

(No Model.)

W. H. SNYDER & S. HUFTY.

SMOKE STACK FOR LOCOMOTIVES.

No. 370,746.

Patented Sept. 27, 1887.

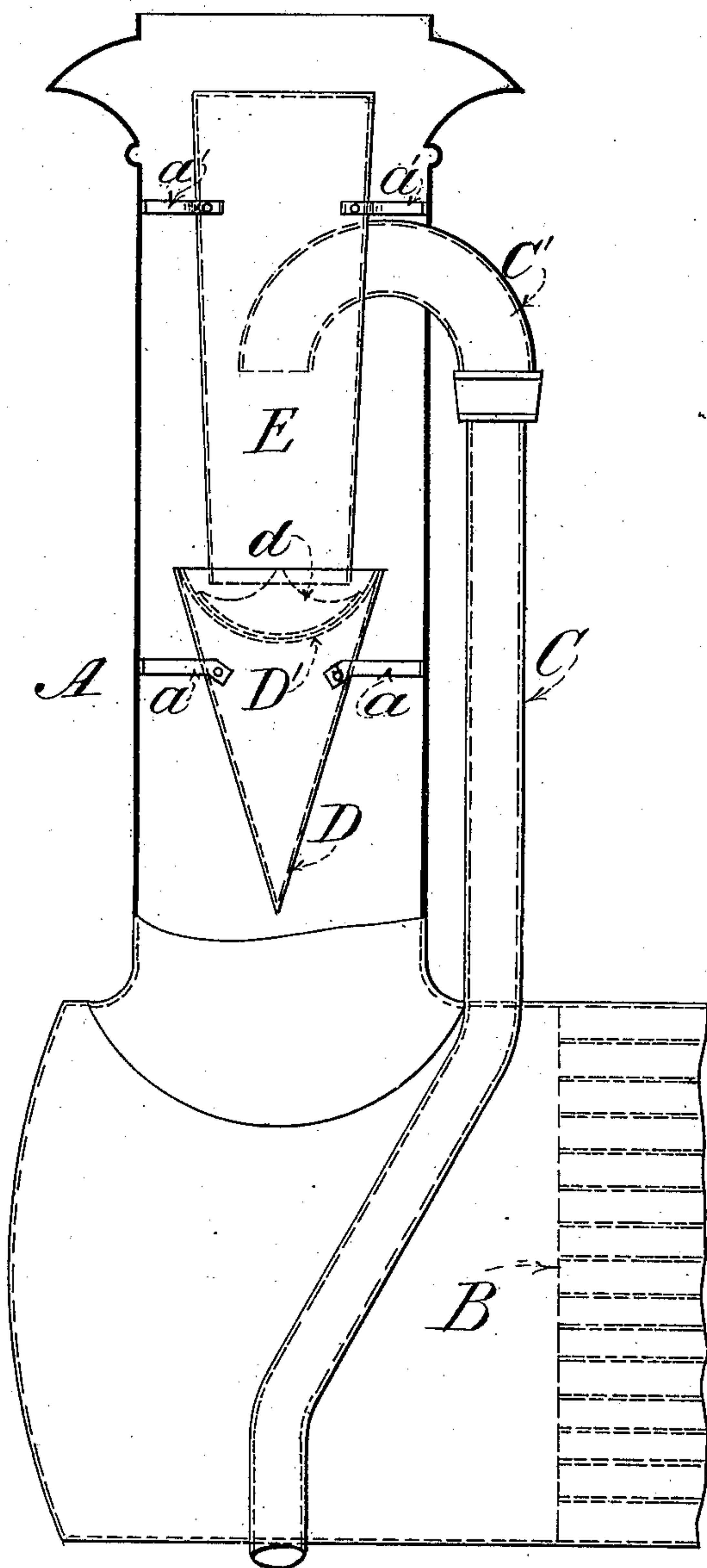


Fig. 1

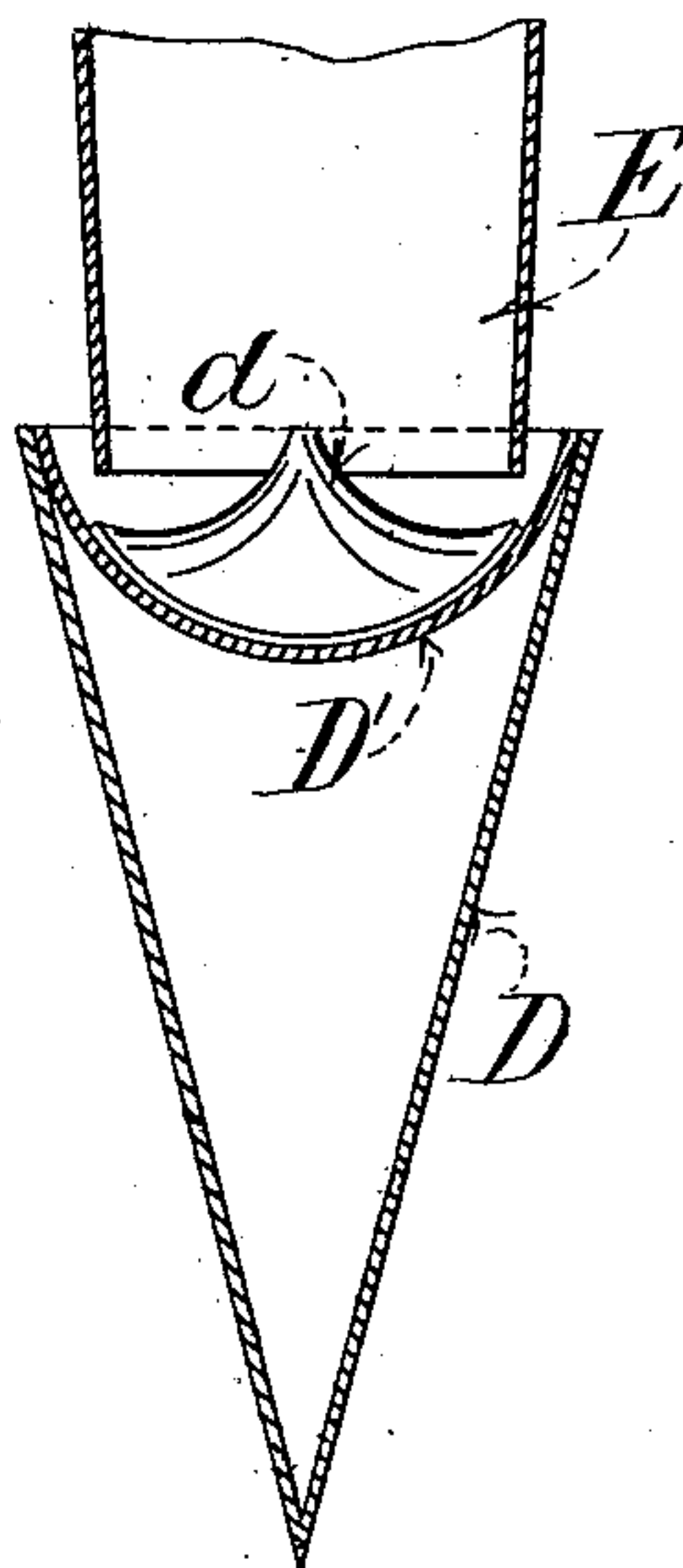


Fig. 2.

