

(No Model.)

2 Sheets—Sheet 1.

W. BULLOCK.

MEANS FOR REGULATING THE DRAFT IN SMOKE STACKS.

No. 458,996.

Patented Sept. 8, 1891.

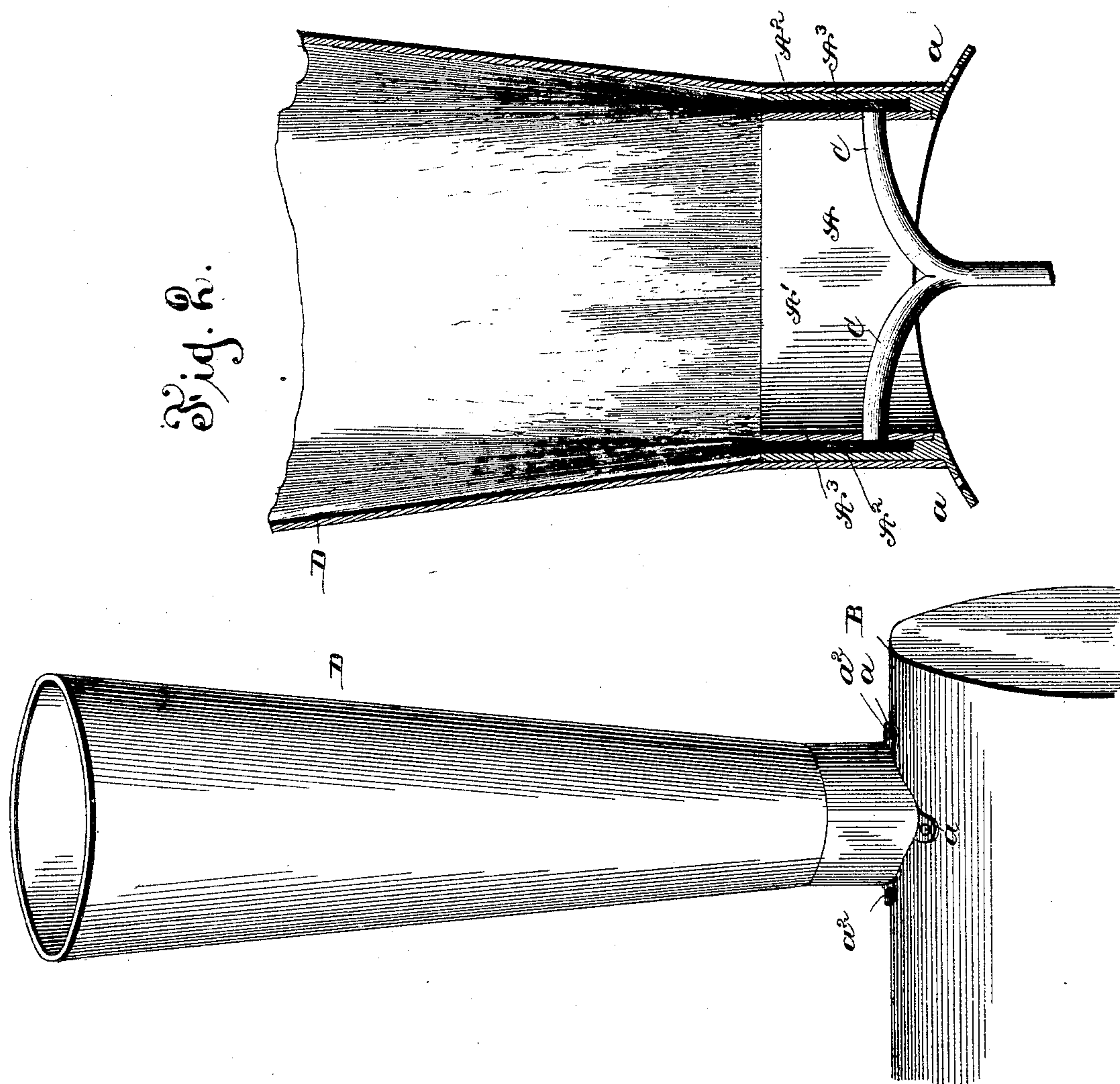


Fig. 1.

