A. McD. Sprague.

Surface Skimmer for Steam Boiler.

No. 23320. Patented Mar. 22. 1859.

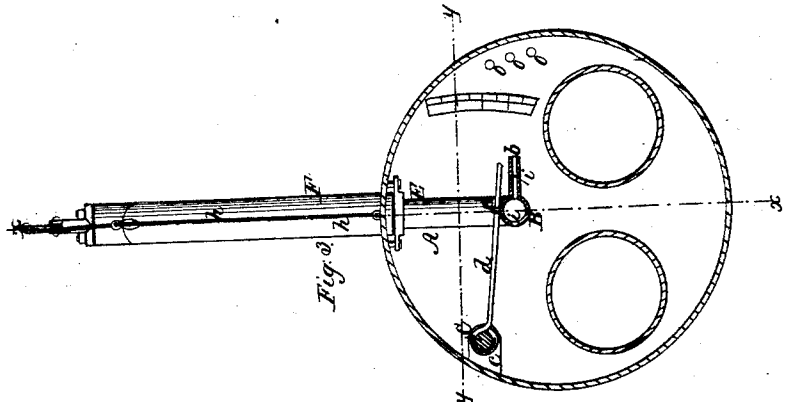


Fig. 3.

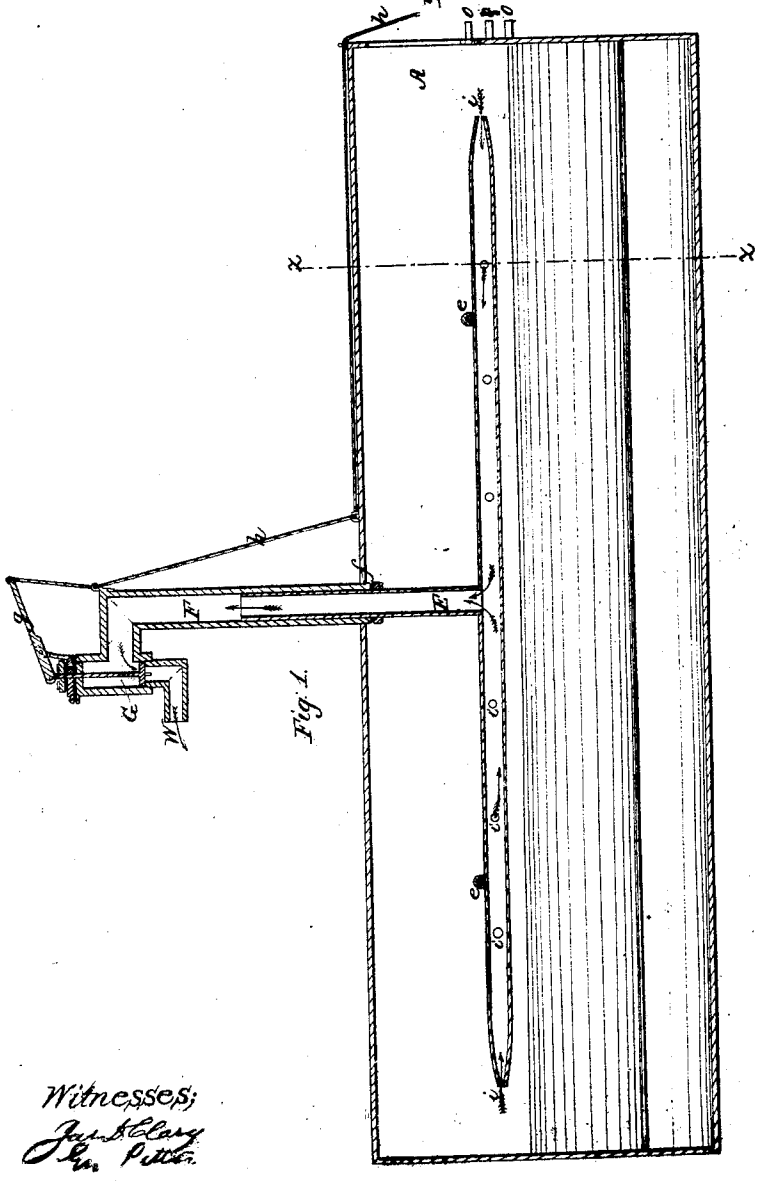


Fig. 1.

