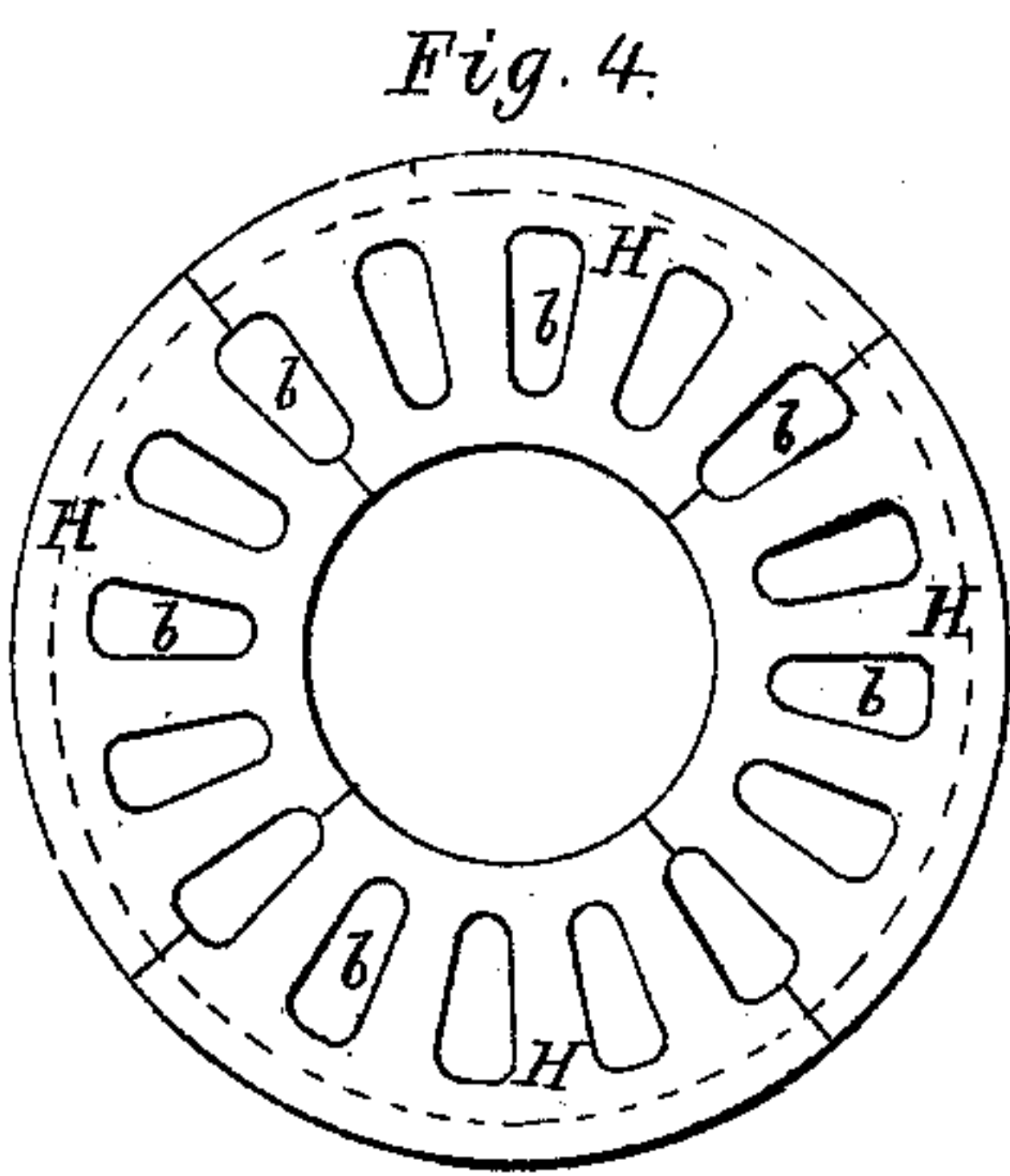
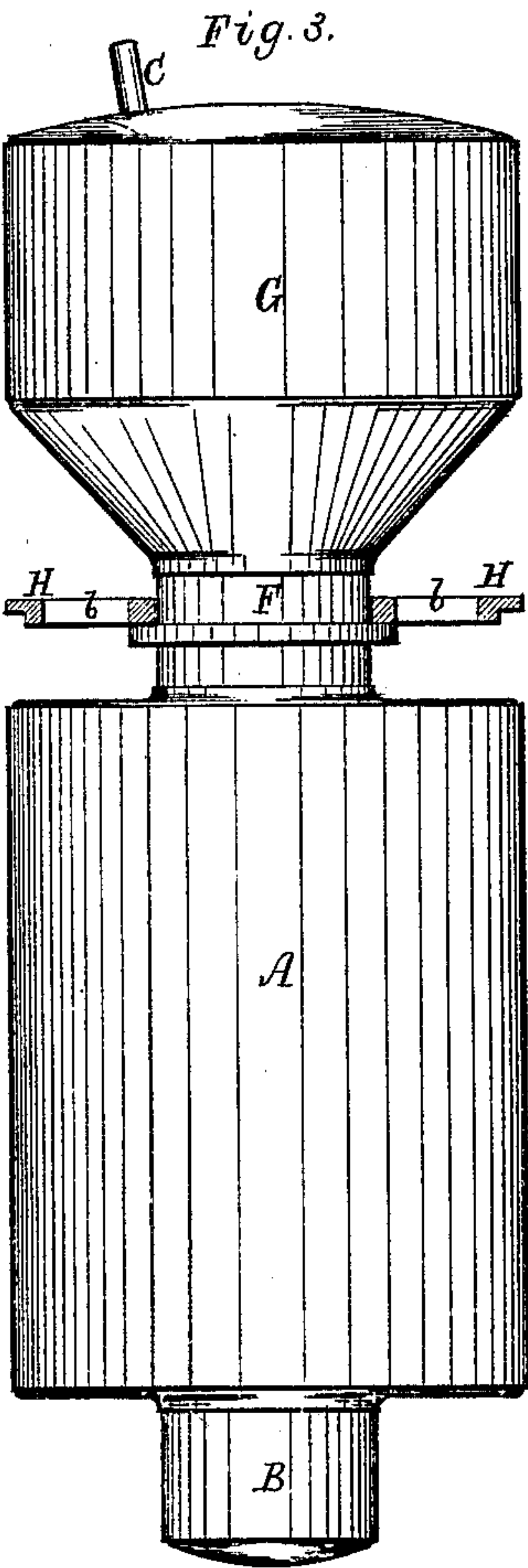




