

REPORT ON MACHINERY.

Port of *Belfast*

WED. 19 SEP 1894

Received at London Office

No. in Survey held at *Belfast* Date, first Survey *Febr. 22nd* Last Survey *Sept 13th* 1894

Reg. Book.

(Number of Visits *38*)on the *Steel screw steamer "Ching Wo"*Tons *Gross 3883*
*Net 2517*Master *W. N. Shaw* Built at *Belfast* By whom built *Workman Clark & Co. Ltd* When built *1894*Engines made at *Belfast* By whom made *Workman Clark & Co. Ltd* when made *1894*Boilers made at *Belfast* By whom made *Workman Clark & Co. Ltd* when made *1894*Registered Horse Power *500* Owners *China Mutual Steam. Nav. Co. Ltd* Port belonging to *London*Nom. Horse Power as per Section 28 *345*

ENGINES, &c.— Description of Engines *Triple Expansion* No. of Cylinders *Three*

Diameter of Cylinders *26; 42; 71* Length of Stroke *48* Revolutions per minute *70* Diameter of Screw shaft *as per rule 13 ins.*
as fitted 12.35 Diameter of Crank shaft journals *13 1/2* Diameter of Crank pin *13 1/2* Size of Crank webs *9 1/4 x 18 3/4*
as fitted 12 3/4

Diameter of screw *17" 6"* Pitch of screw *19" 0"* No. of blades *4* State whether moveable *yes* Total surface *84"*

No. of Feed pumps *2* Diameter of ditto *4* Stroke *27"* Can one be overhauled while the other is at work *yes*

No. of Bilge pumps *2* Diameter of ditto *4 1/2* Stroke *27"* Can one be overhauled while the other is at work *yes*

No. of Donkey Engines *Three* Sizes of Pumps *Woods duplex 7 x 9 x 21 Feed*
Baron 4 1/2 x 6 x 6 E.R. & Co. No. and size of Suctions connected to both Bilge and Donkey pumps
7 x 9 x 9 Ballast

In Engine Room *Three 3 1/2"* In Holds, &c. *No 1 hold, two 3 1/2" No 2 hold, two 3 1/2"*

No 3 hold, two 3 1/2" No 4 hold, 3 1/2" after well suction.

No. of bilge injections *1* sizes *7 1/4"* Connected to condenser, or to circulating pump *Ex. p.* 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 *none*

Are all connections with the sea direct on the skin of the ship *yes* Are they Valves or Cocks *Larger valves. Smaller, cocks.*

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*

When were stern tube, propeller, screw shaft, and all connections examined in dry dock *before launch* Is the screw shaft tunnel watertight *yes*

Is it fitted with a watertight door *yes* worked from *upper engine platform.*

OILERS, &c.— (Letter for record *S*) Total Heating Surface of Boilers *5112*

No. and Description of Boilers *Two single ended* Working Pressure *180 lb* Tested by hydraulic pressure to *360*

Date of test *31-7-94* Can each boiler be worked separately *yes* Area of fire grate in each boiler *61.8"* No. and Description of safety valves to each boiler *Two Adam's patent* Area of each valve *12.56"* Pressure to which they are adjusted *185* Are they fitted with easing gear *yes* Smallest distance between boilers or uptakes and bunkers or woodwork *9 ins* Mean diameter of boilers *15' 0"*

Length *11' 6"* Material of shell plates *steel* Thickness *1 7/16"* Description of riveting: circum. seams *ends double middle triple long. seams double straps*

Diameter of rivet holes in long. seams *1 1/2"* Pitch of rivets *10"* Lap of plates or width of butt straps *21 3/4 x 1 1/8*

Per centages of strength of longitudinal joint *91.6* Working pressure of shell by rules *198* Size of manhole in shell *16 x 12*
plate 85.0

Size of compensating ring *2' 4" x 2' 0" x 1 7/16"* No. and Description of Furnaces in each boiler *3 "Morison"* Material *steel* Outside diameter *49"*

Length of plain part *top 5' 8" bottom 5' 8"* Thickness of plates *5 1/8"* Description of longitudinal joint *welded* No. of strengthening rings *✓*

Working pressure of furnace by the rules *205* Combustion chamber plates: Material *steel* Thickness: Sides *9/16"* Back *9/16"* Top *9/16"* Bottom *3/4"*

Pitch of stays to ditto: Sides *7 3/4"* Back *7 3/4"* Top *7 3/4"* If stays are fitted with nuts or riveted heads *nuts inside* Working pressure by rules *182*

Material of stays *steel* Diameter at smallest part *1 3/8"* Area supported by each stay *60"* Working pressure by rules *197* End plates in steam space: *15 3/4" x 16"*

