

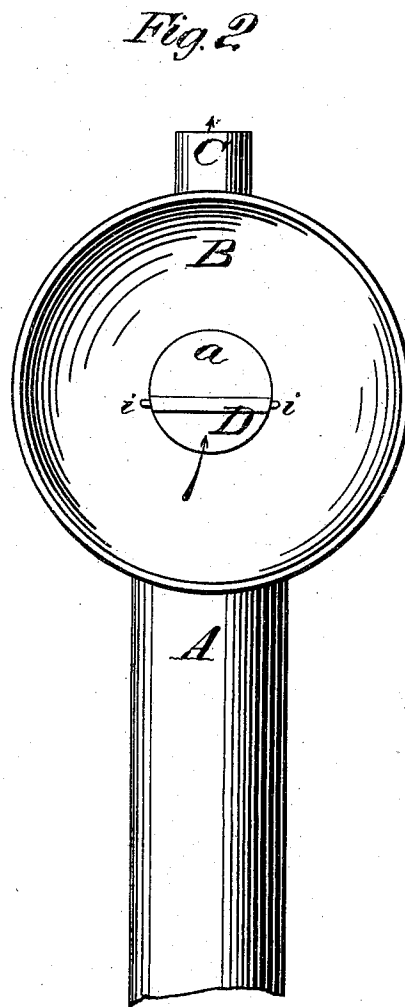
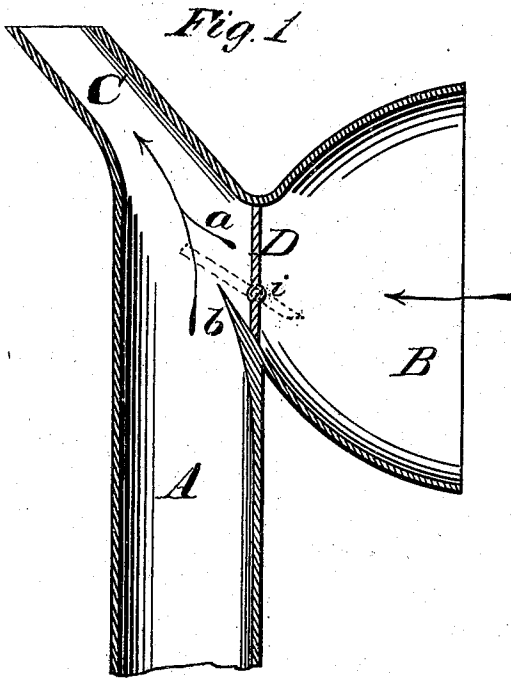
T. LANSTON.

2 Sheets--Sheet 1.

Locomotive Smoke-Stacks.

No. 156,426.

Patented Nov. 3, 1874.



WITNESSES

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Fig. 3

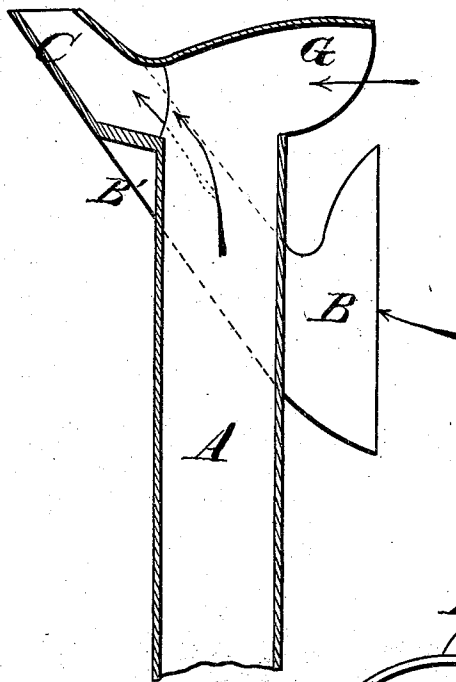
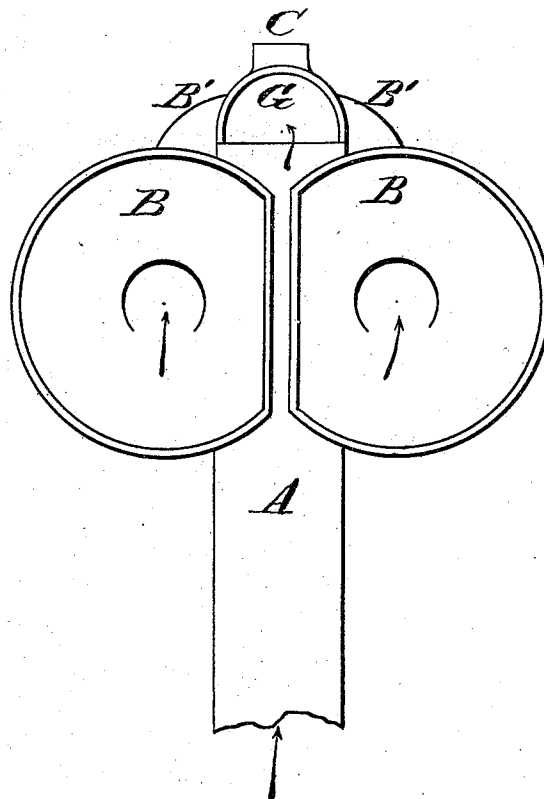


