T. F. BUTTERFIELD.

Steam-Generator.

No. 196,559 Patented Oct. 30, 1877.

Fig. 1.

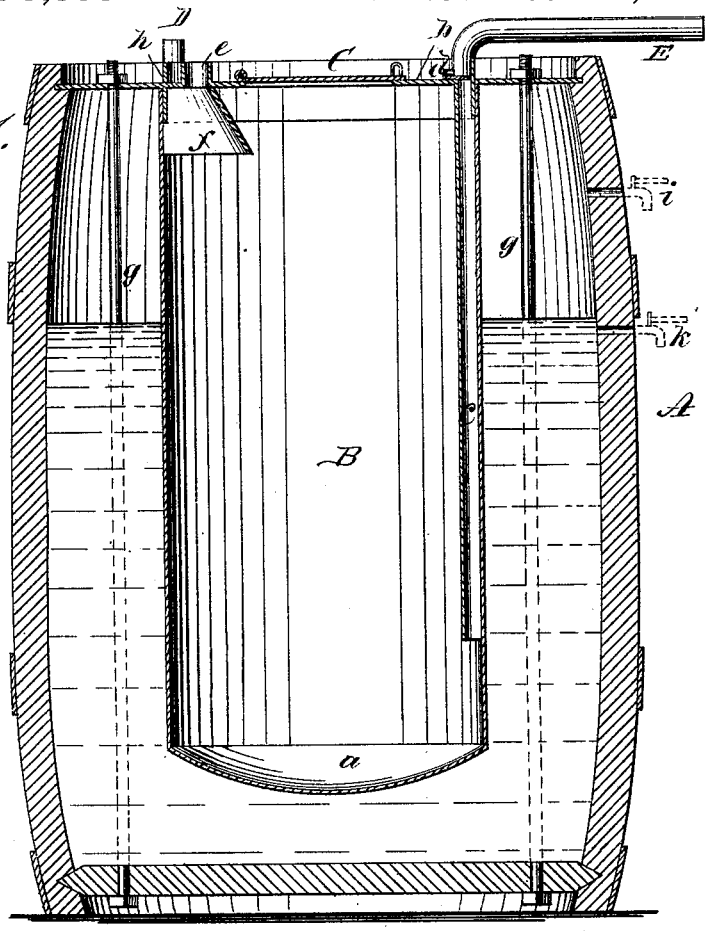
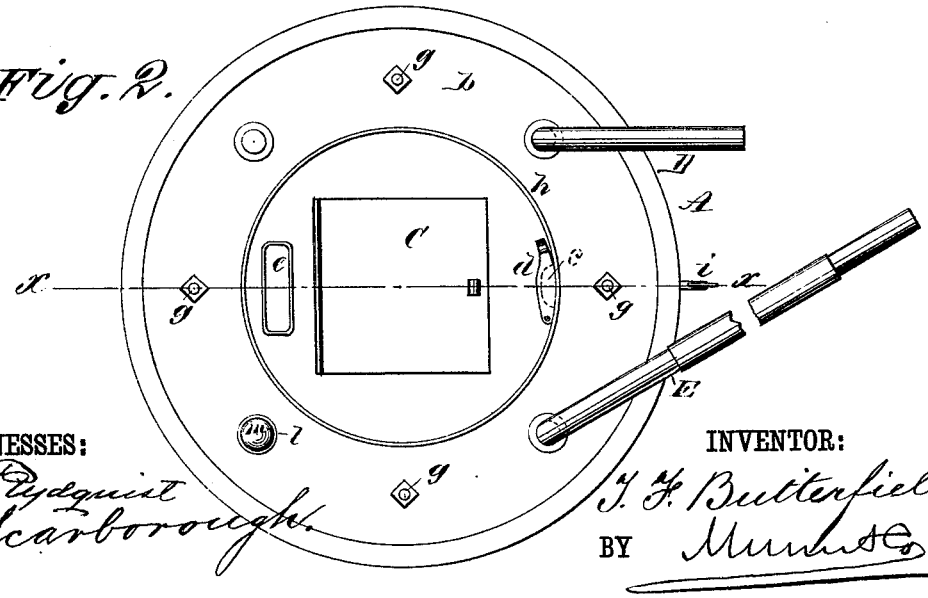


Fig. 2.



WITNESSES:

H. Prydquist

J. W. Scarborough.

INVENTOR:

T. F. Butterfield.

BY Munn & Co

ATTORNEYS.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

THOMAS F. BUTTERFIELD, OF DE WITT, IOWA.

IMPROVEMENT IN STEAM-GENERATORS.

Specification forming part of Letters Patent No. **196,559**, dated October 30, 1877; application filed July 13, 1877.

To all whom it may concern:

Be it known that I, THOMAS F. BUTTERFIELD, of De Witt, county of Clinton, and State of Iowa, have invented a new and Improved Steam-Generator, of which the following is a specification:

Figure 1 is a central vertical section, taken on line *x x* in Fig. 2. Fig. 2 is a plan view.

Similar letters of reference indicate corresponding parts.

My invention has for its object to provide an improved boiler for agricultural use and other purposes.

The invention pertains to the construction and arrangement of parts, as hereinafter described.

In the drawings, A is a barrel, which, in the present case, is used as a receptacle for water; and B is a cylinder of sheet metal, closed at its lower end by an outwardly convex head, *a*, and suspended from a cast-metal head, *b*, that is fitted in the croze of the barrel, as wooden heads are.

The cylinder B is fitted steam-tight to the head *b*, and in the head, over the center of the cylinder B, there is a door, C, through which the cylinder is supplied with fuel. A conduit, *c*, extends from the top of the head to the lower part of the cylinder, and is stopped at its upper end by a damper, *d*. A collar, *e*, is formed on the head *b* for receiving a pipe to convey the smoke, and upon the under side of the head there is a funnel, *f*, that surrounds the smoke-aperture, and is intended to gather the smoke and convey it to the smoke-pipe. D E are pipes screwed into the head *b*, for conveying steam to any desired point. These pipes may be connected with flexible tubes of rubber, so that the steam may be carried in any required direction. A safety-valve, consisting of a short tube, *l*, to which is fitted a ball, *m*, is screwed into the head *b*, and permits steam to escape when the pressure passes the prescribed limit.

The heads of the barrel are stayed by bolts *g*, which extend through both heads.

A flange or rib, *h*, is formed on the head *b*, concentric with the periphery of the head, and is designed for holding water between it and the chine of the barrel, to prevent the head from becoming overheated, and to prevent the barrel from becoming dry.

Gage-cocks *i k* are inserted in the barrel for determining the level of the water in the generator.

I have described my improvement as applied to a wooden barrel; but it may, with equal advantage, be applied to a metallic tank.

A fire is built upon a suitable grate in the bottom of the cylinder, and air is supplied through the conduit *c*, the quantity being regulated by the damper *d*. Steam is in this manner safely and economically generated.

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

1. The improved steam-generator for agricultural use, consisting of the barrel A, the cast-metal head thereof provided with the circular flange *h*, and the suspended furnace B, attached to the under side of the head, as shown and described.

2. As a new article of manufacture, the cast-metal head for the barrel A, the same having the circular flange *h* formed in one piece therewith, and a central opening or aperture, as shown and described.

THOMAS F. BUTTERFIELD.

Witnesses:
P. B. WOLFE,
W. A. COTTON.