C. H. Ford,

Steam-Boiler Attachment.

No. 52,243. Patented Jan. 23, 1866.

Fig 1.

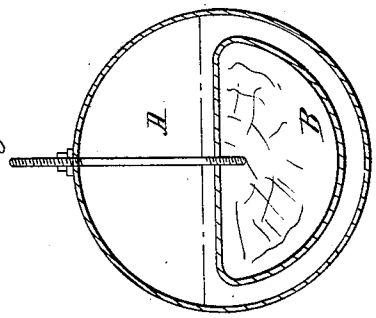


Fig 3.

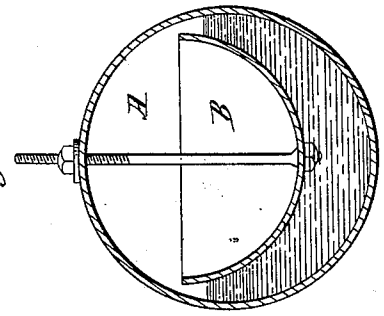
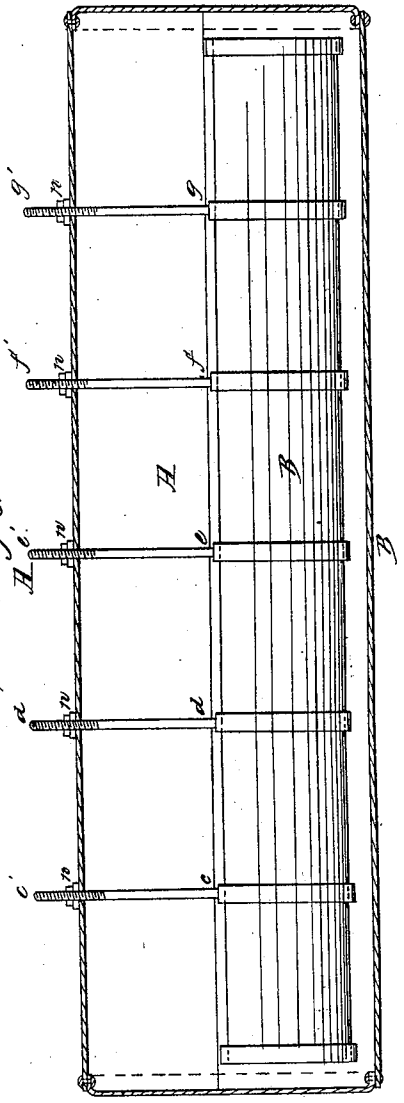


Fig 2.



Witnesses,
Alex A. G. Keasbey
John Quackenbush

Inventor.
C. H. Ford
By Munn & Co Attys

UNITED STATES PATENT OFFICE.

CHARLES HENRY FORD, OF BALTIMORE, MARYLAND, ASSIGNOR TO HIMSELF, HAYWARD HUTCHINSON, JESSE L. HUTCHINSON, AND ELIAS S. HUTCHINSON, OF SAME PLACE.

IMPROVEMENT IN STEAM-GENERATORS.

Specification forming part of Letters Patent No. **52,243**, dated January 23, 1866.

To all whom it may concern:

Be it known that I, CHARLES HENRY FORD, of the city and county of Baltimore and State of Maryland, have made new and useful Improvements in Steam-Boilers; and I do hereby declare the following to be a full, clear, and exact description of the nature, construction, and operation of the same, sufficient to enable one skilled in the art to which it is allied to construct and use the same, reference being had to the accompanying drawings, in which my improvements are shown as applied to an ordinary cylindrical steam-boiler.

The invention consists in contracting the water-space of the boiler by supporting shapes suitable, of wood or metal, or any proper substance not destructible in reasonable time when submerged in water, within the boiler, and so arranged therein, by adjusting-screws or other mechanical contrivances similar thereto, that a surface and depth of water may be exposed to the action of the furnace of any required quantity, the object of the invention being economy and safety, both of fuel and material.

In the accompanying drawings, Figure 1 is a transverse section through the line A B, Fig. 2; and Fig. 2, a longitudinal section of the boiler, illustrating the use of wood as the displacing medium. Fig. 3 is a transverse section of a similar boiler, illustrating the use of a water-displacer of hollow metal.

Similar letters of reference indicate corresponding parts in the several views.

A may represent an ordinary cylindrical boiler without flues.

B is the water-displacer, which, as shown in Figs. 1 and 2, may consist of a semicylindrical piece of oak or other timber, bound at intervals with iron straps, to keep it from splitting, and held adjustably at any desired height by screw-rods *c' d' e' f'*, secured to the displacers by means of several plates *c d e f*, and passing upward through suitable packing in the shell of the boiler, their upper ends being provided with nuts *n n n n* or other means of adjustment.

In Fig. 3 the displacer B is shown in the form of a metal vessel open at the top to afford additional steam-space. This displacing vessel may be more advantageously made with its upper and lower surfaces conforming nearly to the arcs of the top and bottom of the boiler and its vertical depth contracted so far as needful to afford the requisite room for adjustment, and having in its top one or more apertures (which may be of small area) for the admission of steam.

It will thus appear that the last-named form of my invention possesses the additional advantage of providing for the displacement of a large amount of water and consequent elevation of the water-level, without any considerable diminution of the steam space or the entire capacity of the boiler.

I do not, however, desire to limit myself to the precise form or material of the displacer or to the described means of raising and lowering the same.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The adjustable water-displacer, adapted to be raised and lowered within a steam-boiler, substantially as and for the purposes set forth.

CHARLES HENRY FORD.

Witnesses:

OCTAVIUS KNIGHT,

ALEXR. A. C. KLAUCKE.