

it from some water-works in England, which he could not now name; but it could be easily got at. Mr. Landale also pointed out one similar in principle, recommended in the *Glasgow Mechanic's Magazine*; but it having two sets of rods, two barrels, and too small an area suction cluck, it could not be at all compared with the simplicity of Mr. Aytoun's pump. But neither were new; both he and his brother had been familiar with them for years.

For the Journal of the Franklin Institute.

Particulars of an Iron Steamer.

Hull built by Reaney, Neafe & Co., Philadelphia, Pa. Machinery by the same. Intended service, carrying passengers and freight on the Pacific Coast and Rivers.

HULL.—

Length on deck,	128 feet.	
Breadth of beam,	19 "	6 inches.
Depth of hold,	7 "	
Length of engine space,	43 "	
Draft estimated forward,	4 "	
" below pressure and revolutions, aft,	4 "	3 "

ENGINES.—Two—Inclined cylinders—placed fore and aft.—

Diameter of cylinder,		29 inches.
Length of stroke,	3 feet.	
Maximum pressure of steam in pounds,	30.	
Cut off from commencement of stroke,		18 "

BOILERS.—Two—Flue and return flue.—

Length of boilers,	16 feet.	
Breadth "	6 "	
Height " exclusive of steam drum,	7 "	9 inches.
Cubic feet in steam drum,	110 "	
Number of furnaces,	2.	
Breadth "	4 "	9 "
Length of grate bars,	5 "	6 "
Number of flues,	12 in each.	
Internal diameter of flues,		5½ "
Length of flues	11 "	6 "
Heating surface,	425 cubic feet in each, 850 sq. "	in both.
Diameter of chimney—one,	3 "	
Height "	33 "	

PADDLE WHEELS.—of iron.—

Diameter over boards,	18 "	6 inches.
Length of blades,	5 "	3 "
Depth "		15 "
Number "	16.	
Dip of wheels,	2 "	3 "
Average revolutions per minute, estimated,	22.	

Remarks.—Frames $2\frac{3}{4} \times 2\frac{3}{4} \times \frac{3}{8}$ inches and 18 inches apart; 8 strokes of plates from keel to gunwale. Thickness of plates, $\frac{3}{8}$ and $\frac{1}{4}$ inch. Two bulkheads; two box kelsons of wrought iron plates 15 inches high. Valves are worked by Stephenson's link motion. Cabins fitted up with berths for 30 passengers.

The joiner work and plating of hull are entirely fitted, but not fastened, being, what is technically termed, "a knock down," that the parts may be shipped to San Francisco, California, and there set up.

W. J.

For the Journal of the Franklin Institute.

Particulars of an Iron Steamboat.

Hall built by Reaney, Neafie & Co., Philadelphia, Pa. Machinery by the same. Intended service, for carrying freight and passengers on one of the Rivers on the Western Coast.

HELL,—

Length on deck,	100 feet.
Breadth of beam,	19 "
Depth of hold,	6 "
Draft of water forward, estimated,	1 " 6 inches.
" aft,	1 " 6 "

Engines—Two—horizontal.—

Diameter of cylinder,	.	.	14 inches.
Length of stroke,	.	3 feet.	
Maximum pressure of steam in pounds,	65.		
Cut off from commencement of stroke,		2 " 6 "	

Boiler—One—flue and tube.—

Length of boiler,	17 feet.	
Breadth "	5 "	3 inches.
Height " exclusive of steam drum,	7 "	
Cubic feet in steam drum,	38½	
Number of furnaces,	1.	
Breadth of furnaces,	4 "	10 "
Length of grate bars,	5 "	
Number of flues or tubes,	36.	
Internal diameter of flues or tubes,		2½ "
Length of flues or tubes,	12 "	
Heating surface,	520 sq. "	
Diameter of smoke pipe,	2 "	
Height "	25 "	

PADDLE WHEEL—at the stern —

Diameter,	15	"	
Length of blades,	12	"	
Depth			12 inches.
Number	13.		
Dip of wheel	1	"	3 "
Average revolutions per minute, estimated,	25.		

Remarks.—Frames, $\frac{5}{8} \times 2\frac{3}{4}$ inches by 1 foot 8 inches apart; 7 strakes of plates from keel to gunwale. Thickness of plates $\frac{1}{8}$ and $\frac{5}{16}$ inch. The bottom stiffened with two wrought iron plate box keelsons 15 inches high.

This boat will run in connexion with the above mentioned, and is, also, a "knock down," intended for shallow river navigation.

The boiler is on deck forward; the engines are on deck, aft, in the usual way for stern-wheel boats. W. J.

W. J.