

(No Model.)

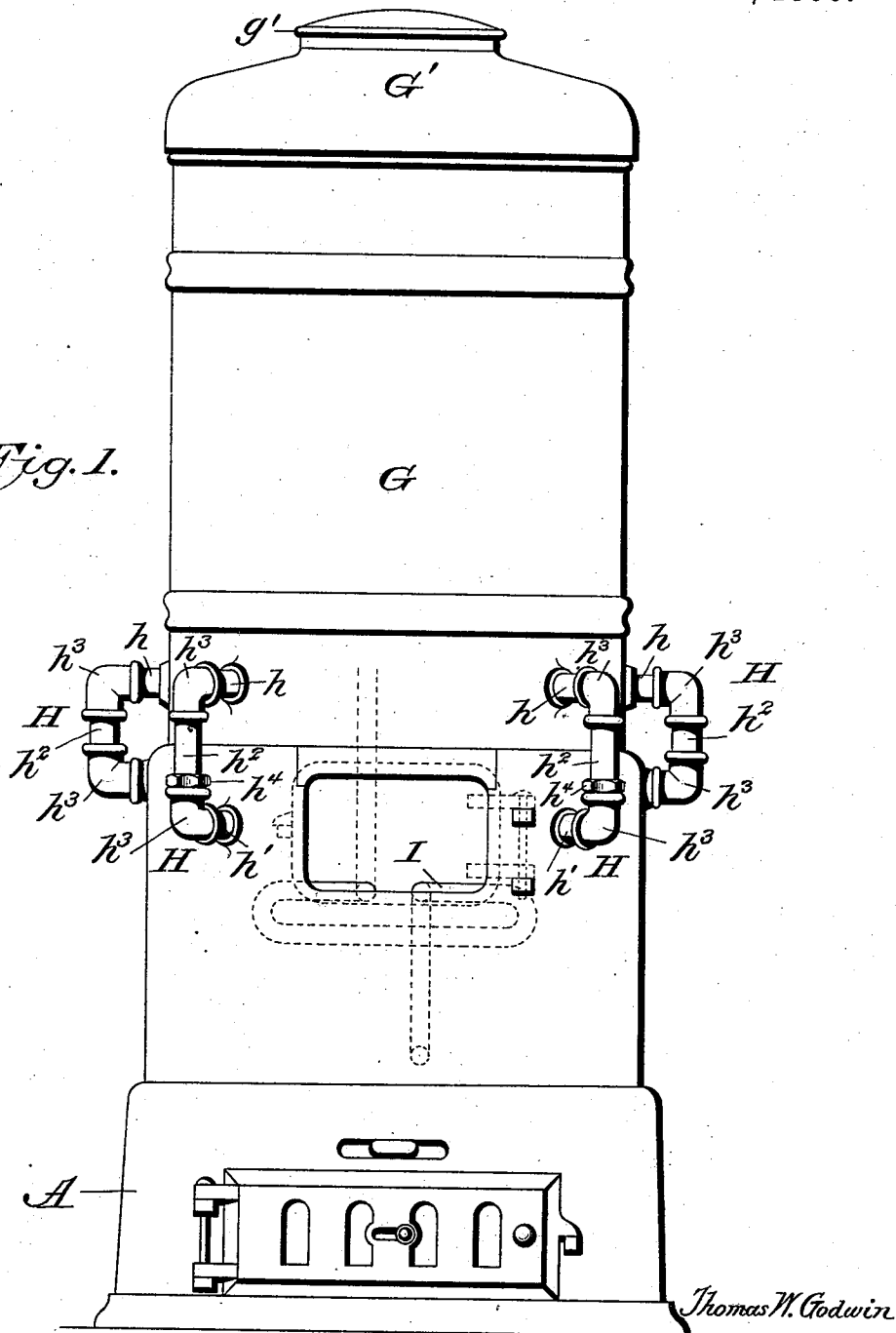
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T. W. GODWIN.
STEAM GENERATOR.

No. 549,782.

Patented Nov. 12, 1895.

Fig. 1.



