of blades 4 State whether moveable No Total surface 88 sq ft

No. of Feed pumps 2 Diameter of ditto 3¼" Stroke 28" Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 4" Stroke 28" Can one be overhauled while the other is at work Yes

No. of Donkey Engines 2 Sizes of Pumps FEED — 4"Dia 6" STROKE (DUPLEX) BALLAST — 10"DIA 9" STROKE No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Five. (2) 3½", (2) 3", (1) 5" In Holds, &c Fore Peak (1) 3", Fore Hold (1) 3", Connected to Small duplex donkey under Forecastle. In each bil Tank one 7" Suction. Aft Peak (1) 4".

No. of bilge injections One sizes 5" dia Connected ~~to condenser, or~~ to circulating pump Yes Is a separate donkey suction fitted in Engine room & size Yes. 3½ dia

...ll 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

...nections with the sea direct on the skin of the ship Yes Are they Valves or Cocks both

...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

...ted 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

...carried through the bunkers None How are they protected ✓

...ks, valves, and pumps in connection with the machinery and all boiler mountings accessible at all times Yes

...on pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges Yes

...ern tube, propeller, screw shaft, and all connections examined in dry dock before Launch Is the screw shaft tunnel watertight None

Is it fitted with a watertight door ✓ worked from ✓

BOILERS, &c.— (Letter for record (S)) Total Heating Surface of Boilers 5202 sq ft

No. and Description of Boilers 3 Mult. byt, Single Ended. Working Pressure 160 lbs Tested by hydraulic pressure to 320 lbs

Date of test 18.11.92 Can each boiler be worked separately Yes Area of fire grate in each boiler 36 sq ft No. and Description of safety valves to each boiler 2. Spring direct Area of each valve 7.07 □" Pressure to which they are adjusted Blow 165 lbs Are they fitted with easing gear Yes Smallest distance between boilers ~~or uptakes~~ and bunkers ~~or woodwork~~ about 12" Mean diameter of boilers 13'-9"

Length 10'-0" Material of shell plates Steel Thickness 13/16" Description of riveting: circum. seams Shell Ends flanged Centre, Lap treble long. seams Tbs treble

Diameter of rivet holes in long. seams 17/32" Pitch of rivets 8½" Lap of plates ¾ width of butt straps 9½" and 18⅝"

Per centages of strength of longitudinal joint rivets 85.9 % plate 88.6 % Working pressure of shell by rules 160.2 lbs Size of manhole in shell 16" × 12"

Size of compensating ring 8" × 1¼" thick No. and Description of Furnaces in each boiler 3. Ribbed Material Steel Outside diameter 37½"

Length of plain part top 9" bottom 9" Thickness of plates crown 15/32" bottom 15/32" Description of longitudinal joint welded No. of strengthening rings 8

Working pressure of furnace by the rules 170.1 Combustion chamber plates: Material Steel Thickness: Sides 19/32" Back 19/32" Top 19/32" Bottom ⅜"

Pitch of stays to ditto: Sides 8⅝" × 8⅝" Back 8⅝" × 8½" Top 8½" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 163.7

Material of stays Steel Diameter at smallest part 1.3837" Area supported by each stay 74.39 □" Working pressure by rules 161.3 End plates in steam space: Material Steel Thickness 1⅛" Pitch of stays 20" × 16¼" How are stays secured double nuts & riveted washers Working pressure by rules 162.0 161.2 Material of stays Steel

Diameter at smallest part 2.786 2.661 Area supported by each stay 325.0 □" 304.6 □" Working pressure by rules 169.0 164.3 Material of Front plates at bottom Steel

Thickness ¾" Material of Lower back plate Steel Thickness ⅞" Greatest pitch of stays 12½" Working pressure of plate by rules 169.3

Diameter of tubes 3¼" Pitch of tubes 4½" × 4½" Material of tube plates Steel Thickness: Front 15/16" Back ⅝" Mean pitch of stays 9" × 9"

Pitch across wide water spaces 14¼" Working pressures by rules 166.2 – 172.8 Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 7½" 2 plates ⅝" Length as per rule 23" Distance apart 8½" Number and pitch of Stays in each One. 8½"