Material *steel* Thickness *1 1/8"* Pitch of stays *7 3/4"* How are stays secured *doub. nuts & washers* Working pressure by rules *234* Material of stays *steel*

Diameter at smallest part *2 1/2"* Area supported by each stay *256"* Working pressure by rules *177* Material of Front plates at bottom *steel*

Thickness *7/8"* Material of Lower back plate *steel* Thickness *1 1/16"* Greatest pitch of stays *as appr.* Working pressure of plate by rules *180*

Diameter of tubes *2 1/2"* Pitch of tubes *3 5/8" x 3 7/8"* Material of tube plates *steel* Thickness: Front *13/16"* Back *3/4"* Mean pitch of stays *7 1/2"*

Pitch across wide water spaces *13 1/2"* Working pressures by rules *180* Girders to Chamber tops: Material *steel* Depth and thickness of girder at centre *double 10" x 7 1/8"* Length as per rule *27"* Distance apart *7 3/4"* Number and pitch of Stays in each *two at 7 3/4"*

Working pressure by rules *180* 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 *✓*

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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DONKEY BOILER— Description Horizontal multitubular. Two flues.
Made at Belfast By whom made Workman Clark & Co. Ltd. When made 1894 Where fixed On deck, amidships
Working pressure 180 tested by hydraulic pressure to 360 No. of Certificate 194 Fire grate area 24 3/4 Description of safety valves Adams patent
No. of safety valves two Area of each 3.14 Pressure to which they are adjusted 180 If fitted with easing gear yes If steam from main boilers can enter the donkey boiler no Diameter of donkey boiler 9' 0" Length 8' 0" Material of shell plates Steel Thickness 15/16
Description of riveting long seams double butt straps Diameter of rivet holes 1" Whether punched or drilled drilled Pitch of rivets 7 1/2
Straps 15' x 23/32 Per centage of strength of joint Rivets 8.5:9 Thickness of shell end plates 29 x 3/4 Radius of do. Pitch of stays to do. 13 1/2 in
Dia. of stays 2 1/4 in Area 3.43 Diameter of furnace Top 34" Bottom Length of furnace 5' 9" Thickness of furnace plates 19/32 Description of joint double straps Thickness of furnace crown plates 9/16 Stayed by 1 1/2" stays 7 3/4" pitch Working pressure of shell by rules 206
Working pressure of furnace by rules 181 Diameter of uptake tubes 3 1/4 Thickness of uptake plates 7mm 29/32 Pitch stay Thickness of water tubes 8" x 8 1/2"

SPARE GEAR. State the articles supplied:— Propeller shaft. 1/2 crank shaft. Thrust shaft. 2 blades.
2 top end & 2 bot. end connecting rod bolts. 2 main bearing bolts. 2 ecc. shp. bolts. 6 coupling bolts.
6 propeller studs. Air & circ. pump rod. Pair crank pin braces. Pair top end braces.
2 slide valve spindles. 2 Fed & 2 bilge pump valves. 2 Cir pump guards & studs. 2 Air p. ditto.
The foregoing is a correct description, 15 Condenser tubes. Assorted iron bolts & nuts etc.
WORKMAN, CLARK & CO., LIMITED. Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c.)

The machinery has been constructed under special survey throughout, & the workmanship is good.

On the 13th inst the vessel ran a satisfactory trial & the safety valves were found correctly adjusted.

The boilers are fitted with Howden's arrangement for forced draught, the fan being driven by Chandler's patent vertical engines, one engine being in reserve.

M^o Coll & Maxton's patent short steam tube is fitted.

The electric lighting installation is by Messrs Paterson & Cooper. A report on the usual form will be forwarded.

Photoprints of the main & donkey boilers & engine room pumping plan, and a tracing of the pipe arrangements in the holds are forwarded with this report. It is requested that these be returned for reference in dealing with the sister vessel, the S.S. "Oopack" (Yard No 112).

The forging certificates for the shafting are also enclosed.

The machinery in my opinion renders the vessel eligible for the notification + L.M.C. 9.94 in the Register Book.

Certificate (if required) to be sent to

The amount of Entry Fee. . . £ 3 : 0 : When applied for,
Special £ 37 : 5 : 15.10.1894
Donkey Boiler Fee . . . £ : : When received,
Travelling Expenses (if any) £ : : 18.9.1894

Committee's Minute

Assigned

FRIDAY 21 SEP 1894

+ L.M.C. 9.94

It is submitted that
this vessel is eligible for
THE RECORD + L.M.C. 9.94
19-9-94

A. L. Jones

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



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