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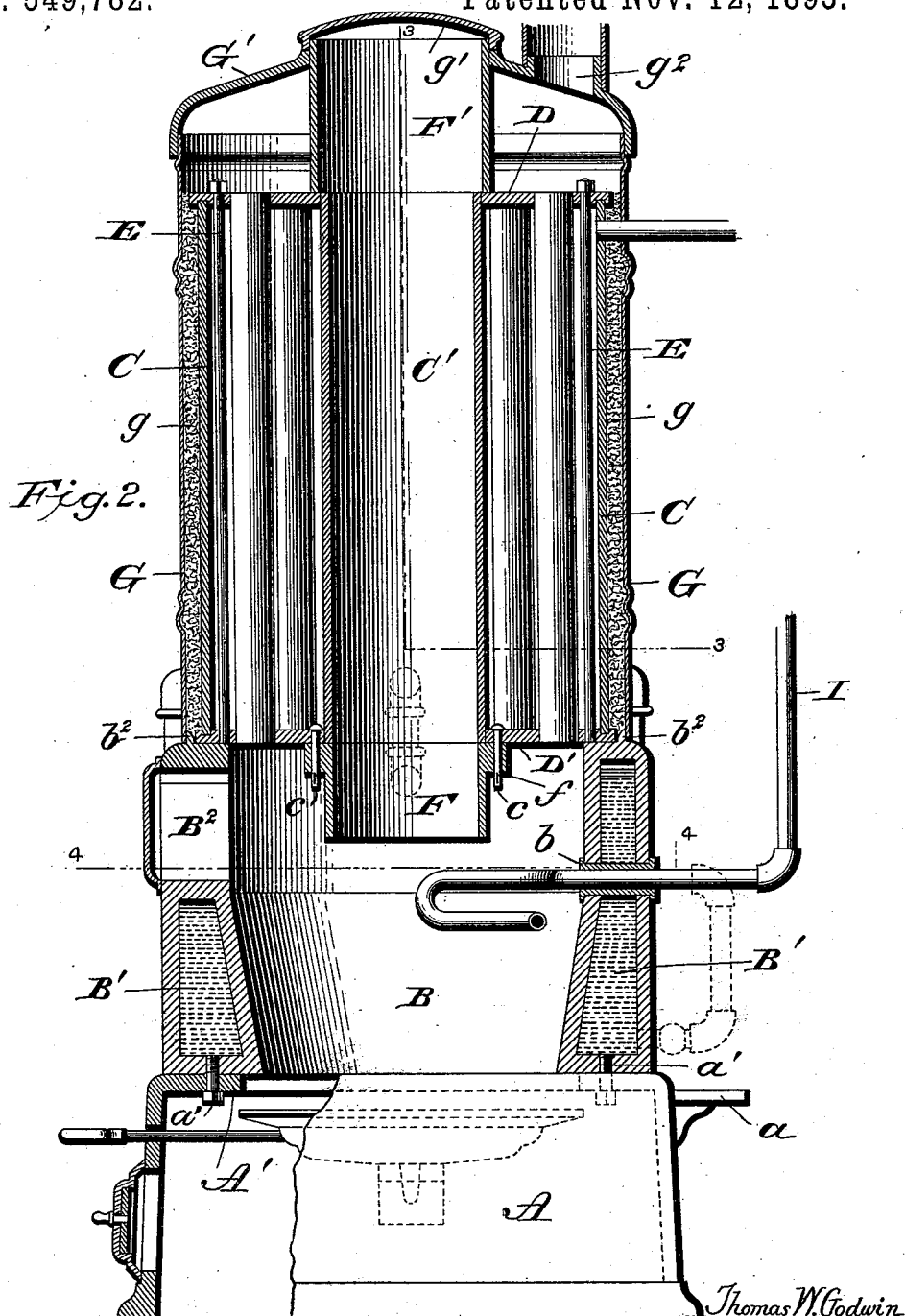
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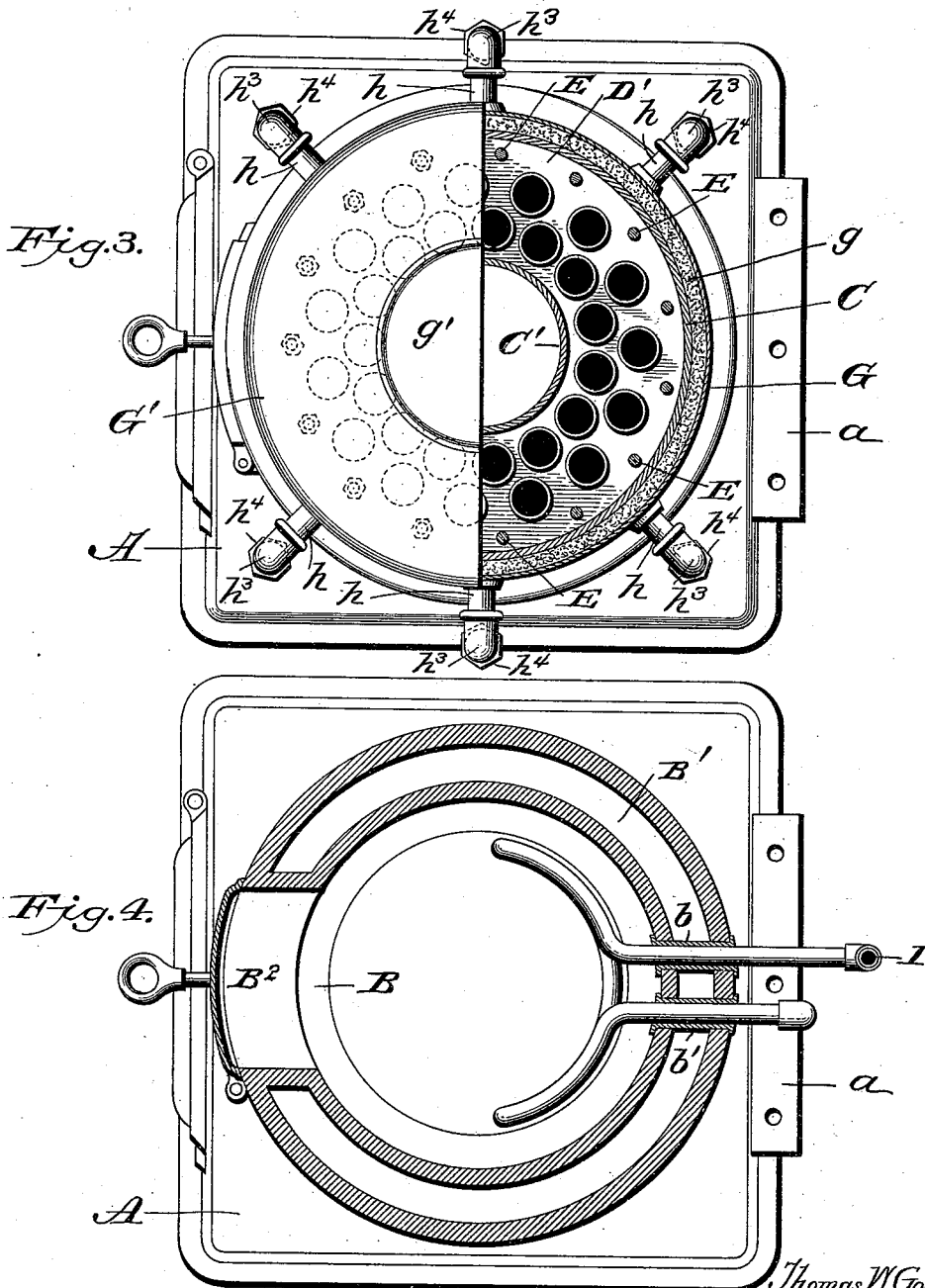
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UNITED STATES PATENT OFFICE.

