A. F. PORTER.

PREVENTING INCRUSTATION OF STEAM BOILERS.

No. 50,774. Patented Oct. 31, 1865.

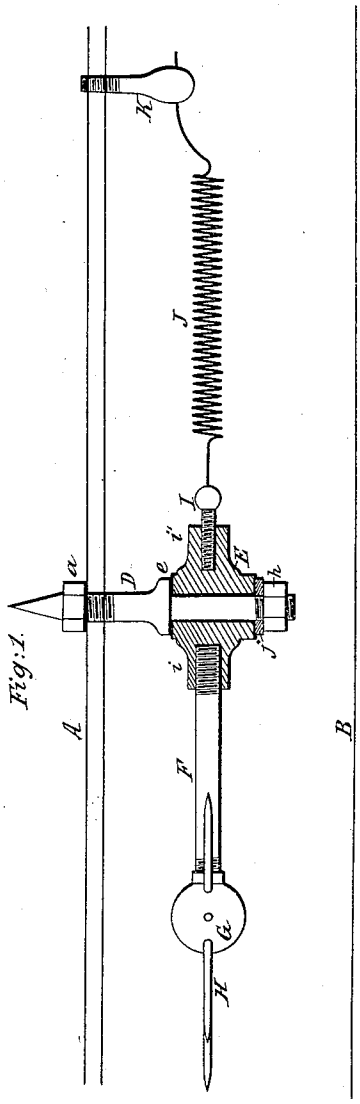


Fig. 1.

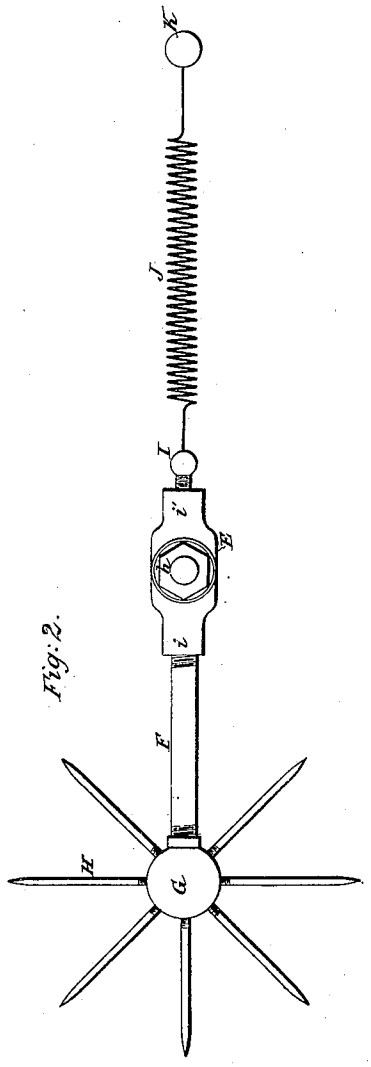


Fig. 2.

Witnesses.
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Inventor.
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

A. F. PORTER, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO HIMSELF AND G. O. EVANS, OF SAME PLACE.

IMPROVEMENT IN PREVENTING INCRUSTATION OF STEAM-BOILERS.

Specification forming part of Letters Patent No. 50,774, dated October 31, 1865; antedated May 1, 1865.

To all whom it may concern:

Be it known that I, A. F. PORTER, of Philadelphia, Pennsylvania, have invented a Mode of Preventing Incrustation in Steam-Boilers; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention consists of a conductor armed at one end with a series of points or their equivalents, and connected at the other extremity with the shell of the boiler, the whole being suspended within the boiler at some intermediate point by an insulated attachment, all substantially as described hereinafter.

In order to enable others to use my invention, I will now proceed to describe the manner in which I carry it into effect.

On reference to the accompanying drawings, which form a part of this specification, Figure 1 is a side view of apparatus whereby I carry out my mode of preventing incrustation of steam-boilers, and Fig. 2 a plan view of the apparatus.

Similar letters refer to similar parts in both views.

The red lines A, Fig. 1, represent, in section, the upper portion of a steam-boiler, in which B is the water-line.

In the upper shell of the boiler, near one end of the same, I screw a rod, D, which, if desired, may be further secured by a nut, *a*. This rod passes through a hole in the metal block E, which is confined to the rod between the collar *e* on the latter and a washer, *f*, by a suitable nut, *h*. It should be understood that the hole in the metal block through which the rod D passes is lined with glass, porcelain, enamel, or other non-conductor of electricity, and that the non-conducting material intervenes between the collar *e* and the block, as well as between the block and the washer *f*, so that the rod D, although firmly secured to the block, is perfectly insulated.

The block E has two projections, *i* and *i'*, to the former of which is secured a metal rod, F, carrying at the end a sphere, G, and from the latter project any suitable number of wires, H, each of which terminates in a point. To the opposite projection, *i'*, is secured a pin, I, to which is attached one end of a coiled wire, J, the opposite end of the latter being secured to a pin, K, which is screwed into or otherwise secured to the upper plate of the boiler at a point as far distant as possible from that where the rod D is attached.

The metallic points collect whatever electricity may be generated within the boiler, which electricity passes successively to the sphere G, the rod F, block E, pin I, coil J, pin K, and to the shell of the boiler.

It is well known that the calcareous deposits formed in evaporating water assume the character of a stony, crystalline incrustation, which becomes firmly attached to the interior of the boiler, and especially to the lower portions of the same. This is one of the most serious evils with which engineers have to contend, as the incrustation is a formidable non-conductor of heat, impairs the efficiency of the boilers, and causes a great waste of fuel. After many practical tests I have found that the accumulation of the usual calcareous deposit is prevented by the above-described apparatus.

I claim as my invention and desire to secure by Letters Patent—

The above-described apparatus for preventing incrustation in steam-boilers, the same consisting of a conductor armed at one end with a series of points or their equivalents, and connected at the other extremity with the shell of the boiler, the whole being suspended within the boiler at some intermediate point by an insulated attachment, all substantially as herein set forth.

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

A. F. PORTER.

Witnesses:

JOHN WHITE,

CHARLES HOWSON.