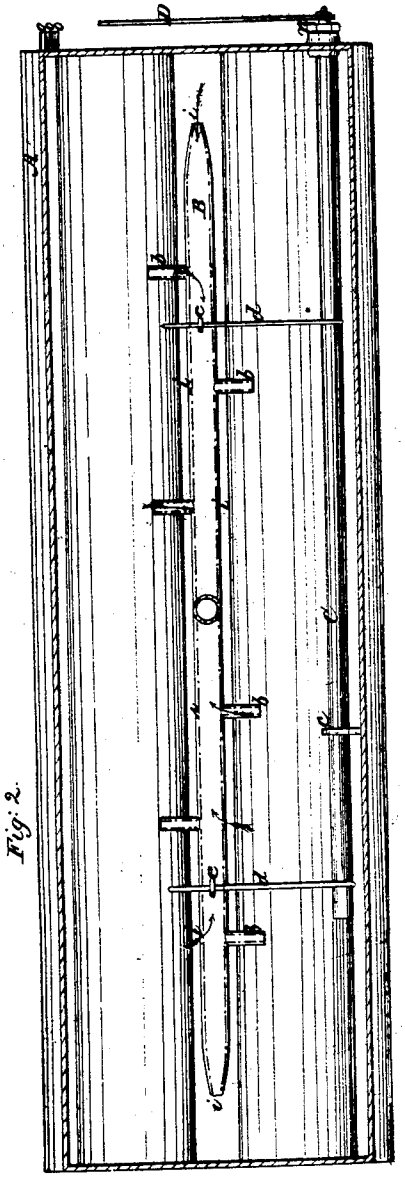


Fig. 2.

Witnesses;
Jas. B. Clary
Jno. Potter.

Inventor
Alex. McD. Sprague

UNITED STATES PATENT OFFICE.

A. M. SPRAGUE, OF MOBILE, ALABAMA.

APPARATUS FOR SKIMMING THE SURFACE OF THE WATER IN STEAM-BOILERS.

Specification of Letters Patent No. 23,320, dated March 22, 1859.

To all whom it may concern:

Be it known that I, A. M. SPRAGUE, of Mobile, in the county of Mobile and State of Alabama, have invented a new and useful Adjustable Surface-Skimmer for Removing Sedimentary Water from Steam-Boilers; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawing, forming part of this specification, in the several figures of which similar characters of reference denote the same part.

Figure 1 is a vertical longitudinal section on line *x x* of Fig. 3. Fig. 2 is a section on line *y*, *y*, looking down on skimmer, &c. Fig. 3 is a cross section of boiler and skimmer on line *z z* Fig. 1.

The invention here considered is a method for effecting the removal of the sediment or impurities which arise upon the surface of the water in steam boilers. The means ordinarily employed to effect that end, consists of an apparatus opening in the bottom of the boiler, which in effecting the removal of the sediment draws off a larger proportion of clear water. My invention obviates this loss of clear water and effectually removes the sediment.

The nature of my invention consists in the employment in steam boilers of a surface skimmer adjusted, and connected with a discharge pipe as hereinafter to be described.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation, as follows.

In the drawing A represents the boiler; B the adjustable surface-skimmer, constructed with branches *b*. Said skimmer is hollow and is provided with a series of openings *i*, as shown by red lines, (Fig. 2); C, shaft passing through the head of the boiler, and operating in bearing *c*, the passage through the head of the boiler being water tight by reason of packing *n*. The shaft C is provided with arms *d*, which pass through the eyes *e* of the surface skimmer. Secured upon the outer end of the shaft C by a bolt, is the lever D, by which the engineer can with one hand adjust the skimmer as the case may require and at the same time with the other hand try the gage cocks *a*, and raise the mud valve G by means of cord *h*. From the center of the skimmer arises the vertical hollow tube E, sliding in the discharge pipe F, said pipe being connected to the boiler as at *f*.

G represents a mud valve which closes the mouth of discharge pipe F, said valve being forced in position as shown in Fig. 1, by the inside pressure of steam, and is elevated for the passage of the sediment by lever *g* and cord *h*.

The operation is as follows: The sediment passing through the openings *i* into the skimmer B, is, by the pressure of the steam forced into the discharge pipe F and out of its mouth W, as shown by arrows, the valve G being previously elevated by the engineer. By this construction the skimmer can be elevated to the top of the boiler and thereby have sufficient room to thoroughly clean the boiler. This surface skimmer may be stationary if desired, or, it may be raised and lowered to the height of the water by means of a float. Or it can be connected with the bottom openings of the boiler, and discharge the surface water out through the bottom of the boiler, and by discharging from the bottom there can be several boilers supplied with skimmers connected, by the several levers D being connected together by a shackle bar, and by so doing the surface water can be discharged from as many boilers as may be placed together.

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

The surface skimmer B, constructed arranged, and operating substantially, as and for the purpose of removing the sedimentary water from the upper water surface of steam boilers.

In testimony whereof I have hereunto signed my name before two subscribing witnesses.

A. M. SPRAGUE.

Witnesses:

GEO. PATTEN,

JOHN S. HOLLINGSHEAD.