THOMAS W. GODWIN, OF NORFOLK, VIRGINIA, ASSIGNOR OF ONE-HALF TO
ALBERT L. WOODWORTH AND CLARENCE D. WHITING, OF SAME PLACE.

STEAM-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 549,782, dated November 12, 1895.

Application filed August 30, 1895. Serial No. 561,021. (No model.)

To all whom it may concern:

Be it known that I, THOMAS W. GODWIN, a citizen of the United States of America, residing at Norfolk, in the county of Norfolk and State of Virginia, have invented certain new and useful Improvements in Steam-Generators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The object of this invention is to provide a steam generator or boiler which is simple in construction and may be readily set up; and it is designed more especially as a boiler for generating steam for engines running light machinery, such as printing-presses, steam-launches, &c.

The invention consists in the construction and combination of the parts, as will be hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a side elevation of a boiler or steam-generator constructed in accordance with my invention. Fig. 2 is a vertical sectional view. Fig. 3 is a plan view, partly in section, the section being taken on the line 3 3 of Fig. 2; and Fig. 4 is a horizontal sectional view on the line 4 4 of Fig. 2.

A designates the base or ash-pit of the boiler, which is preferably rectangular in shape and made up of a casting provided with the usual doorway and above the doorway with a transverse slot, through which the rod for operating the grate passes. The doorway is covered by a horizontally-swinging door hinged to one side of the same and provided with a damper. The base is also provided with suitable means for supporting the grate and with brackets *a* supporting a plate upon which the engine may be secured. The upper end of the base or ash-pit has an inwardly-projecting flange *A'*, upon which rests the fire-pot B. The fire-pot is preferably circular and is provided with double walls, leaving a water-space *B'* between them, a doorway *B²* being formed in

one side of the fire-pot, while the opposite side is tapped for the reception of thimbles *b* and *b'*, through which the feed-water pipes pass, as hereinafter described. It will be noted that the water space or chamber *B'* surrounds the bottom and sides of the doorway and that the thimbles *b* and *b'* reinforce the walls at the side of the fire-pot opposite said doorway. The fire-pot is held upon the base by bolts *a'*, only the bolt-apertures in the fire-pot being threaded, so that the parts can be drawn securely together. The inner wall of the fire-pot converges slightly toward the grate, as shown in Fig. 2, and the upper end of the fire-pot is provided with an annular flange or ring *b²*, formed integral therewith and to which the outer casing of the boiler is secured.

