

(No Model.)

C. W. VANDERBURGH.
STEAM GENERATOR.

No. 521,062.

Patented June 5, 1894.

Fig. 1.

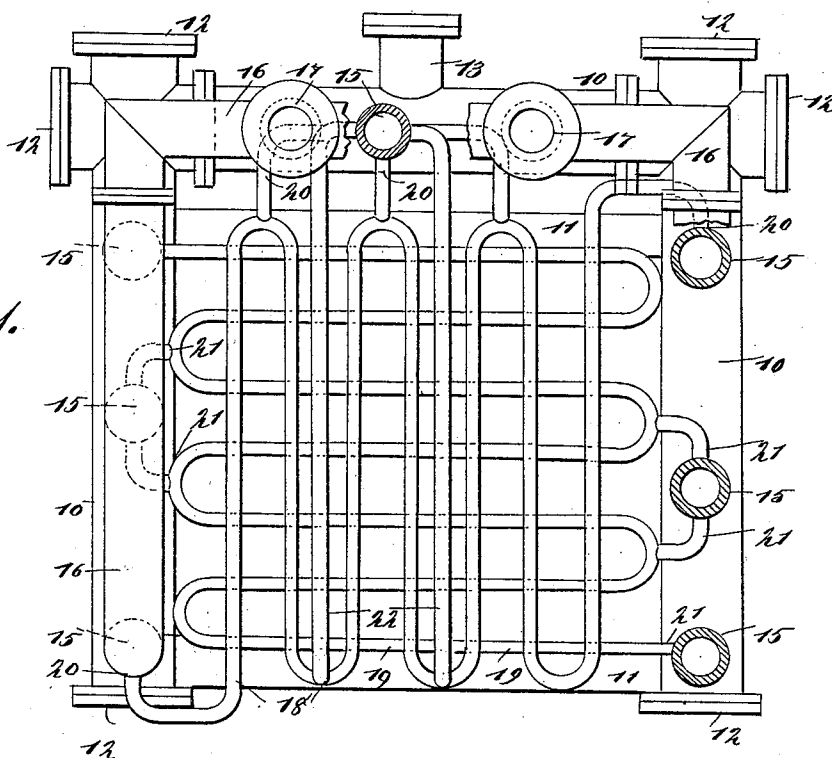
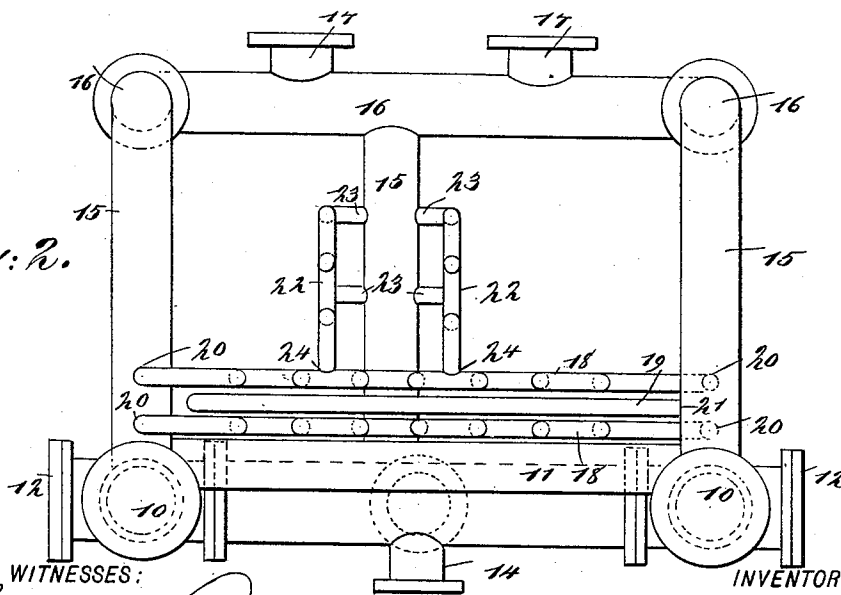


Fig. 2.



WITNESSES:

Chas. Viola
L. Sedgwick

INVENTOR

C. W. Vanderburgh
BY *Munn & Co*

ATTORNEYS.

UNITED STATES PATENT OFFICE.

CHARLES W. VANDERBURGH, OF WELLINGTON, CANADA.

STEAM-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 521,062, dated June 5, 1894.

