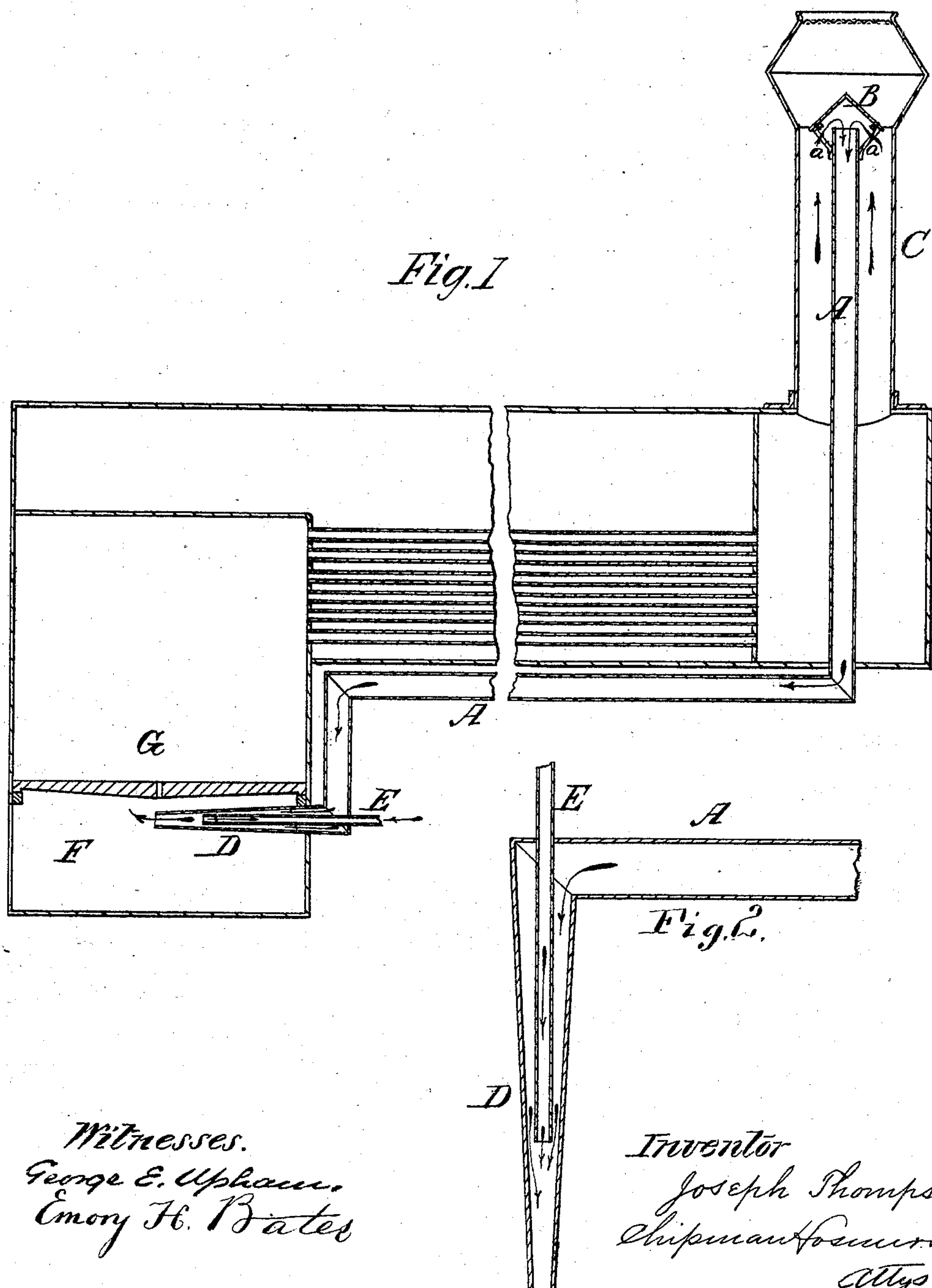


J. THOMPSON.  
Smoke-Consuming Furnaces.

No. 150,911.

Patented May 12, 1874.



Witnesses.  
George E. Upham.  
Emory H. Bates

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Atty

# UNITED STATES PATENT OFFICE.

JOSEPH THOMPSON, OF TARR FARM, PENNSYLVANIA.

## IMPROVEMENT IN SMOKE-CONSUMING FURNACES.

Specification forming part of Letters Patent No. **150,911**, dated May 12, 1874; application filed December 6, 1873.

*To all whom it may concern:*

Be it known that I, JOSEPH THOMPSON, of Tarr Farm, in the county of Venango and State of Pennsylvania, have invented a new and valuable Improvement in Smoke-Consumers; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a sectional view of my smoke-consumer. Fig. 2 is a detail view of the same.

This invention has relation to improvement in smoke-consuming furnaces for steam-boilers; and it consists in the combination and arrangement of the parts, as will be hereinafter explained.

The following is a description of my invention:

In the annexed drawings I have represented my invention applied to a locomotive-furnace, but it is equally applicable to furnaces generally. A represents a pipe of suitable capacity, which is centrally arranged inside of the stack C, and continued down through the smoke-box and beneath the boiler to an injecting-nozzle, D. This pipe A extends nearly to the top of the smoke-stack C, and is covered by means of a cone, B, which is connected to the pipe by means of supporting-arms *a*. This cone B is raised above the open end of pipe A, and its apex coincides with the center of this pipe A, and its base is somewhat less in diameter than the diameter of

the stack C, as shown in Fig. 1. The pipe E terminates at its lowest end in a tapered nozzle, D, which, in the drawings, is represented as entering the ash-pit of the furnace beneath the grate G; but, if desired, the nozzle D may enter directly into the fire-chamber above the grate. E represents a steam-pipe, which passes through the pipe A and extends well into the tapered nozzle D, and which communicates with the steam-space of the boiler, and is provided with a suitable cut-off valve for allowing a proper regulation of the admission of steam into the said nozzle D. The valve referred to should be arranged conveniently to the engineer's station.

When a fire is started in the furnace and steam is let into the pipe E, it will be ejected through the nozzle and into the ash-pit. This will produce a partial vacuum in the pipe A, and induce the heavy products of combustion which strike the cone B to descend through this pipe and be injected into the ash-pit, from whence they will rise through the grate G into the fire.

What I claim as new, and desire to secure by Letters Patent, is—

The pipe A and retarding-cone B, centrally arranged inside of the smoke-stack C, in combination with the nozzle D and steam-pipe E, substantially as described.

In testimony that I claim the above, I have hereunto subscribed my name in the presence of two witnesses.

JOSEPH THOMPSON.

Witnesses:

ROBERT NAYLOR,  
WILLIAM NAYLOR.