

(No Model.)

A. E. ALLCOTT.
LOCOMOTIVE EXHAUST NOZZLE.

No. 465,651.

Patented Dec. 22, 1891.

Fig. 1.

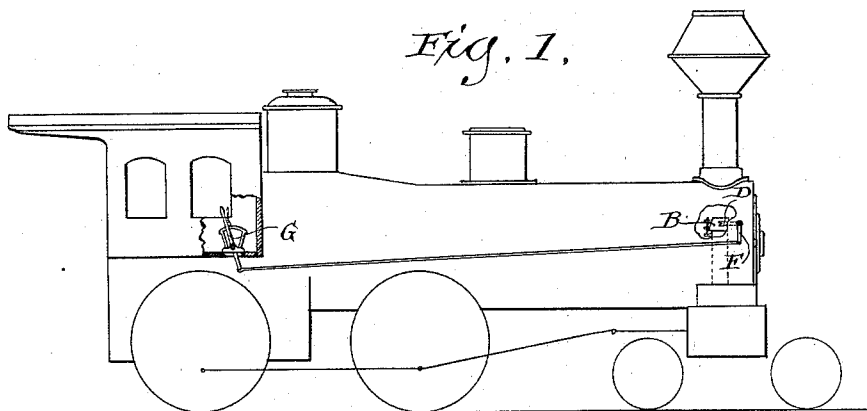


Fig. 2.

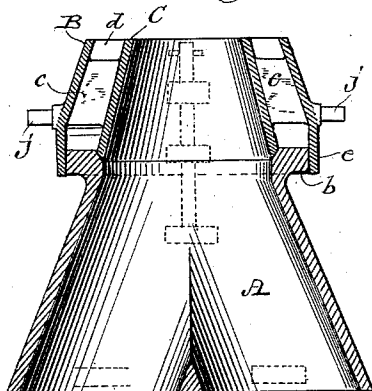


Fig. 3.

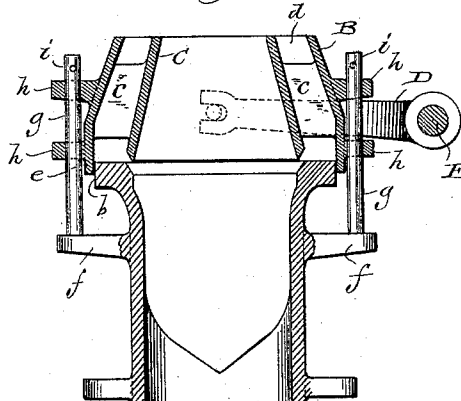
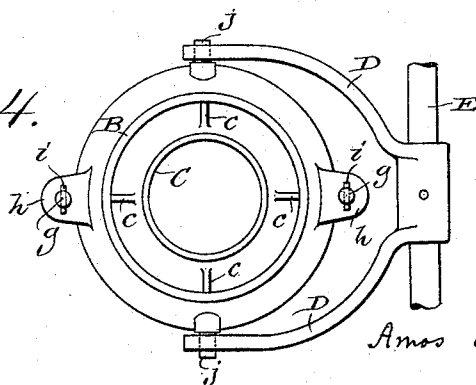


Fig. 4.



Witnesses
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UNITED STATES PATENT OFFICE.

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LOCOMOTIVE-EXHAUST NOZZLE.

SPECIFICATION forming part of Letters Patent No. 465,651, dated December 22, 1891.

Application filed July 21, 1891. Serial No. 400,221. (No model.)

To all whom it may concern:

Be it known that I, AMOS E. ALLCOTT, a citizen of the United States, and a resident of Milwaukee, in the county of Milwaukee, and in the State of Wisconsin, have invented certain new and useful Improvements in Locomotive-Exhausts; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention has for its object to provide a locomotive-exhaust nozzle of such peculiar construction and combination of parts as will permit of a variation of the area for escaping steam to any dimension between a certain minimum and maximum, this peculiar construction and combination of parts being hereinafter described with reference to the accompanying drawings and subsequently claimed.

