

(No Model.)

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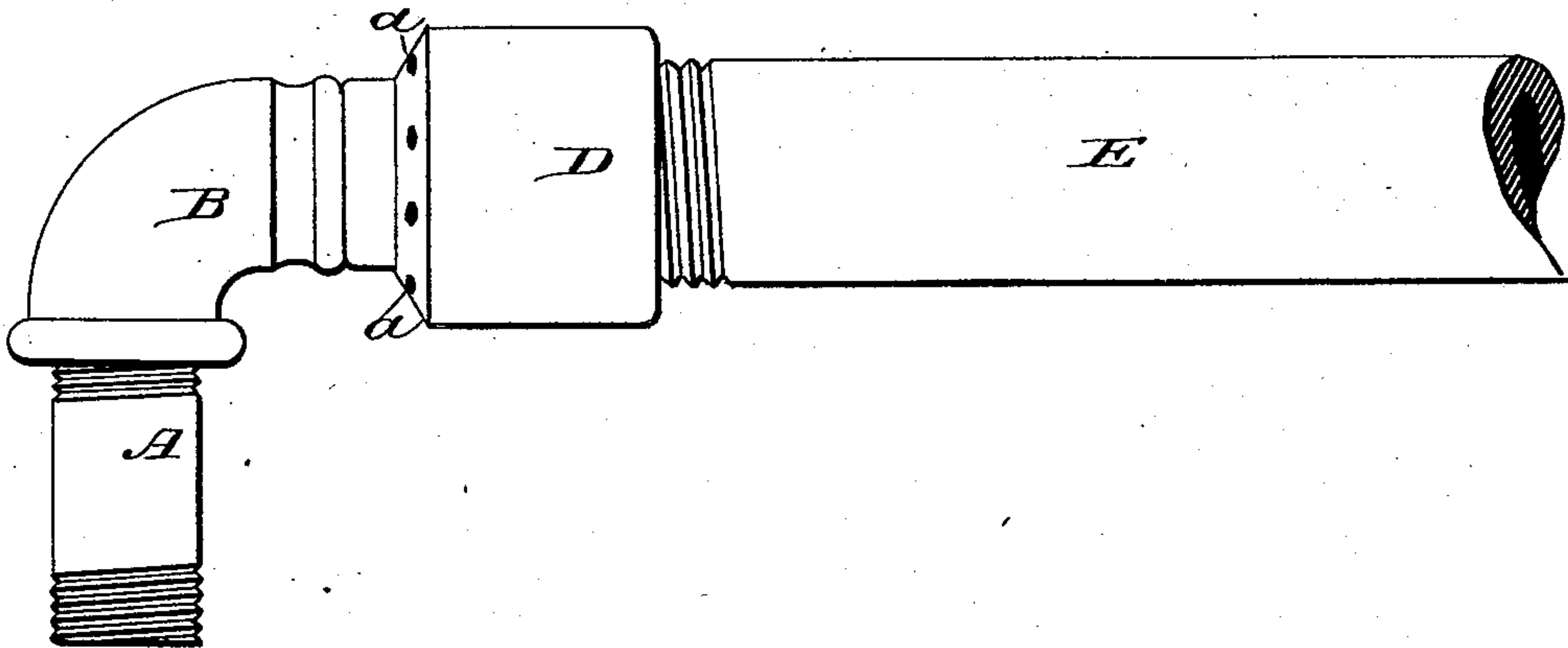
J. SHEPARD.

SMOKE BLOWER AND BURNER COMBINED.