Witnesses

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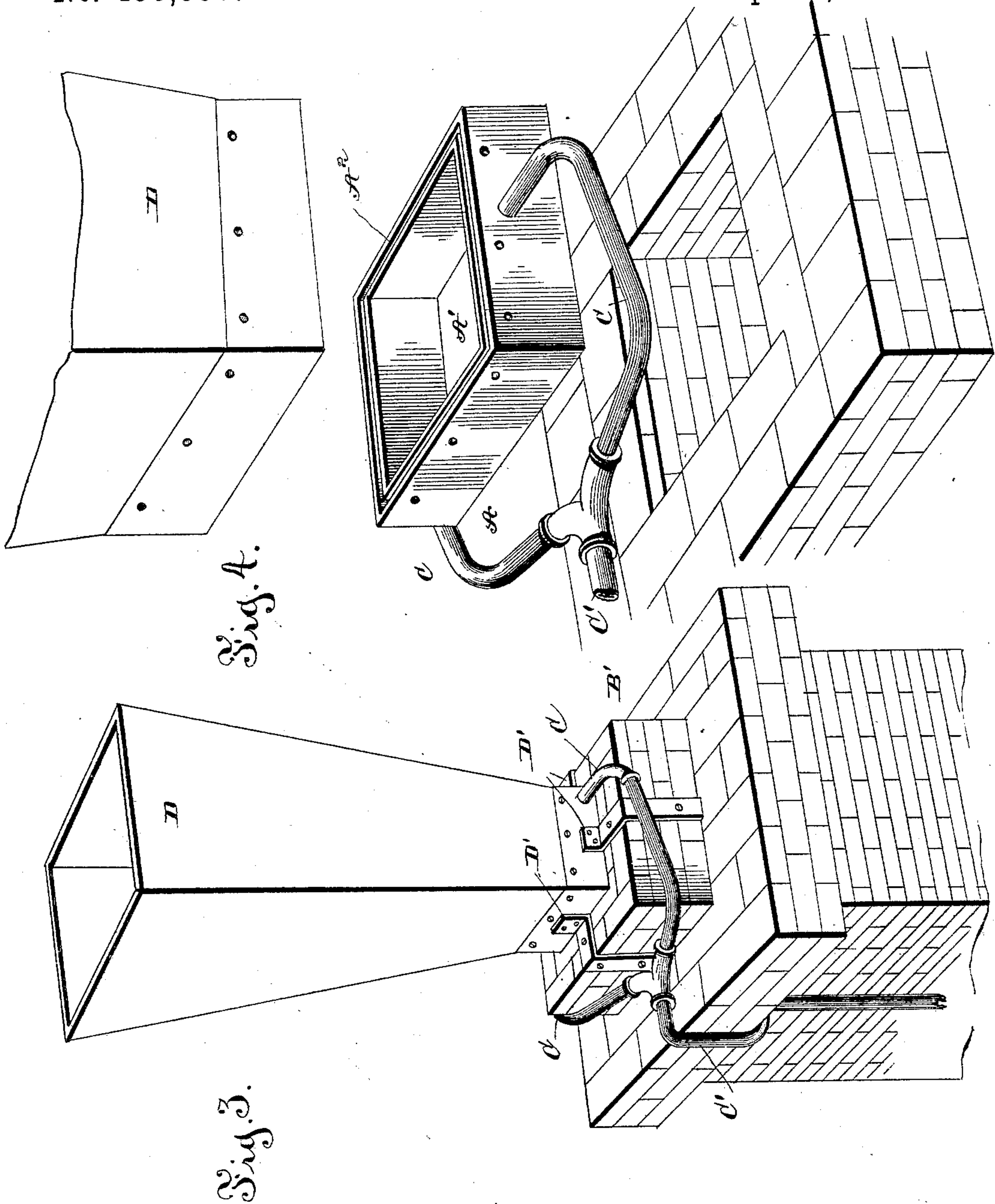
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# UNITED STATES PATENT OFFICE.