In the drawings, Figure 1 represents a diagrammatic view of a locomotive provided with my improvements; Fig. 2, a vertical transverse section of my improved exhaust-nozzle; Fig. 3, a like view of the same, the latter section being at right angles to the former; and Fig. 4 a plan view of the nozzle.

An exhaust-nozzle made in accordance with my invention comprises two sections, one of which is stationary and the other movable thereon. The upper end of the lower or stationary section A of the nozzle is provided with a collar or flange *b*, that serves as a guide for the movable upper section, and also acts as a guard to prevent cinders, soot, or other products of combustion from being drawn into the nozzle when the latter section is raised.

The movable section of the nozzle is shown as comprising two conical shells B C, the latter being arranged within the former and joined thereto by webs *c*, and the relative dimensions of these shells are such that an annular passage *d* is formed between the two. The outer conical shell B has a vertical extension *e*, and this extension is the portion of the movable nozzle-section that works on the flange *b* of the stationary nozzle-section.

At its upper end the bore of the stationary nozzle-section A is beveled, and the lower end of the conical shell C, forming part of the movable nozzle-section, is correspondingly beveled and of such diameter as to form a

close joint with the former nozzle-section when the parts are in their normal position, as clearly illustrated in Fig. 2.

The stationary nozzle-section A is provided with lateral lugs *f*, that support vertical guides *g*, engaging lateral eyes *h* on the movable nozzle-section, the latter being limited as to movement in an upward direction by means of stops or pins *i* on said guides. The movable nozzle-section is also provided with trunnions *j*, that engage the branches of a lifting yoke or fork D, fast on a rod E, that has its bearings in the smoke-box of the locomotive illustrated in Fig. 1.

It is essential that the lifting-fork D be under the control of the engineer of the locomotive, and to that end I have shown said rod provided with a crank F, linked to a ratchet-lever G, in the cab of said locomotive; but I do not wish to be understood as confining myself to the lifting mechanism for the movable nozzle-section, as various means may be employed for the same purpose without departing from the spirit of my invention.

The movable nozzle-section being in its normal position, as shown in Fig. 2, the upper open end of the inner conical shell C is the minimum area for the escape of steam, the lower end of this shell being at this time in close joint with the stationary nozzle-section and practically a continuation of the same. Now, if the lifting-fork D be actuated, the movable nozzle-section will be lifted to establish a communication between the bore of the stationary nozzle-section and the annular passage *d*, as shown in Fig. 3, whereby the area for the escape of steam is increased at the will of the operator up to a maximum limit, or full area of the upper end of the stationary nozzle-section.

With a nozzle such as I have shown and specified the exhaust is always central, and there is no change in the shape of said nozzle when the movable section thereof is adjusted to increase the area for the escape of steam, while at the same time an engineer is enabled to regulate the draft of his locomotive to accord with the various conditions for which draft regulation is desirable.

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

1. A locomotive-exhaust nozzle comprising a stationary lower section having a flanged upper end and a vertically-adjustable section consisting of two parallel conical cones united
5 at intervals by webs, the outermost shell being provided with a vertical extension that incloses the flange on said stationary section of the nozzle, substantially as set forth.

2. A locomotive-exhaust nozzle comprising
10 a stationary lower section having a flanged upper end provided with a beveled seat and a vertical adjustable section consisting of two parallel conical shells united at intervals by webs, the inner shell having its lower end
15 beveled to conform to the bevel of the seat in said upper end of the stationary nozzle-section, and the outer shell provided with a vertical extension that incloses said flange on this latter nozzle-section, substantially as set
20 forth.

3. A locomotive-exhaust nozzle comprising lower and upper sections, the first of these

sections being stationary and flanged at the upper end, vertical guides on the stationary section, eyes on the movable section engaging the guides, a lifting mechanism for this movable section, and main and auxiliary steam-passages in the latter section, the main passage having a minimum of area at the top and being normally a practical continuation
25 of the bore of said stationary section, while the auxiliary passage is open to the upper end of the aforesaid stationary section only at such times as said movable section is adjusted on its guides, substantially as set forth.
30 35

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

AMOS E. ALLCOTT.

Witnesses:

N. E. OLIPHANT,
CHAS. O'BRIEN.