W. R. MICHENER.

Portable Steam-Boiler.

No. 225,069. Patented Mar. 2, 1880.

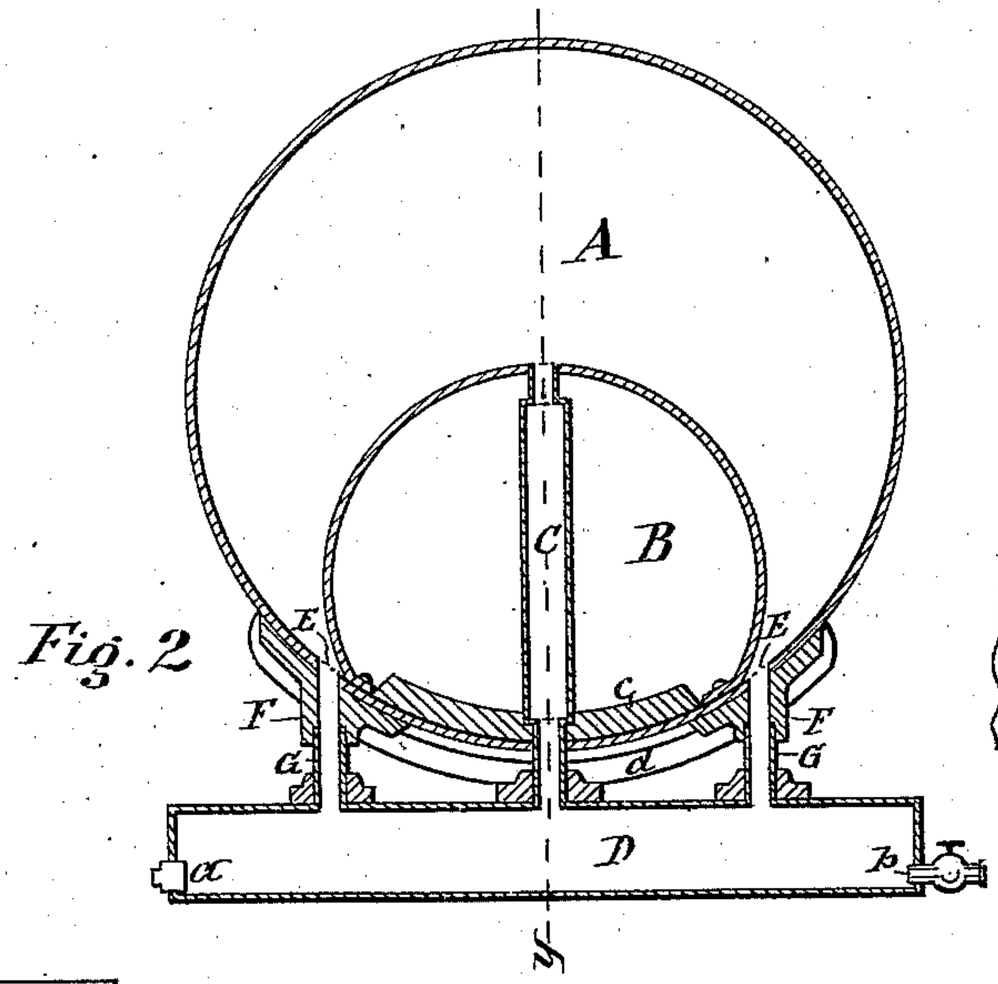

Fig. 2