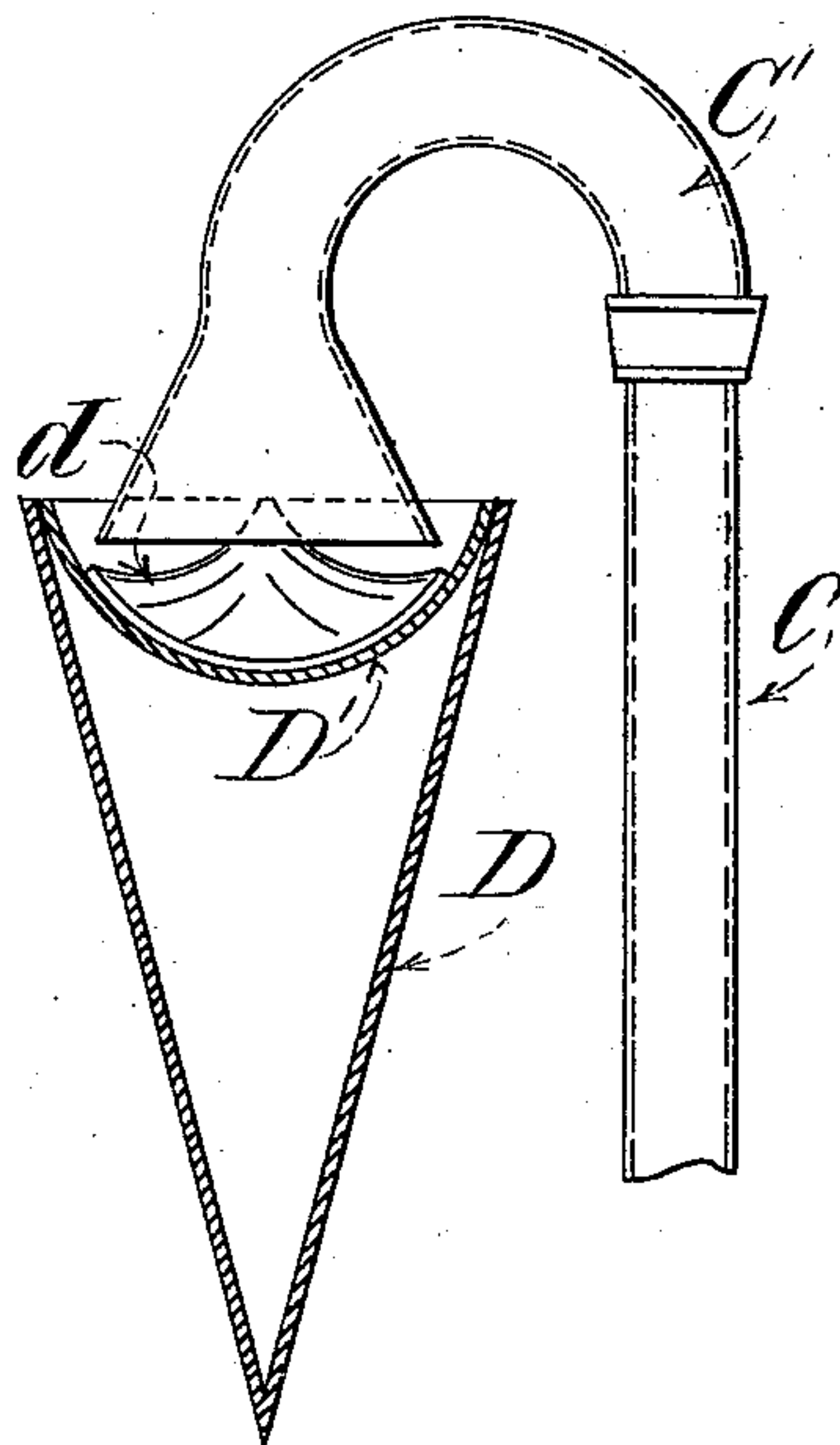


Fig. 3

WITNESSES:

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# UNITED STATES PATENT OFFICE.

WILLIAM H. SNYDER AND SAMUEL HUFTY, OF CAMDEN, NEW JERSEY, ASSIGNORS, BY MESNE ASSIGNMENTS, TO THEMSELVES, AND THOMAS ADAMS, OF PHILADELPHIA, PENNSYLVANIA.

