

# LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

## ENGINEER'S CERTIFICATE.

The following is a true Account of the Particulars of the Machinery and Boilers:—

ENGINES.—Here state description of Engines, whether Direct Acting or Geared, Inverted, Horizontal, Diagonal, or Oscillating Cylinders  
No. of Cylinders, &c.

*Direct-acting, inverted, surface-condensing - compound  
engines - with two cylinders -*

ENGINES, maker of *Denny & Co*  
,, age of *new*  
,, last time taken out  
,, present condition  
Diameter of Cylinder *35" & 60"*  
Length of stroke *36"*  
No. per minute of Engines  
,, of Screw

*nom. H.P. indicated power 160*  
*I. H.P. effective power 850*

Diameter of Screw (~~or Paddle Wheels~~) *12' 0"*  
Pitch of Screw *17' 3"*  
No. of Blades (~~or Flats~~) *four*  
Description of Screw (~~or Paddle~~) *Round cast iron bars with  
irregular cast iron keels shaped blades*  
Holding down Bolts, size *1 1/4"*  
,, present condition

Bilge Pumps, No. ( *2* ) and size *3 1/2" diam. 18" stroke*  
Feed ,, No. ( *2* ) and size *3" diam. 18" stroke*  
Spare gear, if usual quantity on board Vessel *Yes*  
Fuel, where stowed *At sides of engine & boiler rooms*  
,, space between Coal Bunkers and Boilers *9"*  
,, for what quantity is space provided *10.5 tons*

Donkey Engine and Boiler  
,, if fitted in Engine Room or on Deck *Engine in engine room  
boiler in stokehole*  
,, can pump be worked by hand *No*  
,, size of pump ( *4"* ) and stroke *9"*  
,, is hose of sufficient length to reach every part of the Vessel *Yes*  
No. ( *1* ) and continuation of hand pumps, if fitted in Engine Room *Yes*

BOILER.—Here state description of Boiler, and No.; if Tubular, or Flues; No. of Furnaces; if fitted with superheating apparatus; if Fired  
athwartships, or from fore, or after end of Boiler, &c.

*One cylindrical tubular double-ended boiler with six  
furnaces fired from forward & aft:*

BOILER, maker of *Denny & Co*  
,, age of *new*  
,, when last taken out  
,, present condition  
,, working pressure *65 lbs.*  
No. of surface Blow off Cocks to each Boiler *one*

Can each Boiler be used separately  
What clear space between top of Boiler and woodwork *2' 6"*  
What clear space between Funnel and woodwork *2' 0"*  
Are Engine and Boiler Keelsons well connected fore and aft *Yes*

SCREW SHAFT length *21' 3"* diameter *10 3/4"* Tunnel thickness of plating *3/8"* height *5' 6"*  
width *4' 0"* if water-tight door on Engine Bulkhead *Yes*

Port *Lumberton* 16<sup>th</sup> day of *March* 1875

*We* hereby certify, that the whole of the above Machinery and Boilers of the Iron (~~or Wood~~)  
Screw (~~or Paddle~~) Steam Vessel *"Havoca"* belonging to *Harbour Steam Company*  
whereof *Wheeler* is Master, *461.5* Tons Register, and *160* H.P. have been  
carefully inspected and examined by *us* at *Lumberton* and *We* found the  
same, at this date, in good order and safe working condition.

*Denny & Co*  
Marine Engineers.



Lloyd's Register  
Foundation