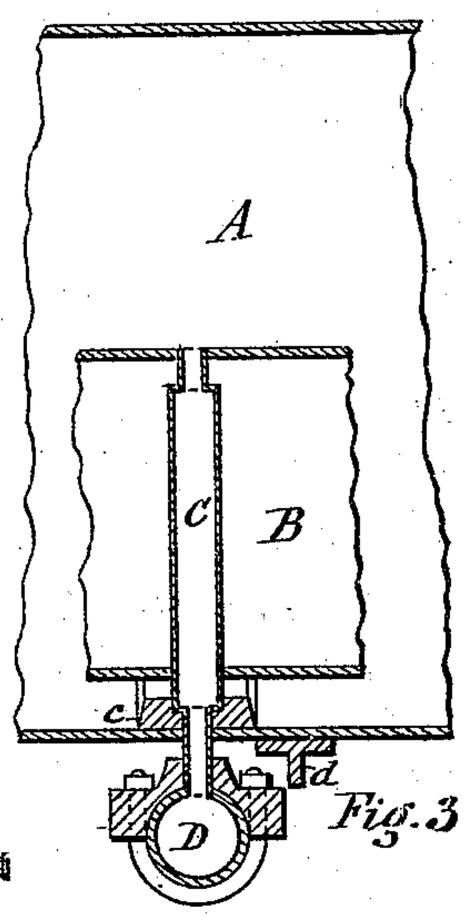

Fig. 3

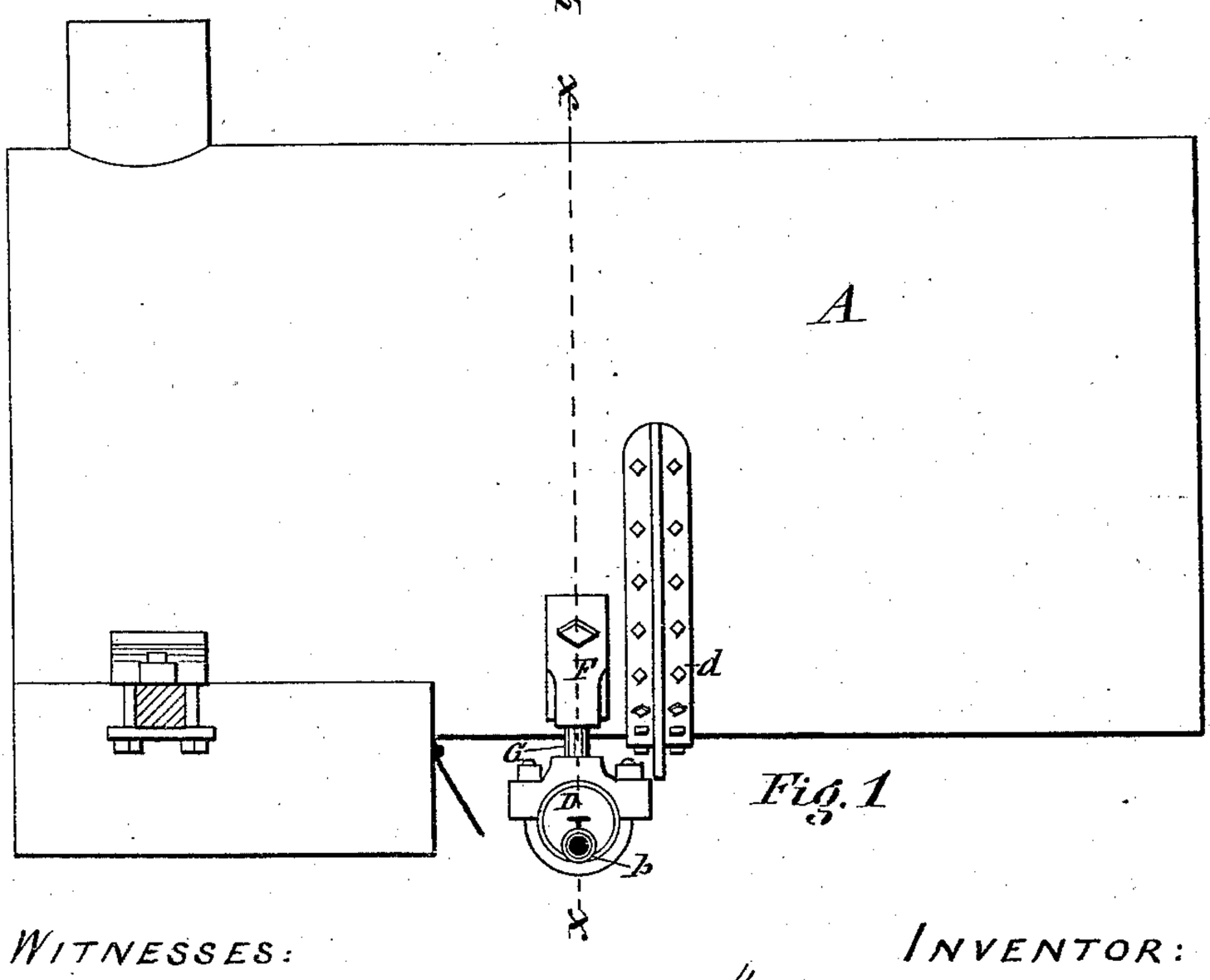

Fig. 1

WITNESSES:

E. Laass

Wm L. Raymond.

