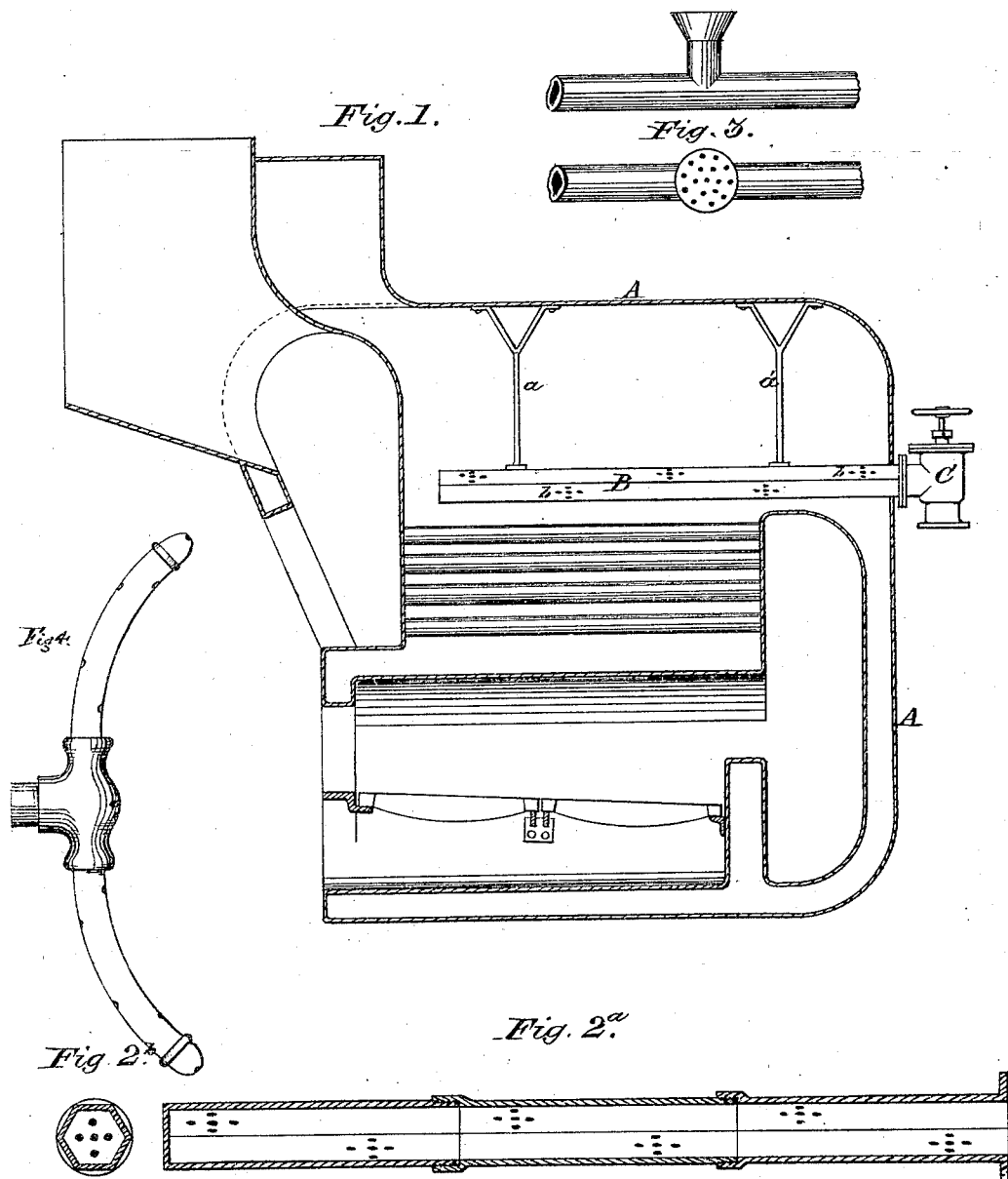


J. PERKINS.  
SURFACE BLOW OFF PIPE FOR BOILERS.

No. 113,716.