C designates a cylindrical boiler or steam-generator, which is provided with the usual vertical tubes or flues, through which the products of combustion pass from the fire-pot to the smoke-stack, the heads D and D' of the boiler being securely held upon the outer shell by means of vertical rods E, as shown in Fig. 2. Centrally the boiler C is provided with a vertical fuel-magazine C', which is secured at its upper and lower ends to the heads D and D', the lower end of the fuel-magazine being provided with an extension F, which depends into the fire-pot B, said extension being secured to the under side of the head D' of the boiler by bolts *c*, which pass through said head and through apertures in an annular flange *f* at the upper end of the extension, the lower ends of the bolts having transverse apertures, through which locking-keys pass, or the ends of the bolts may be threaded to receive nuts. The head D' of the boiler fits within the annular flange or ring *b²* on the upper end of the fire-pot, and surrounding the boiler is an outer shell or casing G, the lower end of which is riveted to the outer edge of the flange *b²*, while its upper end is attached to a hood or dome G'. The outer shell or casing G is provided at suitable intervals with beadings which allow for the expansion of the same, and between this shell or casing and the boiler C is placed a packing *g*, of asbestos or other suitable fireproof material.

The hood or dome G' is provided centrally with an opening which communicates with an upper extension F' of the fuel-magazine C', the opening being covered by a suitable lid or cover g', which fits over the upper end of the fuel-magazine. The hood or dome is also provided with a smoke-exit opening g², to which the smoke-stack is connected.

II H designate couplings for connecting the boiler with the water space or chamber B' surrounding the fire-pot, these couplings consisting of short pipes h and h', which extend through the boiler and through the outer wall of the fire-pot, and are connected to each other by a vertical pipe h² and elbows h³, the vertical pipes being secured to the elbows by tightening-nuts h⁴. The couplings H not only serve to conduct the water from the chamber B' to the boiler but also connect the fire-pot and boiler rigidly to each other. It will be observed that some of the short pipes h' are let into the water space or chamber B' at the extreme upper end thereof to prevent air collecting therein.

Water is fed into the chamber B' surrounding the fire-pot by means of a pipe I, which leads from a pump or water supply and passes through one of the thimbles b b' to the interior of the fire-pot and extends partially around one side of the same, where it is bent or looped and brought back to extend partly around the other side, and is then brought back to the other thimble, through which it passes and by means of elbows and short sections of pipe is let into the lower end of the water-chamber. By this arrangement the water is heated before it is fed into the water-chamber.

The steam boiler or generator hereinbefore described occupies but little space, and is so constructed that it may be readily set up and taken down, and by reason of the particular arrangement and organization of the parts provides a very effective steam-generator and one that can be cheaply manufactured.

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

1. The combination in a steam-boiler or steam-generator, of a base or ash-pit A having a grate; a fire-pot mounted on the base or ash-pit and having double walls forming a water space or chamber, said fire-pot having a doorway in one side; thimbles b and b' let into the walls on the side of the fire-pot opposite the doorway; a boiler C mounted on the fire-pot and connected with the water space by couplings H; and a pipe I leading from a water supply and passing through one of the thimbles into the fire-pot, traversing one side of the fire-pot and passing out through the other thimble so as to connect with the lower end of the water space or chamber, substantially as shown and for the purpose set forth.

2. In a steam-boiler or steam-generator, the combination of a base or ash-pit A having a grate and brackets a to which a plate is secured for supporting an engine; a fire-pot B mounted above the ash-pit and having double walls forming a water space; thimbles b and b' let into the walls of the fire-pot on the opposite side thereof from the doorway; a boiler C mounted upon the fire-pot and provided with a central fuel magazine having removable extensions F and F'; and an outer shell or casing G surrounding the boiler and provided at its upper end with a hood or dome G' having a central opening communicating with the fuel magazine; together with couplings H connecting the water space with the boiler, and a pipe I leading from a water supply through one of the thimbles to the interior of the fire-pot, said pipe traversing one side of the interior of the fire-pot and passing out through the other thimble so as to connect with the lower end of the water chamber by passing through the outer wall of the fire-pot, substantially as shown and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS W. GODWIN.

Witnesses:

A. MYERS,
J. H. HAWELL.