E. F. HUSTED.

Improvement in Blow-Offs for Boilers.

No. 131,219. Patented Sep. 10, 1872.

Fig. 1.

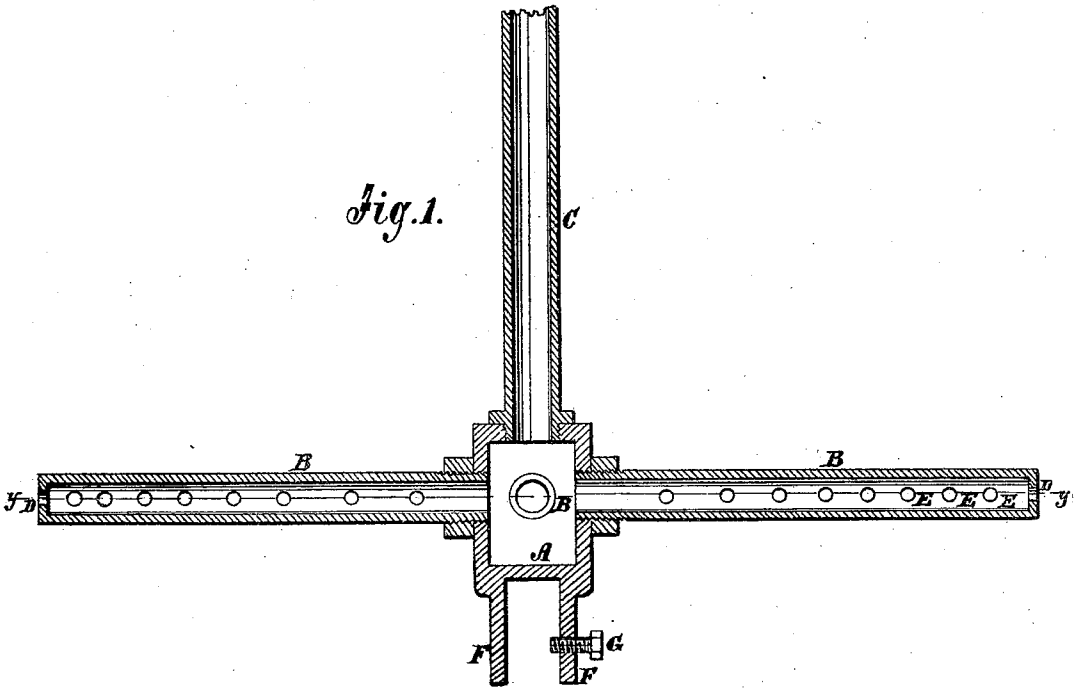
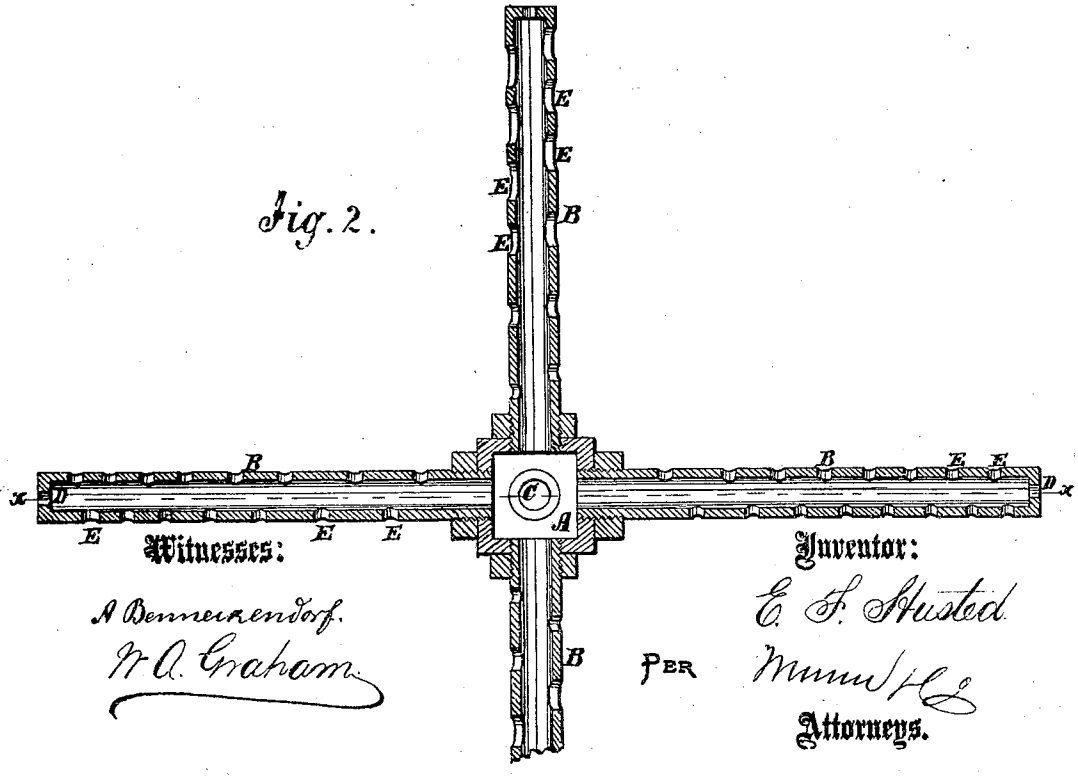