Working pressure by rules 163.7 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 ...les ✓ Pitch of rivets ✓ Working pressure of shell by rules ✓ Diameter of flue ✓ Material of flue plates ✓ Thickness ✓

...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 ✓

Two

2 DONKEY BOILERS Description Steel, Vertical, Cyl with 4 Cross Tubes

Made at West Hartlepool By whom made W Gray & Co (Ltd) When made 19.12.92 Where fixed Main Deck

Working pressure 100 lbs tested by hydraulic pressure to 200 lbs No. of Certificate 2344 Fire grate area 20 sq ft Description of safety valves Spring direct

No. of safety valves One Area of each 11.79 Pressure to which they are adjusted 155 lbs per sq in If fitted with easing gear Yes If steam from main boilers can enter the donkey boiler No Diameter of donkey boiler 6'-8" Length 13'-0" Material of shell plates Steel Thickness 17/32"

Description of riveting long. seams double rivetted lap Diameter of rivet holes 7/8" Whether punched ~~or drilled~~ & annealed Pitch of rivets 2 3/16"

Lap of plating 4 3/4" Per centage of strength of joint Rivets 68.4 Plates 68.9 Thickness of shell crown plates 5/8" Radius of do. 8'-6" No. of Stays to do. 6

Dia. of stays. 2" 7/8 Diameter of furnace Top 4'-3½" Bottom 5'-8½" Length of furnace 6'-0" Thickness of furnace plates 11/16" Description of joint Single rivetted lap Thickness of furnace crown plates 11/16" Stayed by same as shell Crown Working pressure of shell by rules 100 lbs

Working pressure of furnace by rules 100 lbs Diameter of uptake 15" Thickness of uptake plates 3/8" Thickness of water tubes 3/8"

SPARE GEAR. State the articles supplied :—One propeller, One propeller Shaft, One single throw Crank, One set Main Bearing Bolts & nuts, One Set Connecting Rod Bolts & nuts, (top & bot), 2 sets Coupling Bolts & nuts, One Set Feed & Bilge pump Valves, One set Piston Springs, Bolts and Nuts (assorted), Iron (assorted).

The foregoing is a correct description,

FOR THE CENTRAL MARINE ENGINE WORKS
J. W. Gray & Co.

Manufacturers of Main Engines & Boilers

General Remarks (State quality of workmanship, opinions as to class, &c. The Main Steam pipes have been tested by hydraulic pressure to 320 lbs per sq inch and found tight & sound.

Muddis patent Evaporator fitted on board it has been tested by hydraulic pressure to 50 lbs per sq inch & found tight.

Two sets of Engines, Worthington duplex, have been fitted on the Main Deck amidships for the purpose of discharging Petroleum, Cylinders 10" dia 12" Stroke, Pump 14" dia

The Engines & Boilers of this vessel have been constructed under Special Survey, of a good quality of workmanship, they have been tried under steam, Safety Valves adjusted and found to work well, and are now in a safe working Condition & eligible in my opinion to have ✠ L.M.C. 3.93 Recorded in the Register of this Society.

An Electric Light Installation on the double wire system throughout, has been fitted on board, by Messrs Clarke Chapman & Co, Gateshead. The Engine & Dynamo are placed on the starting platform, Starbd side of Vessel. Engine Coupled direct to Dynamo

The particulars of the above Installation are appended & accompanying Report.

It is submitted that this vessel is eligible for THE RECORD ✠LMC 3-93

Ind 13 3 93

Certificate (~~if~~ required) to be sent to

The amount of Entry Fee..	£ 2 : 0 :	When applied for,	11 · 3 18 93
Special	£ 36 4 :		
Donkey Boiler Fee	£ 2 : 2 :	When received,	11 3 18 93
Travelling Expenses (if any)	£ : :		

Thomas Blacke

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

Committee's Minute TUES. 14 MAR 1893

MACHINERY CERTIFICATE WRITTEN.

✠LMC 3,93

Assigned

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