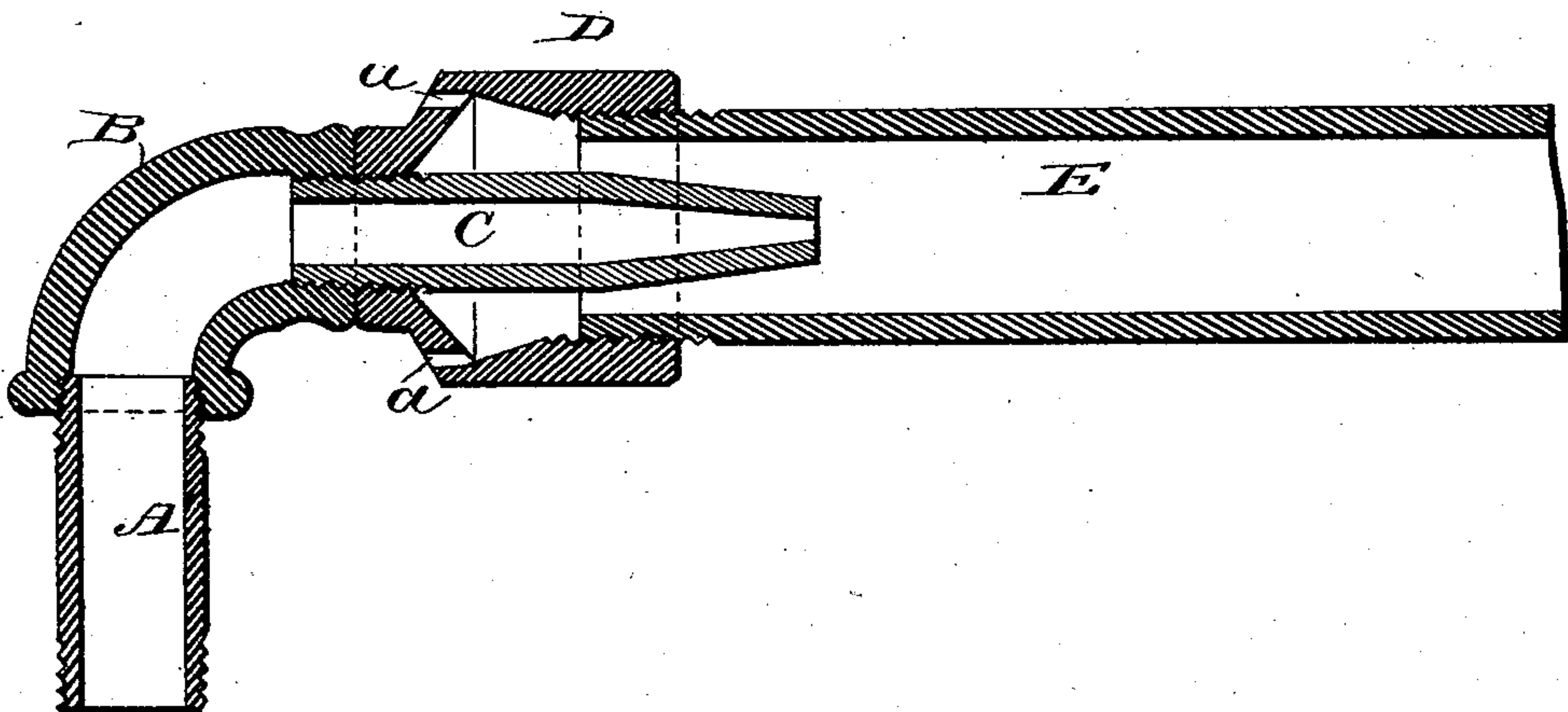
No. 289,863.

Patented Dec. 11, 1883.

*Fig. 1.*



*Fig. 2.*



WITNESSES  
Chas. H. Baker.  
Jas. L. Talley

INVENTOR  
John Shepard  
A. J. Ellis  
Attorney

(No Model.)

2 Sheets—Sheet 2.

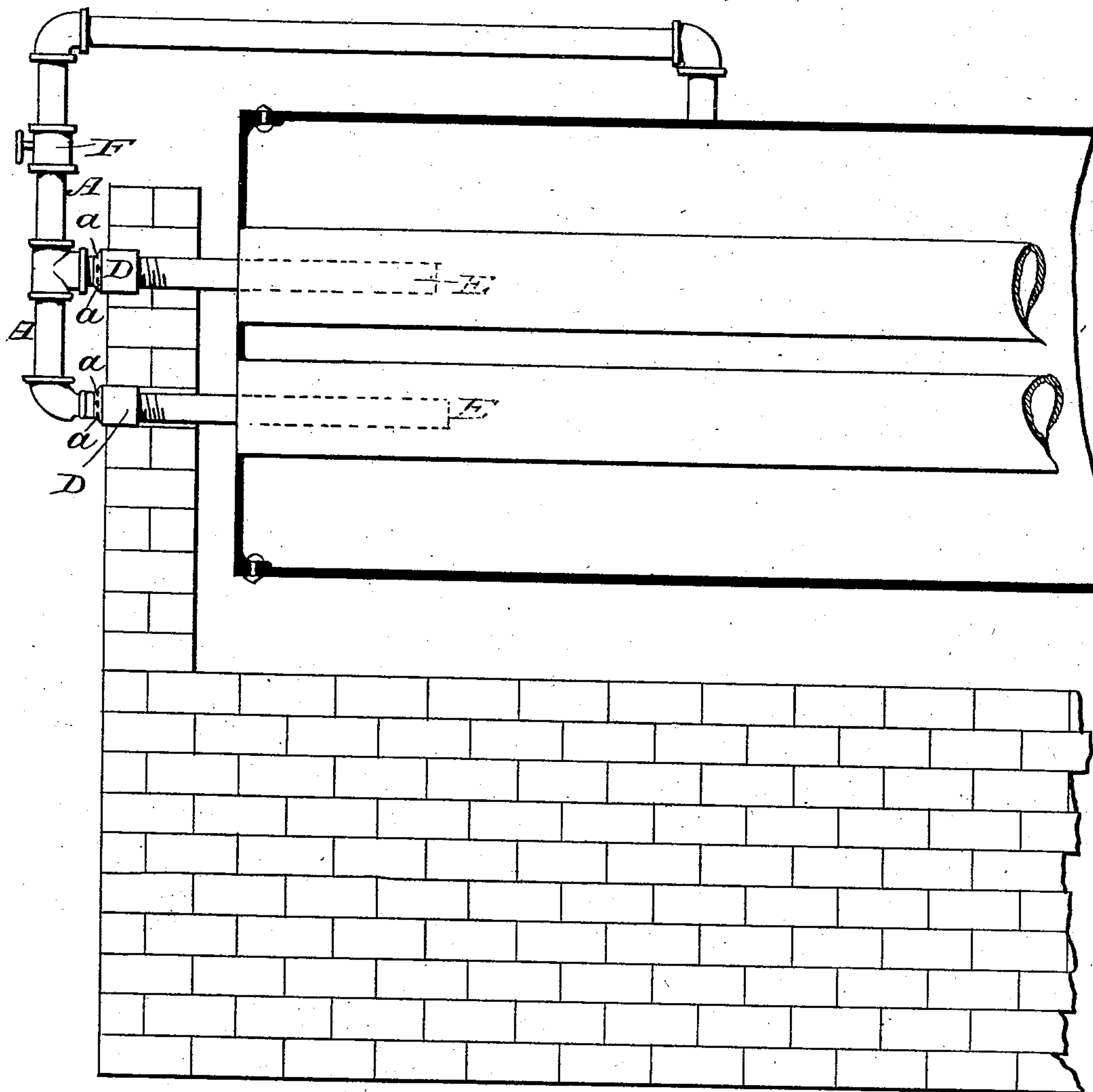
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*Fig. 3.*