Fig. 2.



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ESBON F. HUSTED, OF HARRISBURG, TEXAS.

IMPROVEMENT IN BLOW-OFFS FOR BOILERS.

Specification forming part of Letters Patent No. **131,219**, dated September 10, 1872.

Specification describing a new and useful Improvement in Surface Blow-Off Device, invented by ESBON F. HUSTED, of Harrisburg, in the county of Harris and State of Texas.

In some sections of country the water which it is necessary to use in locomotive and other steam boilers is so impure that it is with extreme difficulty that they are kept in a suitable condition for the generation of steam. This cannot be done except by frequent blowing off, and consequently a great waste of water, which is a very serious inconvenience, especially in locomotives where the supply of water is limited or the water-stations far apart. My object, therefore, is to provide means for cleaning the boiler with as little waste of water as possible. It is well known that a large portion of the inorganic as well as all of the organic impurities contained in the water are thrown to the surface during ebullition, and that to cleanse the water, as well as to prevent sedimentary deposit, the blowing-off apparatus should be located at the surface of the water. My invention, therefore, consists in a central box or vortex having one or more tubular perforated arms radiating horizontally therefrom secured in the boiler in any manner at or about at the water-line, said box having a pipe for the discharge of the gathered impurities or scum, the construction and arrangement being as hereinafter more fully described.

In the accompanying drawing, Figure 1 represents a vertical section of my device taken on the line *x x* of Fig. 2. Fig. 2 is a horizontal section taken on the line *y y* of Fig. 1.

Similar letters of reference indicate corresponding parts.

A is the central box or vortex. B represents the tubular perforated arms, one or more in number, communicating with the box, as seen in the drawing. C is the discharge-pipe, which passes through the shell of the boiler. This pipe may pass through and discharge the scum from any part of the boiler. In the drawing it is represented as passing upward through the top. It is provided with a cock suitable for the purpose. The arms B, one or more, are tubes perforated on one or both sides. The outer ends of the tubes may be closed, except a small central hole, D, as seen in the drawing. The perforations E may be of any size, but are preferably arranged so that the scum on the surface of the water will be drawn from the extremities to the central box or vortex A. In this example of my invention I increase the size of the holes and diminish their distance apart from the central box outward and arrange the holes obliquely with each other in the opposite sides of the tube, as seen in the drawing; but I do not confine myself to this particular arrangement. The box A is attached and made stationary by means of the ears F and screw G to a stay-bolt, or by any other suitable means.

By opening the stop-cock in the discharge-pipe under a presure of steam the scum on the surface of the water will by this apparatus be drawn to the box or vortex and discharged with but little loss of water, thus allowing the blowing off to be frequently repeated and the boiler to be kept clean. In practice I attach four of the perforated arms B to the central box, the said arms extending in each direction at right angles with each other at the surface of the water, thus drawing to the center the scum from every part of the surface, but variations may be made in the arrangement without departing from my invention.

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

A surface blow-off for locomotive-boilers, suspended over the crown-sheet, with pipes B E projecting in different directions and having perforations closer together at the ends than toward the vortex A, as and for the purpose described.

ESBON FORREST HUSTED.

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