## SMOKE-STACK FOR LOCOMOTIVES.

SPECIFICATION forming part of Letters Patent No. 370,746, dated September 27, 1887.

Application filed January 31, 1887. Serial No. 225,947. (No model.)

*To all whom it may concern:*

Be it known that we, WILLIAM H. SNYDER and SAMUEL HUFTY, citizens of the United States, residing at Camden, in the State of New Jersey, have invented certain new and useful Improvements in Smoke-Stacks on Locomotives and other Steam-Engines; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to smoke-stacks or chimneys on locomotive and other steam-engines; and the object of our improvement is to increase the upward draft by means of a jet or current of steam introduced into the smoke-stack and forced downward upon a deflecting-plate secured therein.

In the accompanying drawings, Figure 1 represents a vertical section of a locomotive smoke-stack and boiler having our improvement therein. Fig. 2 is a vertical section of the steam-deflecting device removed from the smoke-stack of the locomotive. Fig. 3 shows a modification of Fig. 2.

A is the smoke-stack, which is constructed in the ordinary manner.

B is the steam-boiler.

C is a steam-pipe connected directly to the boiler B or to the exhaust from the engine.

C' is a goose-neck bend on the upper end of the pipe C.

E is a funnel, secured on the inside of the smoke-stack by means of the braces  $a' a'$ . This funnel is securely closed at the top thereof, and preferably made somewhat tapering. It is also provided with a circular opening, through which the goose-neck C' projects.

If desired, the funnel E may be omitted and the lower end of the goose-neck provided with an enlarged or bell-shaped opening, as shown in Fig. 3.

D is an inverted sheet-iron cone, closed top and bottom and secured in the smoke-stack in the position shown by means of the braces  $a a$ . This inverted cone is placed directly under the funnel E, with the lower or open end of said funnel extending downward some distance into the concave base D', secured on the said cone.

$d$  is a cone-shaped extension, secured in the concave base D' of the inverted cone D, and projects upward some distance into the mouth of the funnel or enlargement E.

The funnel or enlargement E and cone D being constructed and secured in the smoke-stack in the manner herein shown, when desiring to increase the upward draft the steam is allowed to pass up through the pipe C and into the funnel E, from whence it is forced downward on the concave base of the inverted cone D, and deflected therefrom, passing out through the circular opening or space between the bottom of the funnel and the upper edge of the concave base into the stack, where it commingles with the ascending current of heated air and smoke, escaping up said stack between the inner wall thereof and the outside of the funnel or enlarged end of the goose-neck E.

The cone  $d$  in the concave base of the inverted cone D will have the effect of dividing the current of steam as it is forced down out of the funnel or enlargement E, causing it to pass out into the stack in an evenly-distributed current. The inverted cone D will cause the upward current of heated air and smoke arising from the fire under the boiler to be evenly divided and pass up into the stack in an even and regular current around the funnel or enlargement E.

The steam-pipe C may be placed either inside or outside of the smoke-stack, and, if desired, more than one pipe may be used.

The cone D may be omitted in some cases, and the concave base D' may be modified in shape; but we have found that the best results are obtained when the device is constructed and arranged in the manner herein shown.

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

1. In combination with a smoke-stack of a locomotive or other steam-engine, the steam-pipe C, provided with the bend or goose-neck C', extending downward into the smoke-stack and having its lower opening immediately over a deflecting-plate secured in said stack, substantially as and for the purpose described.

2. The combination of the smoke-stack A, the steam-pipe C, having goose-neck or bend C', the funnel E, and deflecting-plate D', secured in the stack, all arranged substantially  
5 as and for the purpose described.

3. The combination of the smoke-stack A, the steam-pipe C, having the goose-neck or bend C', provided with the enlarged opening or funnel E, and the inverted cone D, having

the concave base D', substantially as and for the purpose described.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM H. SNYDER.

SAMUEL HUFTY.

Witnesses:

FREDK. J. LAMBERT,

THOS. D. MOWLDS.