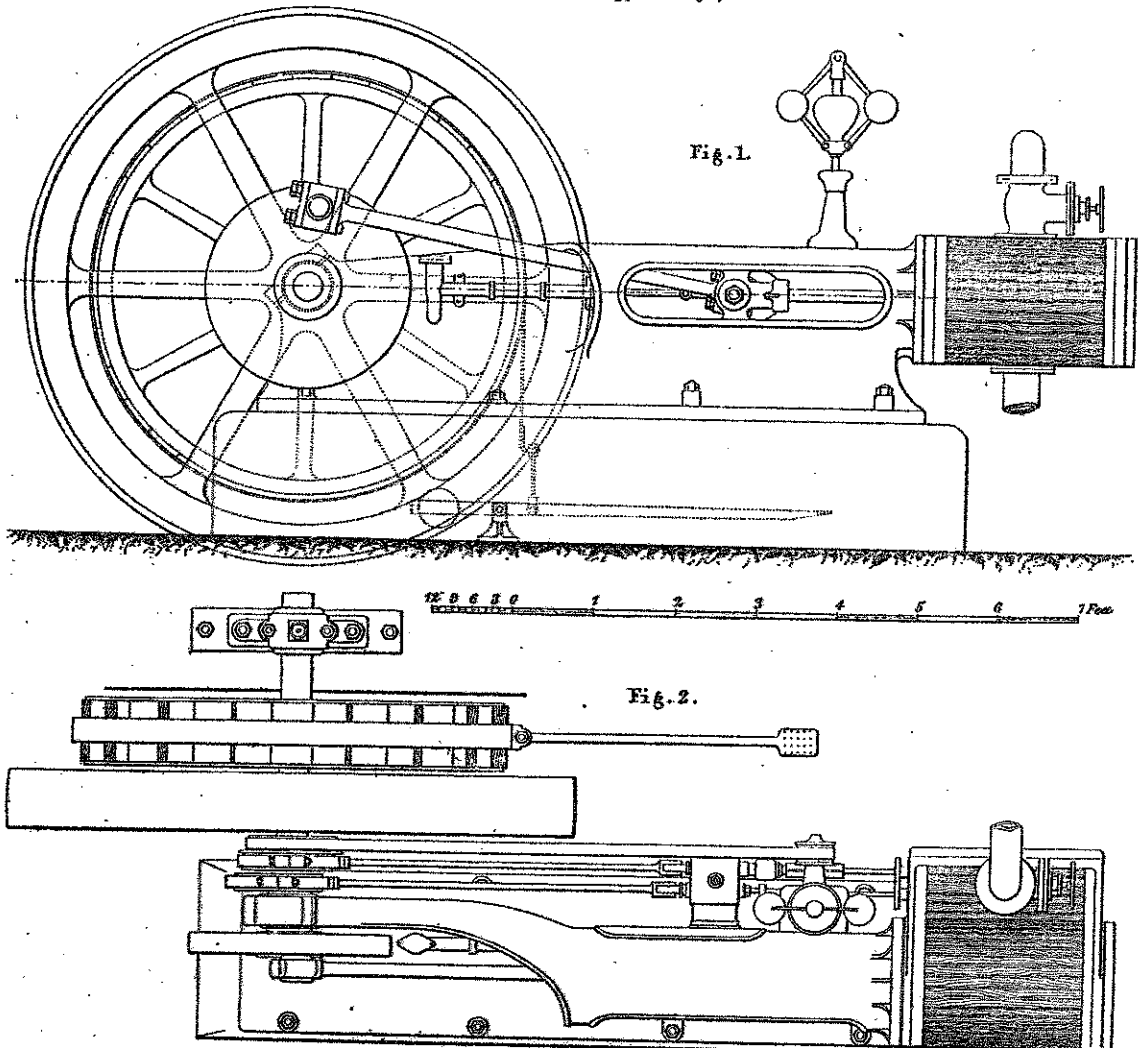


STATIONARY ENGINE, AT THE PARIS EXHIBITION.

CONSTRUCTED BY MESSRS. HAYWARD TYLER AND COMPANY, ENGINEERS, LONDON.

(For Description, see opposite Page.)



STATIONARY BOILER AT THE PARIS EXHIBITION.

We illustrate on page 251 one of the two boilers exhibited at the Champ de Mars by the Paves Lille Company. The leading dimensions and particulars of these boilers, the arrangement of which is clearly shown in the drawing, are as follows:

Heating Surface:		ft.
Firebox	...	105.24
Tubes	...	1183.43
<b>Total</b>	<b>...</b>	<b>1288.67</b>
Grate:		
Length	...	5 ft. 5 1/2 in.
Width	...	4 ft. 5 1/2 in.
Area	...	23.56 sq. ft.
Tubes:		
Length between plates	...	16 1/2 ft.
Number	...	105
Internal diameter	...	0 2 1/2 in.
External	...	0 3 1/2 in.
Distance from centre to centre of tube	...	0 3 1/2 in.
Height of firebox above grate	...	5 0 in.
Diameter of barrel	...	4 10 in.
Total length of boiler	...	25 3 1/2 in.
Diameter of dome	...	2 5 1/2 in.

Thickness of Plates:

Firebox plates	...	4 7/8 in.
Outer firebox shell	...	4 7/8 "
Boiler	...	4 1/2 "
Dome	...	3 3/4 "
Diameter of firebox stays	...	1 1/2 "
Distance from centre to centre of firebox stays	...	4 1/2 "
Average water space	...	148.32 cub. ft.
steam	...	148.32 "
Diameter of safety valve	...	8 1/2 in.

The boiler is fed by two injectors, one on the Turkish system and the other on that of Yale and Cuan. These deliver into two tanks, from which the exact amount of water evaporated by the boilers daily, is ascertained. The chimney connected with these boilers is of boiler plate 35 1/2 in. diameter at the top, and 63 1/2 in. at the bottom. The shaft is bolted to a cast-iron bar, and no stays are provided, the stability of the structure being sufficient without them. From the record taken of the service of the boilers it appears that the average production of steam per pound of coal is 9.286 lb.; that the mean production of steam per square foot of heating surface is 1.21 lb.; and that the amount of cinder produced is 6.9 per cent of the coal used. The fuel employed is a

mixture of Anzin and Aniche coal. We are indebted to our contemporary, the *Revue Industrielle*, for the illustrations and particulars of these boilers.

THE LATE MR. JOHN PENN.—We notice that Messrs. Macdow and Macdonald have published an admirably executed portrait of the late Mr. John Penn.

ERICSSON'S TORPEDO BOAT.—This singular craft will be finished this month, and will be subjected to various tests as to the power of her engines and her adaptation to the torpedo service. Captain Ericsson recently predicted that the machine as a device for fighting ironclads would be invulnerable. Moved by an engine of great power it would have a velocity surpassing that of any antagonist; and being almost wholly submerged and under perfect control it would advance boldly into the face of an enemy and deliver its missile with destructive effect. Captain Ericsson also speaks of the superiority of his torpedo compared with the Whitehead pattern, which, he said, could not be guided with any certainty, while the Lay was too much exposed above the surface of the water. He added that he could use either steam or compressed air as a motive power. Captain Ericsson's boat does not exceed 120 ft. in length, and it will have a pair of 24-in. cylinders.