Patented Apr. 11, 1871.



Witnesses:  
Owen McFee  
Geo. P. Fisher

Inventor:  
James Perkins.  
By Chas. E. Fisher,  
Attorney.

# United States Patent Office.

JAMES PERKINS, OF BALTIMORE, MARYLAND, ASSIGNOR TO HIMSELF AND  
JACOB BRANDT, JR., OF SAME PLACE.

Letters Patent No. 113,716, dated April 11, 1871.

## IMPROVEMENT IN SURFACE BLOW-OFF PIPES FOR BOILERS.

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 PERKINS, of Baltimore city, in the county of Baltimore and State of Maryland, have invented a new and useful Improvement in "Anti-Incrustators and Surface-Blow" for Boilers; and I do hereby declare that the following is a full, clear, and exact description of the same, enabling others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 is a longitudinal section of a marine boiler, showing my invention in its proper position.

Figure 2<sup>a</sup> is a longitudinal section of the pipe.

Figure 2<sup>b</sup> is a cross-section of the same.

Figure 3 is a modification of the same.

Figure 4 is a view of a crescent pipe.

In the figures like letters refer to like parts.

My improvement relates to an apparatus or device for preventing the scaling or incrustation of boilers.

It consists in the peculiar construction of one or more blowing-off pipes for blowing out the scum or foam in the boiler, which has been found to contain the ingredients and parts from which the scale or incrustation is formed.

In the drawing—

A represents a marine boiler of the ordinary construction, provided with horizontal flues, furnaces, steam-chimney, up-take, &c.

Over the flues, on a line with the water-line commonly adopted in such boilers, I suspend from the top of the boiler, by two or more braces or supports, *a a'*, the pipe B, and connect it at one end to a check or blow-valve, C.

This pipe I preferably construct of a hexagonal form, as shown in fig. 2<sup>a</sup>, (or, if preferred, it may be round and hexagonal at certain intervals,) and in several lengths, jointed or screwed together, the object in making its exterior hexagonal being that the different lengths may be easily taken apart by a wrench for the purpose of cleaning or replacing any length thereof that may have become defective or injured. It may, however, be of any other number of sides found desirable, or of the form shown in fig. 3.

The pipe B is perforated with a number of small holes, *b*, through which the scum is blown, and blown off through the valve C, fig. 1, which is always open when the boiler is in use.

It has been found, by practical experience and experiments, that the scum of the boiling water contains at times all the particles which create the scale, and

said parts are kept upon the top or surface of the water by the ebullition of the same as long as it continues to boil. If this scum is then got rid of by blowing it out of the boiler no scale can be formed therein.

In rolling in a rough sea, as one end or the other of the pipe becomes exposed above the water a small amount of water or steam may escape through the valve, either by suction or force of the steam behind the water; but this is only for an instant, and scum then follows.

It will be very obvious that this simple arrangement can be very easily and readily attached to any boiler at a very small cost.

The great advantages of my invention are—

First, economy in fuel, by not feeding same amount of water of a low temperature to generate equal amount of steam.

Second, by not blowing out steam during the rolling to which all vessels are subject more or less.

Third, economy in labor, by not necessitating the cleaning of the scale or incrustation of the boiler, as is done at present with other blows.

Fourth, by it all vegetable matter and other injurious sediments are blown off, and thereby the corroding, eating out, and scaling of the boiler are prevented, and, of course, a vessel can go on a voyage again without the delay and expense of scaling or repairing.

Fifth, foaming is thereby prevented, as the foam is taken evenly from the surface of the entire water-line.

Having thus described my invention,

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

1. The surface blow-pipe B, provided with perforations on all sides, when constructed and operated as herein shown, and for the purpose set forth.

2. The arrangement, within a steam-boiler, of a cylindrical, hexagonal, or many-sided surface blow-pipe, in sections, perforated with holes on all sides, in combination with the blow-valve C, when constructed and operated as herein shown and described, and for the purposes set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES PERKINS.

Witnesses :

J. BRANDT, Jr.,

CHAS. G. FISHER.