

17740 Iron

Port

Liverpool 25<sup>th</sup> May 1877  
"Heus" 650 tons

Recd 27/1/87

## Details of Main Boilers of the Steam Ship

Diameter 10' 3" Length 10' 7"

Thickness of shell plates  $\frac{12}{16}$ Description of riveting of longitudinal joints *see sketch* of circumferential joints *see sketch*

Pitch of rivets ditto - do - ditto - do -

Diameter of rivets ditto  $\frac{7}{8}$ " ditto  $\frac{7}{8}$ "Lap of plating ditto *see sketch* ditto *see sketch*

Size of manholes in circular shell 15" x 13"

How compensated for plate ring 3" x  $\frac{5}{8}$ "

Number of furnaces in boiler Two

Diameter of furnaces 36" Length of furnaces 7' 9"

Thickness of furnace plates  $\frac{1}{2}$ "

Description of joint of furnaces Lap joint single riveted under bars

Whether strengthened with rings No Greatest length between rings

Thickness of combustion chamber plating  $\frac{1}{2}$ " &  $\frac{7}{16}$ " fullDiameter of screw stays to ditto  $\frac{1}{8}$ " pitch of stays 7" x 7"End plates, thickness  $\frac{10}{16}$ "Diameter of longitudinal stays to end plates  $\frac{1}{4}$ " pitch of ditto 12" x 14"

How stays are secured nuts and washers

Diameter of tubes  $3\frac{3}{4}$  O.D. pitch of tubes 5" x 5"Thickness of tube plates  $\frac{1}{16}$ "Stayed by Rods about 1 $\frac{1}{2}$ " diam pitch of stays 10 x 15

Description of steam receiver Circular dome

Diameter of ditto 4' 6" height of ditto about 4' 0"

Thickness of plating of ditto  $\frac{1}{2}$ " ends  $\frac{1}{2}$ "How stayed Two stay rods from crown to boiler shell plates of  $1\frac{5}{8}$ " diam

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S.S. "Heus"

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$$\text{Shell plating } \} = \frac{51.520 \times 1.5 \times .75}{123 \times 6.5} \} = 72 \text{ lbs.}$$

$$\text{Furnaces } \} = \frac{89,600 \times .25}{7.75 \times 36} \} = 80 \text{ lbs.}$$

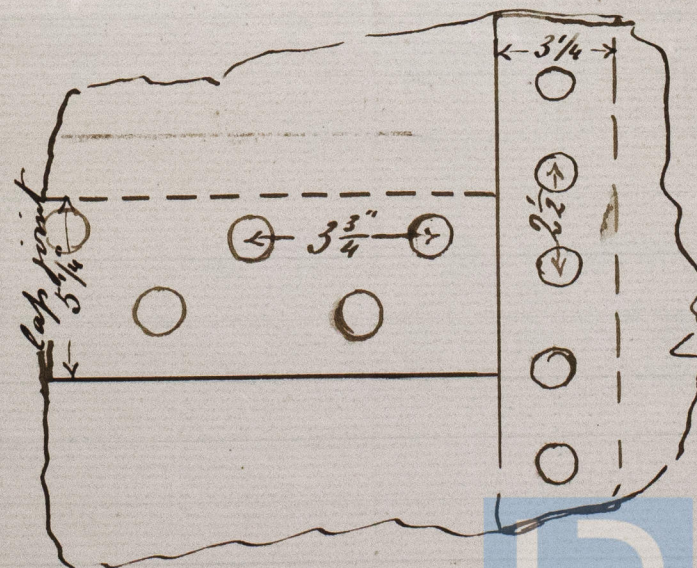
$$\left. \begin{array}{l} \text{Per cent of strength} \\ \text{of plates in joints} \\ \text{as comp'd with solid plates} \end{array} \right\} = \frac{(3.75 - .875) \times 100}{3.75} = 75\%$$

$$\left. \begin{array}{l} \text{Per cent of strength of} \\ \text{rivets as comp'd with} \\ \text{solid plates} \end{array} \right\} = \frac{(.601 \times 2) \times 100}{3.75 \times .75} = 42\%$$

$$\text{Flat plates between} \} = \frac{100 \times 64}{49} \} = 130 \text{ lbs.}$$

$$\text{Steam dome } \} = \frac{51.520 \times 1 \times .60}{54 \times 6.5} \} = 85 \text{ lbs.}$$

Sketch of riveting



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