

LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

ENGINEER SURVEYOR'S CERTIFICATE.

ENGINES.

Description *2 Cyl. Compound direct Acting Inverted* Are all the bilge suction pipes fitted with roses *Yes*
 Made by *Blackwood & Gordon Glasgow* What vacuum and steam gauges are there attached to the engines and boilers *1 Steam & 1 Vacuum attached to engine only*
 In the year *1845*
 Present condition *New*
 Diameter of cylinder *14" & 25"*
 Length of stroke *16"*
 No. of revolutions per minute *85*
 Point of cut off *2/3 of stroke*
 Paddle, or Screw *Yes*
 Nominal Horse Power *28*
 Diameter of screw, or of paddle wheel *8' 0"*
 Pitch of screw *11' 6"*
 No. of blades, *3* total surface *11.5 ft*
 No. of bilge pumps *1* and size *2 3/4"*
 Do they pump from each compartment *Only Engine Room*
 Is there provision made for pumping from the wings of the stoke hole *Yes*

Description and size of Donkey Engine... *Horizontal Double Acting 2 1/4" x 4 1/2" stroke*
 Will it feed the boilers, pump from the bilges, and pump on deck *Yes*
 Can it be driven by steam from a separate boiler *Yes*
 No. of bilge injections *1* and sizes *1 3/4" fitted to circulating injection*
 Are they fitted with non return valves *No*
 Is there a hand pump in the engine room *Yes*
 Can it be worked by the main engines *No*
 Is there a deck hose of sufficient length to reach to any part of the vessel *Yes*

CONNECTIONS ON HULL.

Are all connections with the sea direct on the skin of the ship *Cocks fitted on skin*
 Are they Kingston valves or common cocks *Common Cocks & Screw down valves*
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehole plates *Below off Cocks & Ash Cocks Cocks under stoke hole plates the others under E. R. platform*
 Are the discharge pipes above or below the deep water line *Circulating discharge & Air pump dis.*
 Are they each fitted with a discharge valve on the plating of the vessel *No Bilge discharge valve on plating which is fitted close to under side of deck*

Are any pipes carried through the bunkers *No*
 If so state how protected
 When was the stern tube, propellor, screw shaft, and all connections examined in dry dock *While being fitted*
 How are the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilge *Donkey Sea & Bilge suction has one cock common to both plus open at bottom with one port on side*
 Have the bilge suction non-return valves fitted or not *No (has a cock fitted)*

BOILERS.

Number *One*
 Description *Round Horizontal Multitubular with round upright steam receiver*
 Made by *Messrs Blackwood & Gordon*
 In the year *1845*
 Present condition *New*
 When last extensively repaired
 Working pressure *60 lbs*
 When tested by Hydraulic pressure *1st March 1845*
 To what pressure tested *Reported to be 120 lbs not presently personally*
 Any super-heating apparatus *No*
 Describe it
 Can each boiler be worked separately
 Is each boiler fitted with a separate steam gauge *Yes*

