J. Stuart.

Steam Generator.

No. 94,666. Patented Sept. 7, 1869.

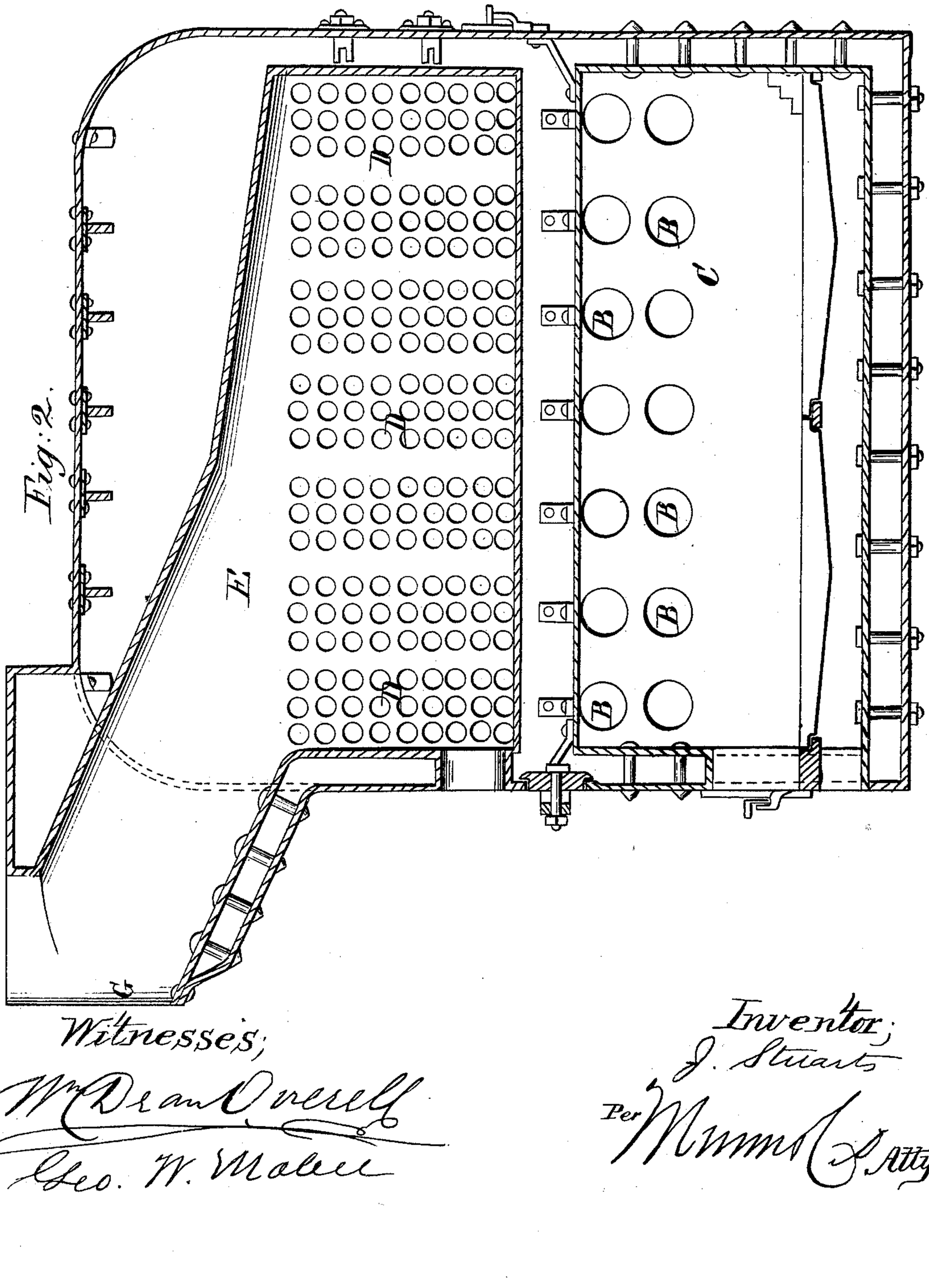

Fig: 2.

Witnesses;

Wm Dean Orrell

Geo. W. Maher

Inventor;

J. Stuart

Per Munn & Attys

United States Patent Office.

JAMES STUART, OF SAN FRANCISCO, CALIFORNIA.

Letters Patent No. 94,666, *dated September* 7, 1869.

IMPROVEMENT IN STEAM-GENERATORS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JAMES STUART, of the city of San Francisco, in the county of San Francisco, and State of California, have invented a new and useful Improvement in Steam-Generators; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing, forming part of this specification.

The object of this invention is to provide an improved arrangement for marine steam-generating boilers, calculated to make a better application of the heat, and to afford better facilities for working within the boiler, for repairing, &c.

Figure 1 represents a front elevation, partly broken out, of a boiler constructed according to my improvements.

Figure 2 represents a central longitudinal sectional elevation, taken on the line *x–x* of fig. 1.

Similar letters of reference indicate corresponding parts.

In the common arrangement of these boilers, the product of combustion passes directly backward from the fires, which are in front. This plan requires, in order to heat the whole of the front of the boiler, that the fire-surface extend wholly across the front, thereby making an undue amount of fire-surface.

According to my arrangement, I make the boiler shorter and broader, and provide only the necessary amout of fire-space A A, say about half the breadth now used, but extending the whole length, and conduct the product of the fire to the right and left therefrom by the short tubes B, leading into the spaces C, one on each side, extending the whole length and depth of the water-space, or nearly so, and of the proper width for a man to work in for repairing.

Above the large flues B are small return-tubes D, leading from these spaces C back to a wide central space, E, also running the whole length of the boiler, and also made a little wider than the length of the flues D, to permit taking them out and putting in new ones.

From this space the passage for the product of combustion leads into the chimney or smoke-stack F, which in this instance I have made half circular, and open on one side at G, for the connection of the smoke-stack of a similar boiler fronting this, which is a convenient arrangement in respect of space and for stoking.

By this arrangement, I produce a much more economical boiler, in consequence of the more direct application of the heat to the water, and I may thereby enlarge the heating-surface proportionately to the fire-surface.

Having thus described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

The fire-spaces A, arranged centrally, and extending the whole length of the boiler, the lateral tubes B, the spaces C, and return-tubes D, leading into the space E, all arranged substantially as specified.

JAMES STUART.

Witnesses:

THOMAS J. HANLY,
JAMES G. CARSON.