WITNESSES

*Chas. H. Baker.*  
*Jas. L. Halley*

INVENTOR

*John Shepard*  
*J. F. Ellis*  
Attorney



# UNITED STATES PATENT OFFICE.

JOHN SHEPARD, OF CARMI, ILLINOIS, ASSIGNOR OF ONE-HALF TO JOHN R. KUYKENDALL, OF SAME PLACE.

## SMOKE BLOWER AND BURNER COMBINED.

SPECIFICATION forming part of Letters Patent No. 289,863, dated December 11, 1883.

Application filed August 21, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN SHEPARD, a citizen of the United States, residing at Carmi, in the county of White and State of Illinois, have invented certain new and useful Improvements in a Smoke Blower and Burner Combined, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention has relation to certain improvements in a combined smoke burner and blower for steam-boilers, and more particularly to that class wherein steam is taken from the boiler and used to inject a current of air into the boiler-flue, whereby the smoke is consumed, and at the same time the draft is increased; and to these ends the novelty consists in the construction of the same, as will be hereinafter more fully described, and particularly set forth in the claims.

In the accompanying drawings the same letters of reference indicate like parts of the invention.

Figure 1 is a side elevation of my improved burner and blower; Fig. 2, a longitudinal section of the same, and Fig. 3 a perspective detail of one end of a boiler with my invention applied thereto.

A is the steam-pipe, and is connected with the steam-space of the boiler.

B is an elbow, and C is the steam-jet, forming a continuation of the pipe A.

D is a reducer, its smaller end secured to the steam-jet C, and to its larger end is attached the blower or air-pipe E. This reducer is provided with a series of air-holes, *a*, which admit air into the reducer and pipe E.

In practice, the air-pipe E is inserted in the boiler-flue, with the reducer extending outside the wall. The pipe A being connected to the steam-space of the boiler, the valve F is turned so as to allow the live steam to escape into the flue through the jet C. This creates a draft in the air-pipe E, and the air is drawn in through the air-holes *a* and injected through the pipe

E into the flue. In this manner the draft of the boiler can be increased or diminished at will. When air is being injected into the flue, the oxygen of the air combines with the heated gases in the flue, which furnishes a free intense heat, consuming the smoke, and at the same time facilitating the generation of steam with a minimum amount of fuel.

The pipes E, C, and A and the elbow B and reducer D are all of the usual form found in every plumber's and gas-fitter's shop, and with the exception of tapering the end of the ejector C the device may be readily constructed without resorting to special tools or having castings specially made for the purpose. It will thus be seen that my invention is extremely simple and cheap in construction, and it may be constructed readily and effectually in every village shop.

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

1. The reducer D, having air-inlet holes *a* and air-pipe E, in combination with the jet-pipe C, screw-threaded on its larger end, to form a common connection for said reducer, and steam-pipe A B, constructed and arranged substantially as and for the purpose set forth.

2. The air-pipe E, secured to the larger end of the reducer D, the latter having air-holes *a*, and its smaller end screw-threaded to receive the larger end of the jet-pipe C, in combination with the elbow B and steam-pipe A, constructed and arranged so that said pipes E C B and reducer D are rigidly held in place by said steam-pipe A, substantially as shown and described.

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

JOHN SHEPARD.

Witnesses:

F. L. STEWART,

THOMAS K. WILSON.