

# 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  
 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. No*  
 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 *Yes*  
 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 ..... } *slow 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 Discharge above*  
 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 Round Horizontal Multitubular*  
 Description } *with round upright steam receiver see other side*  
 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 present 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 } *27 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 stokehole plates have hand holes & those under Engine Room platform have hatched coverings.*

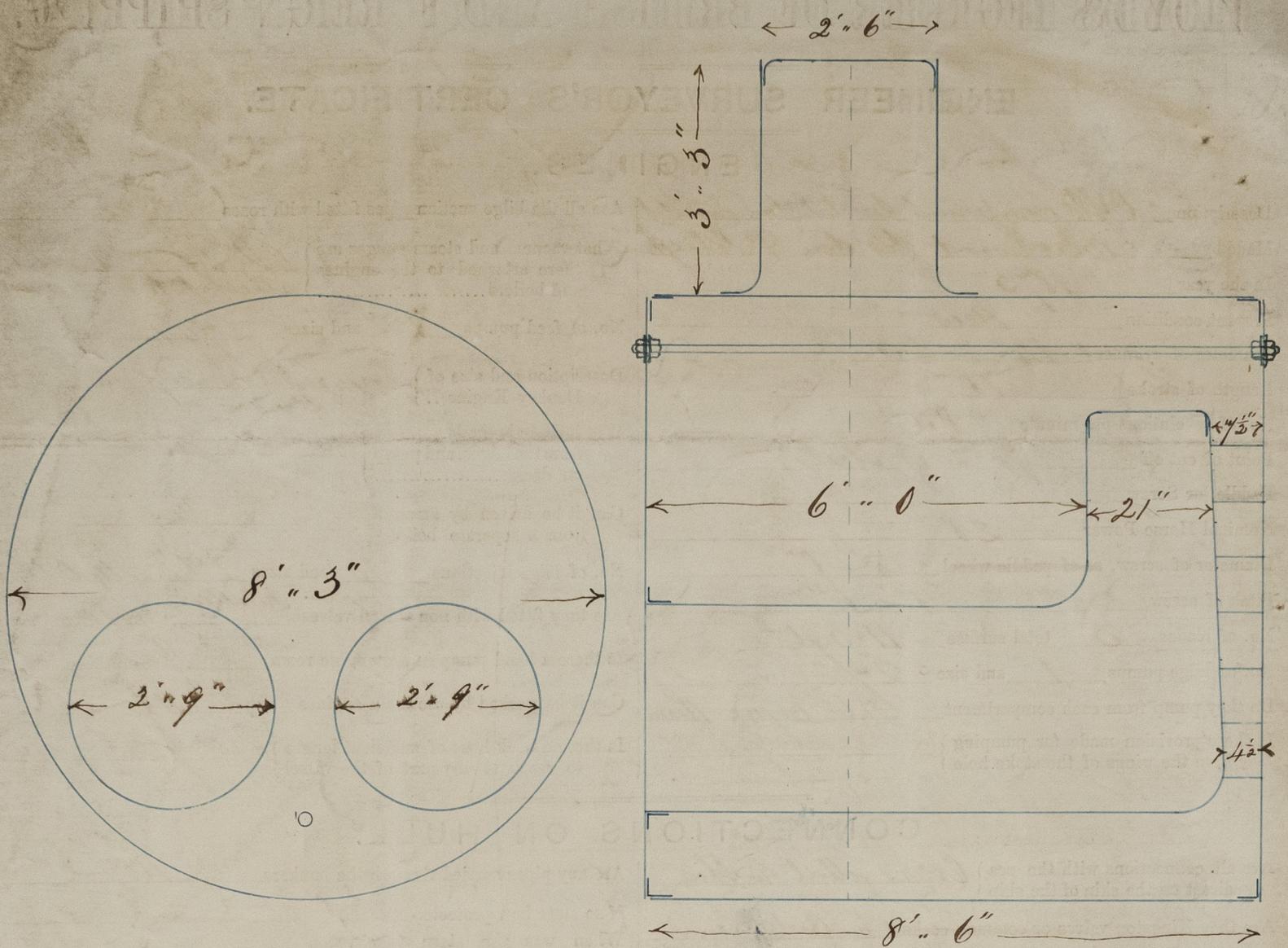
*Blackwood & Gordon* Manufacturer.

I hereby certify that the whole of the above Machinery and Boilers of the Iron (or Wood) Screw (or Paddle) Steam Vessel *Fernandez Sanz* owned by *W. 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 Boilers



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.

Some of 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  $10 \times 8 = 7800$  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?  
 JM



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