WILLIAM BULLOCK, OF CLEVELAND, OHIO.

## MEANS FOR REGULATING THE DRAFT IN SMOKE-STACKS.

SPECIFICATION forming part of Letters Patent No. 458,996, dated September 8, 1891.

Application filed September 18, 1890. Serial No. 365,335. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM BULLOCK, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Means for Regulating the Draft in Smoke-Stacks; and I do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to certain improvements in means for regulating the draft in smoke-stacks; and it consists in the construction, arrangement, and combination of the parts of which it is composed, as will be hereinafter fully described.

Referring to the accompanying drawings, in which corresponding parts are designated by similar letters, Figure 1 is a perspective view of a stack applied to the locomotive. Fig. 2 is a vertical section thereof. Fig. 3 is a perspective view of my invention applied to the top of a chimney. Fig. 4 is a perspective view of the invention shown in Fig. 3, the parts being shown separated.

In Figs. 1, 2, and 4 a casting A is shown secured on the forward end of the locomotive-boiler B or chimney, respectively, by means of bolts  $a^2$ , passing through the lugs  $a''$ , formed upon its base, while in Fig. 3 the casting is shown secured to the top of the chimney B by bent straps D. This casting A has a central flue-aperture  $A'$ , which corresponds in shape and size to the chimney to which it may be fitted, as shown in Fig. 3, while the chamber  $A^2$ , of the same contour as the aperture  $A'$ , surrounds the latter, it being formed in the walls of the casting A and opens at the top thereof; or instead of forming the chamber  $A^2$  in the walls of the castings the latter may be made as shown in Fig. 2, in which figure an inner ring  $A^3$  is placed within the casting A, the chamber  $A^2$  being between their sides, while the central aperture  $A'$  is within the center of the ring.

In order to supply the chamber  $A^2$  with steam, pipes C C are connected therewith on opposite sides, as shown. By preference, these pipes are connected to the exhaust-pipes of the engine, but they may be connected to any other suitable source of supply, and for locomotive-stacks I generally carry the supply-pipes within the escape-flue and cause the pipes C C to enter the chamber  $A^2$  from the inside, as shown in Fig. 2; but in case of chimneys I prefer to carry up the supply-pipe  $C'$  upon the outside in order to facilitate access thereto and to carry the pipes C C into the chamber  $A^2$  from the outside, as shown in Figs. 3 and 4.

Upon the top of the casting A is mounted the sheet-iron stack D, in the shape of an inverted frustum of a cone, Figs. 1 and 2, or a pyramid, Figs. 3 and 4, and I by preference make the top of the said stack about twice as large as the base thereof, the latter being of such a size as to fit around a casting A, the said stack being secured upon the casting A by means of a bolt passing through the bent straps  $D'$  and by bolts  $a^4$ , as shown.

The advantages derived from forming the exhaust-stack for the steam of an annular shape, in the center of which is the flue-opening, instead of making the exhaust of the usual central jet form, is that much better draft will be created in the flue, while the shape of the stack D assists this action to the maximum extent, as will be seen by examining Fig. 2, and at the same time the smoke is saturated with steam.

Having thus described my invention, what I claim is—

1. The combination of a casting having a central flue-aperture and a chamber surrounding the said aperture opening at the top, means for supplying said chamber with steam, and a stack having its top of greater diameter than its bottom mounted upon the castings outside of the said chamber, as described.

2. The combination, with a chimney, of a casting thereon having a central flue-aperture of the same diameter as the flue of the said chimney and a chamber surrounding the said

aperture, means for introducing the steam  
into the opposite side of the said chamber, a  
stack, the diameter of the upper end of which  
is twice the diameter of its lower end, mount-  
5 ed upon the said casting upon the outside  
thereof, and bent straps holding the said cast-  
ing in place, as described.

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

WM. BULLOCK.

Witnesses:

E. E. BOALT,  
FREDERICK GREEN.