

REPORT ON MACHINERY.

Port of

Glasgow

No. in Survey held at

Glasgow

Date, first Survey

11 March

Last Survey

24 August 1895

Reg. Book.

on the

S. S. Penrhyn

Master

Built at

Bowling

By whom built

Scott & Sons

Engines made at

Glasgow

By whom made

Ross & Duncan

when made

1895

Boilers made at

Glasgow

By whom made

Ross & Duncan

when made

1895

Registered Horse Power

64

Owners

Anglo-Siam Shipping Co.

Port belonging to

Beaumaris

Nom. Horse Power as per Section 28

78 by the new rule.

ENGINES, &c.—

Description of Engines

Compound inverted directacting

No. of Cylinders

two

Diameter of Cylinders

18" and 40"

Length of Stroke

27"

Revolutions per minute

104

Diameter of Screw shaft

as per rule 7 1/2"

Diameter of Tunnel shaft

as per rule 7 1/4"

Diameter of Crank shaft journals

7 1/2"

Diameter of Crank pin

7 1/2"

Size of Crank webs

14" x 5 1/4"

Diameter of screw

9" 0 1/2

Pitch of screw

11" 7 1/2

No. of blades

4

State whether moveable

Solid

Total surface

30 sq ft

No. of Feed pumps

one

Diameter of ditto

3"

Stroke

13 1/2

Can one be overhauled while the other is at work

—

No. of Bilge pumps

one

Diameter of ditto

3"

Stroke

13 1/2

Can one be overhauled while the other is at work

—

No. of Donkey Engines

one and a half

Sizes of Pumps

8" x 4" x 6" duplex

No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room

Three

2 1/2"

In Holds, &c.

two 2 1/2"

No. of bilge injections

one

sizes

3"

Connected to condenser or to circulating pump

Is a separate donkey suction fitted in Engine room & size

2 1/2"

Are all the bilge suction pipes fitted with roses

yes

Are the roses in Engine room always accessible

yes

Are the spaces 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

two hold bilge suction pipes

How are they protected

Cased in under ceiling

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

before launching

When were stern tube, propeller, screw shaft, and all connections examined in dry dock

before launching

Is the screw shaft tunnel watertight

none

Is it fitted with a watertight door

—

worked from

OILERS, &c.—

(Letter for record S)

Total Heating Surface of Boilers

1257

No. and Description of Boilers

one

Cylindrical

Working Pressure

120

Tested by hydraulic pressure to

240

Date of test

1869

Can each boiler be worked separately

—

Area of fire grate in each boiler

38.3

No. and Description of safety valves to

each boiler

two spring loaded

Area of each valve

5.41

Pressure to which they are adjusted

125 lbs

Are they fitted

with easing gear

yes

Smallest distance between boilers or uptakes and bunkers or woodwork

stand clear

Mean diameter of boilers

150"

Length

9' 6"

Material of shell plates

Steel

Thickness

13/16"

Description of riveting: circum. seams

Lap. 2 knots long. seams

8 knots

4 knots

Diameter of rivet holes in long. seams

15/16"

Pitch of rivets

6"

Lap of plates or width of butt straps

14 1/2" x 5/8"

Per centages of strength of longitudinal joint

rivets 84.5

plate 84.4

Working pressure of shell by rules

124 lbs

Size of manhole in shell

15" x 11 1/2"

Size of compensating ring

6" x 13/16"

No. and Description of Furnaces in each boiler

two plain

Material

Steel

Outside diameter

47"

Length of plain part

top 6"

Thickness of plates

crown 2/32"

Description of longitudinal joint

weld

No. of strengthening rings

one

partial

Working pressure of furnace by the rules

123 lbs

Combustion chamber plates: Material

Steel

Thickness: Sides

1/2"

Back

1/2"

Top

1/2"

Bottom

9/16"

Pitch of stays to ditto: Sides

8"

Back

8"

Top

8"

If stays are fitted with nuts or riveted heads

nuts

Working pressure by rules

126 lbs

End plates in steam space:

Material of stays

Steel

Diameter at smallest part

1.07

Area supported by each stay

64 sq in

Working pressure by rules

129 lbs

Material of stays

Steel

Material

Steel

Thickness

7/8"

Pitch of stays

16 3/4"

How are stays secured

Double nut & washers

Working pressure by rules

123 lbs

Material of Front plates at bottom

Steel

Diameter at smallest part

3.77

Area supported by each stay

276 sq in

Working pressure by rules

123 lbs

Material of Lower back plate

Steel

Thickness

7/8"

Greatest pitch of stays

10 1/2"

Working pressure of plate by rules

122 lbs

Diameter of tubes

3 1/2"

Pitch of tubes

4 1/2" x 4 7/8"

Material of tube plates

Steel

Thickness: Front

1/16" x 1/2"

Back

1/16"

Mean pitch of stays

11 3/8"

Pitch across wide water spaces

14 1/2"

Working pressures by rules

150, 131 lbs

Girders to Chamber tops: Material

Iron

Depth and

thickness of girder at centre

6" x 2 1/4"

Length as per rule

25"

Distance apart

8"

Working pressure by rules

143"

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

Have stayed

Area of safety valves to superheater

Are they fitted with easing gear

Working pressure of end plates

—

—

—

—

—

—

—

—

DONKEY BOILER— Description *Vertical with two cross tubes*
 Made at *Motherwell* By whom made *J. Marshall & Co* When made *1895* Where fixed *Shakeloid*
 Working pressure *75 lbs* tested by hydraulic pressure to *150 lbs* No. of Certificate *3775* Fire grate area *7' 4"* Description of safety valves *Spring loaded*
 No. of safety valves *one* Area of each *3 1/4 sq in* Pressure to which they are adjusted *75 lbs* If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no* Diameter of donkey boiler *48"* Length *8' 0"* Material of shell plates *Steel* Thickness *3/8"*
 Description of riveting long. seams *Lap 2 Rivets* Diameter of rivet holes *3/4"* Whether punched or drilled *drilled* Pitch of rivets *2 3/16"*
 Lap of plating Per centage of strength of joint Rivets *72.5* Thickness of shell crown plates *1/2"* Radius of do. *48"* No. of Stays to do. *None except uptake*
 Dia. of stays. — Diameter of furnace Top *40"* Bottom *44"* Length of furnace *4' 0"* Thickness of furnace plates *7/16"* Description of joint *welded* Thickness of furnace crown plates *1/2"* Stayed by *Uptake & drilled* Working pressure of shell by rules *111 lbs*
 Working pressure of furnace by rules *83 3/4 lbs* Diameter of uptake *9"* Thickness of uptake plates *7/16"* Thickness of water tubes *3/8"*

SPARE GEAR. State the articles supplied:— *As required by the Rules.*

The foregoing is a correct description,
James Duncan Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c. *These engines and boilers have been built under the condition of Special Survey. They have been securely fitted on board and satisfactorily tested under steam. The material and workmanship is good. In my opinion this vessel is eligible for the record + L.M.C. 8.95*

It is submitted that the vessel is eligible for
THE RECORD + L.M.C. 8.95.

J.S.
2.9.95.

Certificate (if required) to be sent to *Glasgow*
 The amount of Entry Fee. . . £ *1 : 11 : 0* When applied for, *28/9/95*
 Special £ *9 : 12 : 0*
 Donkey Boiler Fee £ : : :
 Travelling Expenses (if any) £ : : :
 When received, *30/9/95*

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

Committee's Minute *TUES. 3 SEP 1895*
 Assigned *+ L.M.C. 8.95*