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LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

ENGINEER SURVEYOR'S REPORT ON MACHINERY.

ENGINES.

Rec 23/8/77

No. 4502
Port Glasgow
Report (if any) on Hull of Vessel.

Description *Compound Inverted Direct Acting*
 Made by *Messrs James & George Thomson*
 When 18 *77* At *Glasgow*
 Diameter of cylinder *28 & 30"* Length of stroke *36"*
 No. of revolutions per minute *40*
 Point of cut off *2/3*
 Diameter of screw shaft *9"*
 Diameter of crank shaft journals *9"*
 Diameter of screw, *or of paddle wheel* *12 ft*
 Pitch of screw *18 ft*
 No. of blades, *four* Total surface *41 ft²*
 No. of bilge pumps *two* and sizes *3" dia x 18" stroke*
 Do they pump from each compartment *Yes*

Are all the bilge suction pipes fitted with roses *Yes*
 No. of feed pumps *two* and sizes *4" dia x 18" stroke*
 What gauges are there attached to the engines and boilers... *Two Steam and one Compound*
 Description and size of Donkey Pumps... *Double acting 5 1/2 x 10" stroke*
 Where do they pump from... *from the sea bilge*
 No. of bilge injections *one* and sizes *2 1/2"*
 Are they connected to air, or circulating pumps *to circulating*
 Is there a hand pump in the engine room *Hand pump*
 Can it be worked by the main engines *from Deck leading into stokehold*
 Is there a deck hose of sufficient length to reach to any part of the vessel *Yes*

MAIN BOILERS.

Number *One* Description *Round Horizontal*
 Made by *James & George Thomson*
 When 18 *77* At *Glasgow*
 Working pressure *40 lbs*
 Tested by hydraulic pressure to *140 lbs*, Date *June 1877*
 Description of super-heating apparatus *Round Vertical with single tube*
 Can each boiler be worked separately *Yes*

Can the super-heater be shut off and the boilers worked separately *no*
 Description and area of safety valves on each boiler... *Two Direct Spring each 2 1/2" area*
 No. of square feet of fire-grate surface in each boiler *82 ft²*
 Are there separate blow off and brine cocks on each boiler, independent of those on the vessel's skin *Yes*
 Are all pipes, cocks, roses, and pumps in connection with the machinery accessible at all times... *Yes*

DONKEY BOILER.

Description *Flat Sided Horizontal*
 Where fixed *on Upper Deck*
 Working pressure *42 lbs*

Tested by hydraulic pressure to *84 lbs*, Date *June 1877*
 Description and area of safety valves *Two Direct Spring each 3 1/4" area*
 No. of square feet of fire grate *114 ft²*

PIPES, COCKS, AND CONNECTIONS.

Are all connections with the sea direct on the skin of the ship *Yes*
 Are they Kingston valves or common cocks... *Screw down Valves & Cocks*
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stoke hold plates... *The below openings under plates stokehold being surrounded by lead bunkers*
 Are the discharge pipes above or below the deep water line *below*
 Are they each fitted with a discharge valve on the plating of the vessel *Yes*

What pipes are carried through the bunkers *no*
 How are they protected *no*
 When were the stern tube, propeller, screw shaft, and all connections examined in dry dock *On Slip previous to being launched*
 Are the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilge *Yes*
 Is the screw shaft-tunnel water tight and fitted with a sluice door on bulkhead *Yes*

Pro: *James & Geo: Thomson* Manufacturer.
J Grant

I hereby certify that the whole of the above are correct particulars of the Machinery and Boilers of the Iron (and Wood) Screw (or Paddle) Steam Vessel *"Summerlee"* owned by *Water Neilson & Others* of the Port of *Glasgow* of *833* Tons Register, and *120* Registered Horse Power, and that they have been carefully inspected and examined by me at *Glasgow* and found to be at this date, viz., *August 16th 1877* in good order and safe working condition.

Amount of Fee for Survey *£ 6 : - : -* paid
 (Travelling Expenses, if any, £ *—*)

James Morrison
 Engineer Surveyor to Lloyd's Register of Shipping.