Application filed July 12, 1893. Serial No. 480,245. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. VANDERBURGH, of Wellington, British Columbia, Canada, have invented a new and Improved Steam-Generator, of which the following is a full, clear, and exact description.

My invention relates to improvements in steam generators, and especially to that class of steam generators which employ water or mud drums to contain the main water supply and pipes in the generating portion of the apparatus.

The object of my invention is to produce a very simple generator of this class which is adapted to generate the steam rapidly and with a comparatively small consumption of fuel, which is arranged so that the dry steam may be always available for use, and which is constructed in such a way that the dirt in the apparatus may be easily blown off when desired.

To these ends my invention consists in certain features of construction and combinations of parts, as will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in both the views.

Figure 1 is a broken sectional plan of the generator embodying my invention; and Fig. 2 is a front elevation of the same.

The generator is provided at its base on three sides with mud drums 10, of substantially the usual kind, which are braced by cross braces 11 and which are provided at the ends with detachable caps 12, in the usual way. One of the mud drums 10 is provided with the inlet 13 for feed water and with an outlet 14 which may be opened in case the generator is to be cleaned out. Projecting upward from the several drums are water pipes 15, any necessary number being employed and these connect at their upper ends with a steam pipe 16 which extends parallel with the three drums 10. The steam pipe 16 has two outlets 17, one of which connects with the steam pipe by which the steam is conveyed to the point where it is to be used and to the other of which a safety valve may be attached in the customary manner.

The generator is provided with transverse coils of pipes 18 and 19, which alternate; that is, which are placed one above another, as shown in Fig. 2, and these pipes extend directly into the path of the rising heat in the generator furnace, so that steam is quickly generated in them. Any necessary number of coils may be used. The coils 18 connect, as shown at 20, with the water pipes 15 on the three sides of the generator, while the coils 19 connect with the pipes on opposite sides, as shown at 21, in Fig. 1. Above the generating coils 18 and 19 are coils of pipes 22 which are adapted to contain dry steam, and the members of which are arranged one above the other instead of horizontally, and these coils connect with one of the water pipes 15 as at 23 and also with the upper coil 18 of the generating pipe, as shown at 24.

The generator may be cased up in masonry or in any suitable furnace, and it is desirable to have the bends of the generating pipe incased in masonry or covered by asbestos or other poor conductors of heat, so that the joints will be protected and the outer portions of the pipe kept relatively cool, as this has a tendency to start the circulation from the center toward the outer portion of the generator, and any dirt therefore, which is carried into the generating pipes will pass off into the water pipes and settle down in the mud drums.

When heat is applied to the generator, the water in the coils 18 and 19 is quickly converted to steam, which rises through the coils 22 and passes into the upper portion of one of the pipes 15 and into the steam pipe 16, the water from the lower portion of the pipes 15 taking the place of the water converted to steam in the generating coils. From the pipe 16 dry steam may be withdrawn, and it will be seen that the arrangement of the generating coils is such that a very large area of heating surface is provided and steam is very rapidly made.

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

1. A steam generator comprising a plurality of connected water or mud drums forming the base of the generator and arranged on three

sides thereof, a dry steam pipe supported at the top of the generator and extending around the same sides being arranged above and parallel with the said drums, water pipes arranged on three sides of the generator and extending vertically from the drums to the steam pipe and connecting the same, a feed water inlet in one of the drums, a steam outlet from the steam pipe, a plurality of generating coils extending across the generator and arranged one above the other in a horizontal plane, each of the coils connecting with vertical water pipes on three sides of the generator, and intermediate generating coils connecting with vertical water pipes on two opposite sides of the generator, substantially as described.

2. A steam generator, comprising a plurality of water or mud drums forming the base of the generator and arranged on three sides

thereof, one of the drums having a suitable feed water inlet and an outlet, a steam pipe arranged at the top of the generator and extending around three sides of the same, vertical pipes arranged on three sides of the generator and connecting the steam pipes and water drums, horizontal coils of pipes connected with the vertical pipes on three sides of the generator and extending transversely across the generator, intermediate coils connecting with the vertical pipes on opposite sides of the generator and dry steam coils arranged vertically above the horizontal coils and connected with the upper horizontal coil and also with one of the vertical pipes, substantially as described.

CHARLES W. VANDERBURGH.

Witnesses:

P. M. YINGLING,

JAS. J. WOODRON.