(No Model.) 2 Sheets—Sheet 1.

G. H. CROSBY.

LOCOMOTIVE STEAM ENGINE.

No. 306,136. Patented Oct. 7, 1884.

Fig. 1.

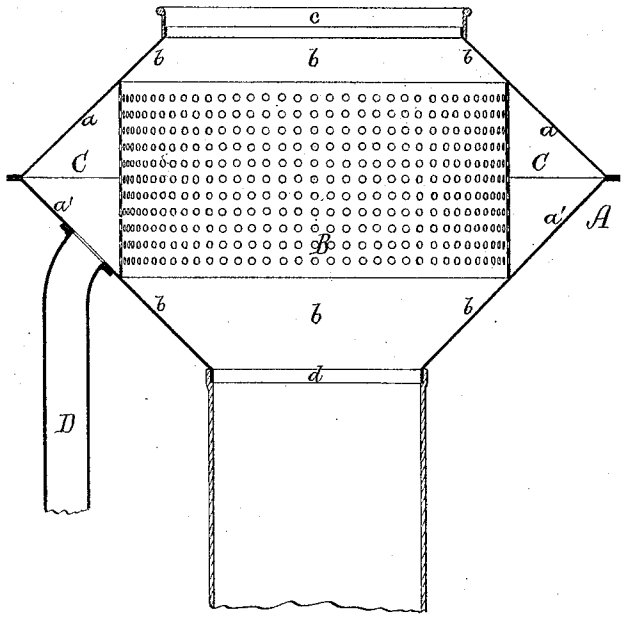
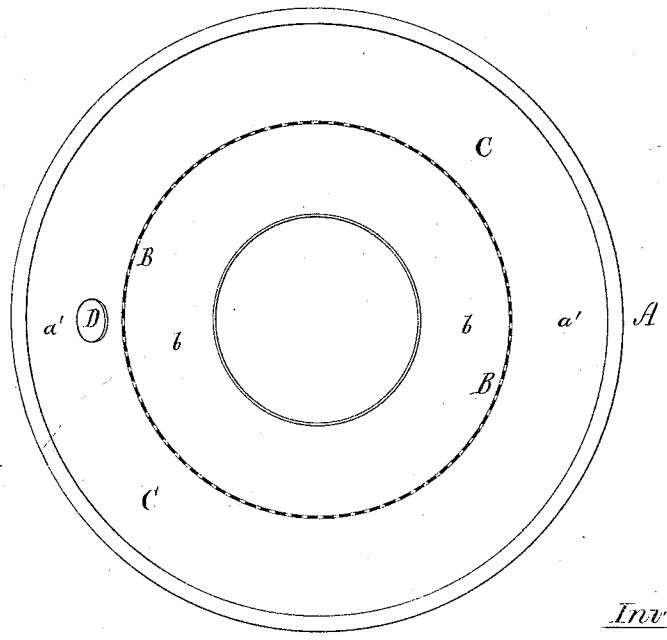


Fig. 2.



Witnesses.
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by R. H. Eddy atty.

N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.) 2 Sheets—Sheet 2.

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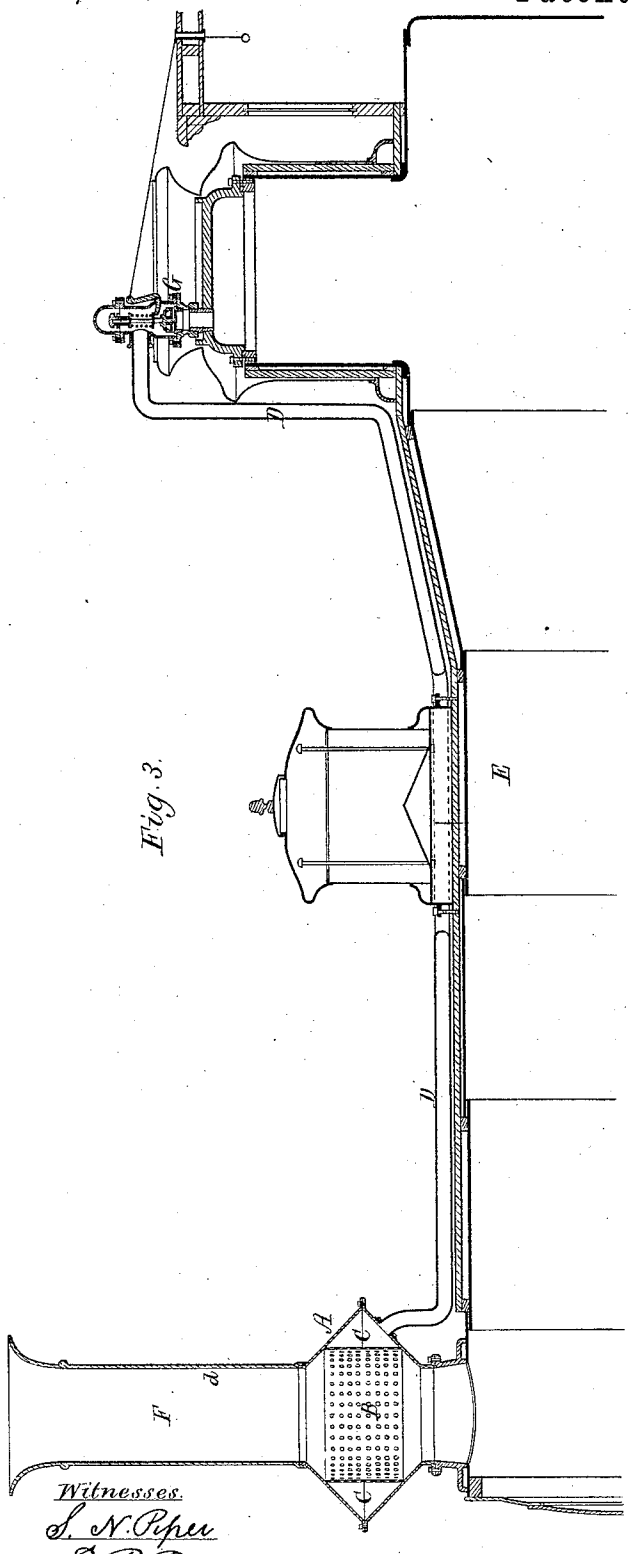


