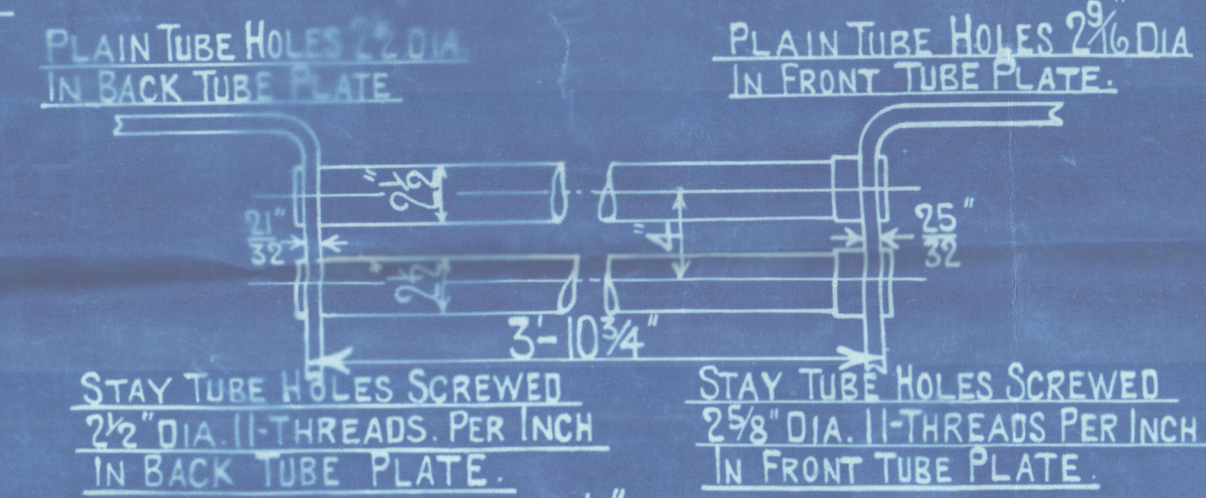


**COCHRAN PATENT VERTICAL MULTITUBULAR BOILER.**

### HORIZONTAL FLUE TUBES.



SCALE  $1\frac{1}{2}" = 1 \text{ FOOT.}$

HEATING SURFACE.	
TUBES.	273 Sq.Ft.
PLATE	77 Sq.Ft.
TOTAL	350 Sq.Ft.
GRATE AREA	18.7 Sq.Ft.

LLOYDS.		
PLATE.	$\frac{255 - 845}{9.55} \times 100$	= 66.92
RIVETS	$\frac{2 \times 550 \times 85}{2 \times 100 \times 46.975}$	= 708.9
FRONT TUBE PLATE	$\frac{4 - 2.55}{4} \times 100$	= 35.2
BACK TUBE PLATE.	$\frac{4 - 2.5}{4} \times 100$	= 37.5
SHELL.	$\frac{20.5 - 73.5}{73.5} \times 66.9$	= 104.76
FRONT TUBE PLATE.	$\frac{20.5 - 5.5}{10.5} \times 35.2 \times \frac{1}{2}$	= 103.8
BACK TUBE PLATE.	$\frac{20.5 - 10.5}{10.5} \times 37.5 \times \frac{1}{2}$	= 105.9
FURNACE	$\frac{1250 \times (8.2 - 6)}{60}$	= 125
OGEE RING.	$\frac{510 \times 13.2}{72 \times (72 - 60)}$	= 101

BOARD OF TRADE.			
PLATE.	$\frac{255}{255}$	$\times 100$	$= 66.9\%$
RIVETS.	$\frac{23 \times 559}{28 \times 764}$	$\times 100$	$= 81\%$
FRONT TUBE PLATE.	$\frac{4}{4}$	$\times 100$	$= 35.2\%$
BACK TUBE PLATE.	$\frac{4}{4}$	$\times 100$	$= 37.5\%$
SHELL.	$\frac{18 \times 2240 \times 66.9 \times 2 \times 46875}{4 \times 3 \times 100}$		$= 111.5\%$
FRONT TUBE PLATE.	$\frac{26 \times 2240 \times 35.2 \times 78125}{96 \times 218 \times 100}$		$= 136. "$
BACK TUBE PLATE.	$\frac{26 \times 2240 \times 37.5 \times 65625}{10 \times 263 \times 100}$		$= 168. "$
FURNACE.	$\frac{14000}{60 \times 2}$		$= 116. "$

BUREAU VERITAS		
SHELL.	$\frac{669 \times 2 \times 28 \times 2240}{2 \times 2 \times 559 \times 24 \times 2240}$ (46875-04)	= 124.9
RIVETS.	$\frac{2 \times 2 \times 559 \times 24 \times 2240}{2 \times 2 \times 5 \times 70}$	= 126.4
FRONT TUBE PLATE.	$\frac{104.00 \times 78125(4-2.59375)}{2 \times 65 \times 25 \times 24}$	= 126 "
BACK TUBE PLATE.	$\frac{104.00 \times 455625 \times (4-2.5)}{2 \times 65 \times 25 \times 24}$	= 129 "
FURNACE.	$\frac{600 \times (8-2)}{30}$	= 120 "

Approved. 8-4-13

PATENT BOILER N° 6768

$$\frac{6'-0'' \times 13'-6'' \times 350 \text{ #} \times 100 \text{ LBS.}}{2}$$

SCALE 1 INCH TO 1 FOOT.

SIEMENS MARTIN MILD STEEL PLATES.

### TENSILE TESTS:-

PLATES NOT EXPOSED TO FLAME OR FLANGED	28 TO 30 TONS.
PLATES EXPOSED TO FLAME OR FLANGED EXCEPT FOR CROWN	26 TO 30 TONS.
FURNACE CROWN	26 TO 29 TONS.

**DRAWING** **Lloyd's Register**  
**FOUNDATION**

HP L390-0356

## STANDARD SURVEY—LLOYDS

**COCHRAN & CO. ANNAN LTD.**  
**ENGINEERS & BOILERMAKERS**  
**ANNAN, SCOTLAND.**



BR 406

COCHRAN & CO., ANNAN, LD.

Loiler No. 6468

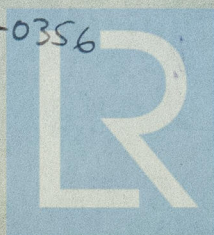
Drawing No. 9406

S. S. "Agnes"

GLASGOW REPORT No. 35454



MPL390-0356



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