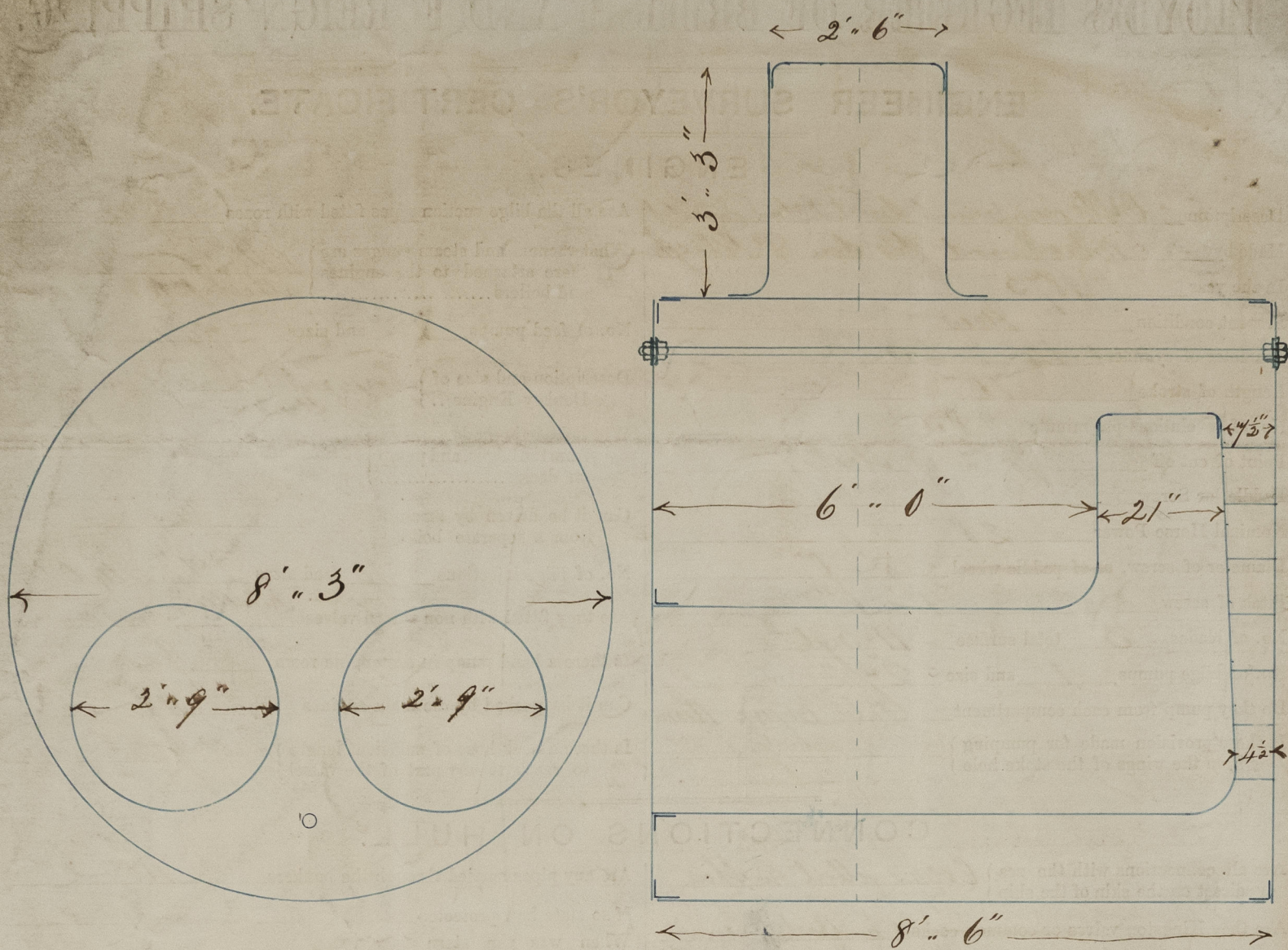
Can the super-heater be shut off and the boilers worked separately *See other side*
 No. of safety valves on each boiler *1 Valve*
 Description and area of each safety valve *Lever with weights, Area 15-9"*
 No. of square feet of fire-grate surface in each boiler *2 1/2 feet 6 ins*
 Is there a separate blow off and brine cock on each boiler, independent of those on the vessel's skin *Yes*
 Is the screw shaft tunnel water tight and fitted with a sluice door on bulkhead *No Tunnel tubular covering with hand holes for oiling. No opening in bulkhead*
 Are all pipes, cocks, and roses in connection with these boilers accessible to the engineer at all times *Those under stoke hole plates have hand holes & those under Engine Room platform have hatched coverings*

Blackwood & Gordon Manufacturer.

I hereby certify that the whole of the above Machinery and Boilers of the Iron (or Wood) Screw (or Paddle) Steam Vessel *Germander Sanz* owned by *H. W. Cruickshank Glasgow* of the Port of *Santander* of *109.20* Tons Register, and about *38* Nominal Horse Power, have been carefully inspected and examined by *me* at *Port Glasgow* and found to be at this date, viz., *April 14th 1845* in good order and safe working condition.

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

Sketches of Boiler



The shell plating is of best Clydesdale plate $\frac{9}{16}$ " thick single riveted bands, and double riveted butts, three plates in the round and three widths in length.

dome & tube plates $\frac{9}{16}$ " thick and the plates exposed to flame and flanged are $\frac{9}{16}$ " all of "Larnley"

Upper stays are $1\frac{3}{4}$ " dia = 2.405" area pitch $12 \times 12 = 8640$ lbs at 60 lbs pressure = 3555 lbs on sectional sq. in. of stay

Screwed stays in back $1\frac{3}{8}$ " dia = 1.484" area pitch 10×8 = 4800 lbs at 60 lbs pressure = 3235 lbs per sectional sq. in.

James Morrison

16/4/73
Has Mr. Parker any
remarks to make
on this Certificate?
J.M.



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Foundation