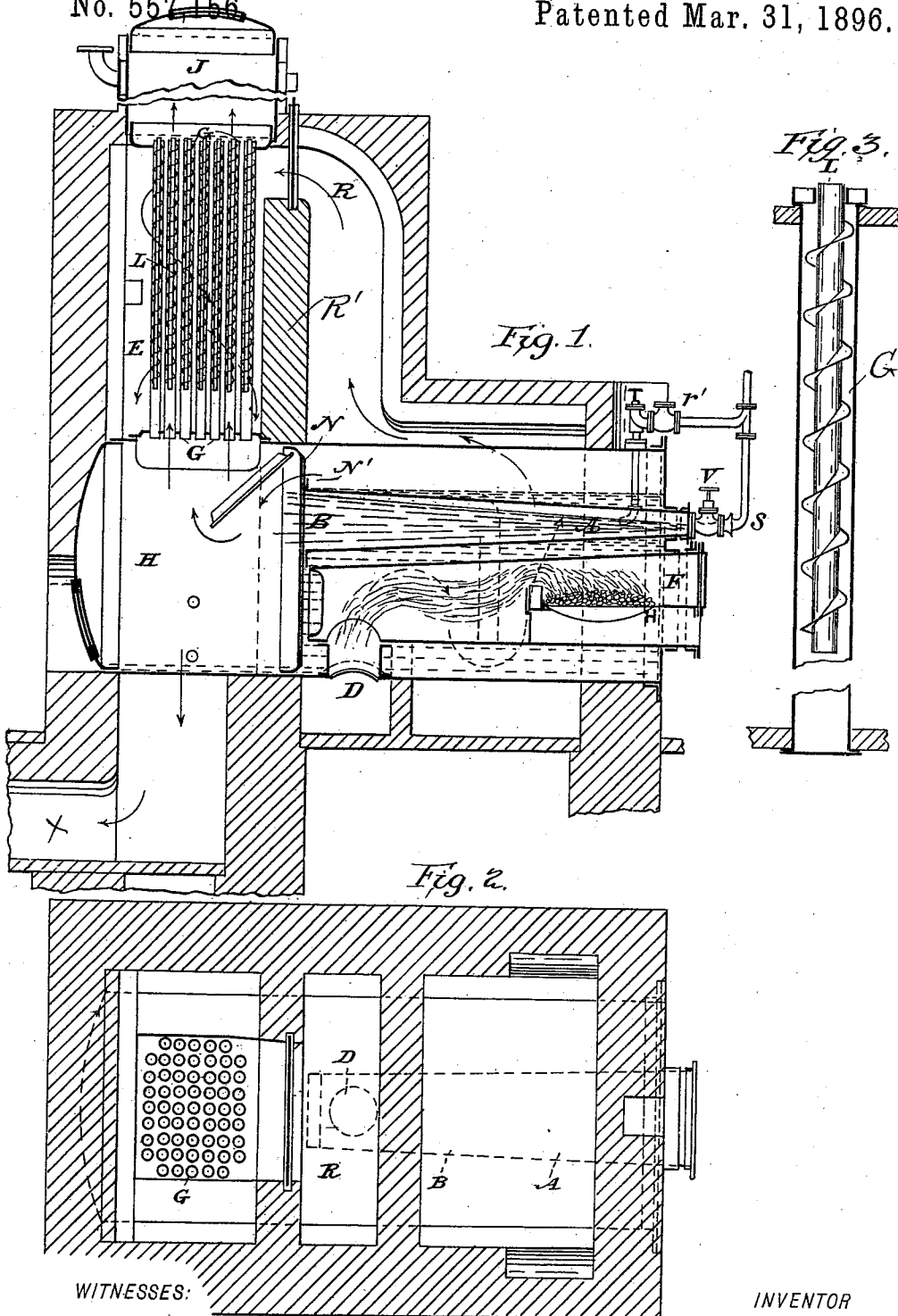


(No Model.)

H. SEIFFERT.
STEAM GENERATOR.

No. 557,156

Patented Mar. 31, 1896.



WITNESSES:
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UNITED STATES PATENT OFFICE.

HERMANN SEIFFERT, OF HALLE-ON-THE-SAALE, GERMANY.

STEAM-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 557,156, dated March 31, 1896.

Application filed October 14, 1895. Serial No. 565,555. (No model.)

To all whom it may concern:

Be it known that I, HERMANN SEIFFERT, a subject of the King of Prussia, Emperor of Germany, and a resident of Halle-on-the-Saale, in Saxony, Kingdom of Prussia, Germany, have invented a certain new and useful Improvement in the Processes of Generating Dry Steam and Apparatus Therefor, of which the following is a clear and full specification.

My invention comprises a steam-generator in which a vaporizer-chamber is connected with a conical tube extending through a water-chamber above the furnace, into which tube a spray of water is thrown from a spray device, so that steam will be generated in the shortest possible time.

In the drawings, Figure 1 is a vertical section through the apparatus. Fig. 2 is a horizontal section taken in a plane above the vaporizer and water chambers, and Fig. 3 is a view of a detail.

The furnace F is submerged in the water-chamber of the furnace, and the water extends over, under, and at the back of the flame-tube extending from this furnace. The outlet D from the flame-tube is directed downward into the space between the water-chamber and the outer walls of the furnace, so that the smoke passes entirely around the water-chamber to heat the same, as indicated by the arrows in full and dotted lines. Abutting against the rear end of the water-chamber there is a vaporizer-chamber H, and from this chamber superheater-pipes G extend upwardly and connect at their upper ends with the steam-dome J. The pipes G have shafts or posts L extending through them, having a spiral rib or blade extending about the same which compels the steam, in rising from the chamber H, to take a circuitous course and thus remain longer in the tubes G, which tubes are subjected to the direct action of the smoke and heated gases passing through the flue R, over the wall R', through the space E, among the pipes G, thence about the chamber H, and out at the discharge-pipe X.

The chamber H connects with the steam-space of the water-chamber through the opening N' of the wall N, and it connects also with the conical tube A B, which extends from

front to rear through the water-space directly above the flame-tube. A spray nozzle or device S connects with the small end of the vaporizer-tube A B and throws a spray of highly-heated water longitudinally through the conical tube, which spray is thus vaporized and passes into the chamber H and mixes with the steam entering the chamber H from the water-chamber through the openings N'.

I claim—

1. A steam-boiler comprising a furnace, a vaporizing-chamber H, a water-chamber above the fire-chamber and a conical tube A extending through the same and connecting with the vaporizing-chamber, and the spray device directed into the conical tube, substantially as described.

2. A steam-boiler comprising a furnace, a water-chamber above the same, a vaporizing-chamber H in rear of the water-chamber, a tube A, B, extending through the water-space to the vaporizing-chamber, a spray device connected with the tube A, B, the pipe system G extending up from the vaporizing-chamber and the steam-dome above the pipe system, said water-chamber, the vaporizing-chamber and pipe system being subjected to the heat of the furnace, substantially as described.

3. In combination in a furnace, the vaporizing-chamber, the furnace, the water-chamber and the pipe system connected with the vaporizing-chamber and made up of the outer tubes and the inner spirals, substantially as described.

4. In combination, the water-chamber, the vaporizer-chamber in rear thereof, the furnace and flame-tube F extending longitudinally within the water-chamber, the vaporizer-tube A, B, extending through the water-chamber above the flame-tube and connecting with the vaporizer-chamber and the spray device at the front end of the tube, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

HERMANN SEIFFERT.

Witnesses:

CONSTANTIN MUNDELIUS,
WM. HAUPT.