G. MILES.  
Upright Steam-Boilers.

No. 214,171.

Patented April 8, 1879.



Witnesses  
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# UNITED STATES PATENT OFFICE.

GEORGE MILES, OF GRANTVILLE, MASSACHUSETTS.

## IMPROVEMENT IN UPRIGHT STEAM-BOILERS.

Specification forming part of Letters Patent No. **214,171**, dated April 8, 1879; application filed October 3, 1878.

*To all whom it may concern:*

Be it known that I, GEORGE MILES, of Grantville, of the county of Norfolk and State of Massachusetts, have invented a new and useful Improvement in Upright Steam-Boilers; and do hereby declare the same to be described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a vertical and transverse section of the boiler, its furnace, and smoke flue or chamber; Fig. 2, a horizontal section taken through the boiler and its tubes and the encompassing smoke-flue. Fig. 3 is a side elevation of the boiler, showing a section of the grid surrounding its neck. Fig. 4 is a top view of such grid.

My invention consists in the peculiar construction of an upright boiler, made of the parts hereinafter described, arranged and operating substantially in the manner set forth.

In the drawings, A denotes an upright boiler, having projecting down from its bottom and into the former, as shown, a sediment-receiving chamber, B, and also having a blow-off pipe, C, extending from and out of the top of the dome of the smoke-chamber, and through the boiler, and into the said sediment-chamber, nearly to the bottom thereof. Underneath the sediment-chamber and lower end of the boiler is a fire-place, D, provided with a grate, *a*. Over the fire-place, and encompassing the boiler, is the smoke-chamber E, which opens into the fire-place, and extends over the top of the boiler and around a tubular neck, F, arranged concentrically on such top and extending above it, and opening into the boiler and a cylindro-conical steam drum or head, G, formed and arranged as represented.

Extending around the upper part of the aforesaid neck, and across the top of the smoke-chamber, is a grid, H, or a set of plates, H, perforated with numerous holes or slots, *b*, arranged in and around such at or about equal distances apart, the object of such grid being to equally distribute the smoke and heat from the smoke-chamber within the dome I thereof surrounding the steam-drum G, the said dome I having a conduit, *c*, leading laterally out of

it; and, furthermore, there should be in the crown of the dome a hole directly over a man-hole, *d*, in the top of the steam-drum.

The neck and the sediment-chamber I usually make equal, or about so, in diameter, and arrange in the boiler a series of tubes, K, extending from top to bottom of it, and opening through both top and bottom. These tubes I dispose in concentric ranges, as shown, and have the diameter of the inner range large enough for a person to get into the space encompassed by such range after first passing down through the man-hole and the neck over such space.

The boiler-neck and steam-drum, fastened together, are suspended within the smoke-chamber and its dome by means of a series of brackets or standards, L, fastened to the steam-drum, and extending therefrom, and stepped on the top of the brick-work M, in manner as represented.

The sediment that may gather in the boiler will fall into the chamber B, and may be discharged therefrom with water of the boiler by the pressure of steam on opening the blow-off pipe, which, near its upper end, should be provided with a stop-cock for closing it.

O O are a series of stay-rods extending within the boiler, and from top to bottom of it, and fastened thereto.

In heating the boiler the smoke and hot volatile products of combustion pass from the fire-place up through the pipes of the boiler, and also around the boiler, thence about the neck and through the distributing-grid, thence against the conical bottom of the steam-drum, and are deflected thereby, and pass up around the cylindrical part and over the top of the drum, and finally are discharged by the conduit *c*, the boiler and its adjuncts being heated thereby to great advantage.

I do not claim the elements of the invention taken separately; but

What I claim is—

An upright steam-boiler suspended over a fire-place, D, in a surrounding case, M, on suitable brackets L, and consisting of a pot, A, provided with upright flues K, through which the products of combustion pass, a sediment-chamber, B, projecting downward from

the center of the bottom of the boiler, and a blow-off pipe, C, located as shown and described, combined with a steam-drum, G, placed in the dome I, and connected with the pot by a tubular neck, F, and provided with a man-hole, d, the neck F being surrounded by a perforated sectional grid, H, through which the products of combustion pass and are evenly

applied over the surface of drum G, the whole being constructed and arranged in the manner specified and shown.

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