Fig. 3.

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UNITED STATES PATENT OFFICE.

GEORGE HANNIBAL CROSBY, OF SOMERVILLE, MASSACHUSETTS.

LOCOMOTIVE STEAM-ENGINE.

SPECIFICATION forming part of Letters Patent No. 306,136, dated October 7, 1884.

Application filed November 9, 1883. (No model.)

To all whom it may concern:

Be it known that I, GEORGE HANNIBAL CROSBY, of Somerville, in the county of Middlesex, of the Commonwealth of Massachusetts, have invented a new and useful Improvement in Locomotive Steam-Engines; and I do hereby declare the same to be described in the following specification, and represented in the accompanying drawings, of which—

Figure 1 is a vertical section, and Fig. 2 a horizontal section, of the chimney of a locomotive steam-engine provided with my invention, which is duly defined in the claims hereinafter presented. Fig. 3 is a longitudinal section of the safety-valve case, the steam-pipe, chimney, &c., showing how the steam passes from the safety-valve into the chimney and may be utilized.

The devices hereinafter described, adapted to a chimney of the kind above mentioned, are to reduce or diminish the noise of the escaping steam.

In the drawings, A denotes the head of the chimney of a locomotive steam-engine, it having a form of two hollow conic frusta united at their bases. Within the said head there is arranged an annular partition, B, perforated with numerous holes or openings and extending from frustum to frustum, as shown, and to form with parts *a a'* of the two frusta an annular chamber, C, above and below which are conical deflecting-surfaces *b b*. The head A terminates in two annuli, *c d*, and there opens into the chamber C a pipe, D, for conveyance into it of waste steam from the safety-valve. This steam, by its elastic force, will flow with great velocity and in fine jets through the holes or openings of the partition and in radial directions toward the axis of the head. The currents thus formed will impinge on each other, so as to destroy, neutralize, or greatly impair their velocities, and thereby cause the escape of the steam from the chimney to take place with little noise comparatively to what usually results when the blast of steam is upward within and from the chimney. Furthermore, a considerable portion of the steam will be thrown against the inclined annular surface *b*, immediately below the perforated partition, and by such will be deflected upward, rather than downward, into the body of the chimney. So, any steam that may impinge on the inclined annular surface *b* immediately above the partition will be deflected to advantage into the column that may be passing out of the head. In some cases I make the partition as a conic frustum a little larger in diameter at its upper than at its lower end, such being to prevent any back currents in the chimney.

In Fig. 3 the locomotive steam-engine boiler is shown at E, the chimney at F, and the safety-valve case at G, the pipe D, hereinbefore mentioned, being represented as proceeding from the chamber or case of such safety-valve to the chimney, and opening into an annular chamber, C, in a base, A, formed like the head A shown in Fig. 1, the said base having within it a foraminous partition, B, constituting the inner wall of such chamber. In this instance the body *d* of the chimney extends above the chamber C, which, with its holes of discharge and annular inclined deflecting surface or surfaces, may be either at the upper or lower part of the chimney, as circumstances or convenience may require.

From the above it will be seen that the steam escaping from the safety-valve through its case will be drawn through the pipe D into the chamber C of the chimney and be productive of effects as stated.

I claim—

1. A steam-engine chimney provided, as described, with one or more deflecting-surfaces, *b*, and an annular and foraminous chamber arranged therewith, and to operate as set forth.

2. The combination of one or more deflecting-surfaces, *b*, and an annular and foraminous chamber, C, arranged therewith, substantially as described, and provided with an induct to lead steam into it from a safety-valve, all being substantially as specified.

GEORGE HANNIBAL CROSBY.

Witnesses:
R. H. EDDY,
E. B. PRATT.