INVENTOR:

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UNITED STATES PATENT OFFICE.

WILLIAM R. MICHENER, OF OSWEGO, NEW YORK, ASSIGNOR TO AMES IRON WORKS, OF SAME PLACE.

PORTABLE STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 225,069, dated March 2, 1880.

Application filed December 15, 1879.

To all whom it may concern:

Be it known that I, WILLIAM R. MICHENER, of Oswego, in the county of Oswego, in the State of New York, have invented new and useful Improvements in Portable Steam-Boilers, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to that class of steam-boilers termed "return-flue boilers," and in which the main flue or fire-arch is extended the length of the boiler, and built directly upon the bottom of the interior of the main shell thereof. The boiler proper, thus made crescent shape in cross-section, has been difficult to clean, and therefore subjected to rapid incrustation on account of the sediment of the water lodging on top of the main flue and in the acute-angled pockets formed by the extremities of the crescent at the sides of the main flue. It is to obviate this difficulty and at the same time increase the efficiency of the boiler which my present invention has for its object; and for the attainment of this end I tap the crescent-shaped boiler at the crown of the main flue, and at or near the junction of the shell of said flue and main outer shell of the boiler, by pipes or conduits extended to and communicating with a subjacent drum, which is provided with a suitable blow-off cock and a hand-hole for the removal of the sediment deposited in said drum.

The invention also consists in peculiar means of bracing a boiler tapped and encumbered as aforesaid.

The invention is clearly illustrated in the accompanying drawings, wherein Figure 1 is a side view of a boiler provided with my invention; Fig. 2, a transverse section on line *x x*, Fig. 1; and Fig. 3 is a longitudinal section on line *y y*, Fig. 2.

Similar letters of reference indicate corresponding parts.

A represents the cylindrical main shell of the boiler, and B the main fire-flue, formed by a segmental shell joined at its bottom edges to the lower portion of the interior of the main shell A. C is a pipe or duct extended vertically through the main fire-flue B, and inserted at one end through the crown of said flue B, and tapping the boiler at that point. The lower extremity of the pipe C passes through the bottom of the boiler-shell, and is connected to and communicates with a subjacent drum, D, arranged transversely beneath the boiler.

E E are orifices in the main shell A of the boiler, at or near its junction with the shell of the main fire-flue B, or at the lowest point of the boiler proper.

To the exterior of the main shell A are attached sockets F F, having vertical passages communicating with the orifices E. To the lower end of each socket F is attached a pipe, G, which has its lower extremity connected with the drum D aforesaid. The sediment, which usually accumulates upon the crown of the main flue B and in the bottom of the crescent-shaped boiler, is thus allowed to escape into the drum D, from whence it is readily removed, either through the hand-hole *a* at one end of the drum D, or by opening the blow-off cock *b* at the opposite end under a head of steam in the boiler.

By enlarging the circumference of that part of the central pipe, C, which is in the main fire-flue B, and thus exposed to the products of combustion passing through said flue, the heating-surface of the boiler is increased to an extent corresponding to the external surface of said pipe.

To thoroughly brace the shell of the boiler, and compensate for the additional strain incurred by the drum D, pendent therefrom, I attach to the interior of the bottom of the boiler-shell a segmental plate, *c*, having an aperture, through which the pipe C passes.

To the exterior of the bottom of the main shell A, and in close proximity to the suspended drum D, I attach a segmental bar, *d*, T-shaped in cross-section, and extended up the sides of the boiler sufficient to embrace that part thereof to which the outer pipes, G, are connected.

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

1. The combination, with the boiler A, having built upon the bottom of its interior the flue B, as shown, of the pipes C and G G, tap-

ping the boiler respectively at the crown of the flue B and at the junction of same with the main shell, and connected at their lower extremities with the drum D, substantially as described and shown.

2. In combination with the boiler A, provided with pipes C and G G, and the subjacent drum D, the bars *c* and *d*, applied, respectively, to the interior and exterior of the bottom of the boiler-shell, substantially in the manner and for the purpose shown and set forth.

In testimony whereof I have hereunto signed my name and affixed my seal in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga and State of New York, this 17th day of November, 1879.

W. R. MICHENER. [L. S.]

Witnesses:
E. LAASS,
C. BENDIXEN.