Fig. 4



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UNITED STATES PATENT OFFICE.

TOLBERT LANSTON, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVEMENT IN LOCOMOTIVE SMOKE-STACKS.

Specification forming part of Letters Patent No. 156,426, dated November 3, 1874; application filed October 3, 1874.

To all whom it may concern:

Be it known that I, TOLBERT LANSTON, of Washington, in the county of Washington and District of Columbia, have invented a new and valuable Improvement in Locomotive Smoke-Stacks; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a longitudinal sectional view of my locomotive smoke-stack. Fig. 2 is a front view of the same, and Fig. 3 is a sectional view of a modification of the same. Fig. 4 is a front view of the modification.

The object of my invention and improvement in locomotive smoke-stacks is to increase combustion in the furnace by increasing the draft; at the same time to throw the escaping sparks, cinders, and smoke so high in the air that the train will pass beneath them before they fall.

The nature of my invention consists in the construction of an ejector and a flaring mouth to the upper part of a locomotive smoke-stack, the ejector being directed upward and backward, and so arranged relatively to the said flaring mouth that, when the locomotive is in motion, a current of air will be forcibly driven through the ejector, as will be more fully understood from the following explanation. It also consists in combining, with the flaring mouth and inclined injector, a gravitating valve, which will check the draft when the locomotive is stationary and remain open when the locomotive is in motion.

The following is a description of my improvements:

In the annexed drawings, A designates a locomotive smoke-stack, at the upper end of which a flaring mouth or air-gatherer, B, is formed, which terminates in a contracted throat, *a*, formed, in part, by an upwardly-inclined deflector-lip, *b*. This upwardly-inclined deflector-lip *b* projects inwardly a short distance, serving as a guide in giving direction to the smoke and cinders to the inclined ejector. C designates an ejector, which is inclined at an

angle of about forty-five degrees, and which is arranged in line with the funnel and in rear of the throat *a*, as shown in Fig. 1. D designates a valve, which is pivoted at *i* in the throat *a*, and loaded in such manner that it will automatically shut when the locomotive is stationary and open when the latter is in motion.

It will be seen from the above description that when the locomotive is running the mouth-piece B will gather air in large quantities, which air will pass over the upper end of the cylindrical portion of the stack A, and be forcibly driven through the ejector C, carrying with it the sparks, cinders, and smoke, and sending them high in the air. Thus it will be noticed that all the smoke and cinders come in contact with the current of air at the throat *a* of the funnel, below the neck of the ejector, and they are forced or thrown into the inclined ejector, which is at the same or nearly the same angle with the air-gatherer. The velocity naturally obtained from the upward draft of the smoke-stack is further increased by the current of air collected by the funnel, and consequently the smoke and cinders are thrown at a greater height; also, by this construction of the ejector and funnel the smoke and cinders are not influenced by any irregular currents of air.

In practice I shall make the throat *a* proportionately larger than I have represented it in Figs. 1 and 2.

Figs. 3 and 4 show a modification of Figs. 1 and 2, and consist in the employment of two flaring mouth-pieces, with tapered tubes or conductors B' B' curving around the shaft of the stack, and communicating with the inclined ejector C. Another air-gatherer, G, is employed, in combination with the ejector C and trumpet-shaped air-gatherers B, for the purpose of augmenting the quantity of air forced through the ejector, and aiding in carrying back the sparks.

In carrying my invention into effect I may omit the valve D in the throat *a*, although I believe its use important for the reasons above stated.

I am aware that collecting air in a funnel in and around the smoke-stack of a locomotive, and forcing the smoke and cinders there

from, is not new, and therefore I do not claim such invention broadly; but

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the upward and backward inclined ejector C, of the flaring air-gatherer B, attached to the upper portion of a locomotive smoke-stack below the neck of the ejector, and the deflector-lip *b*, all operating in the manner herein described.

2. The gravitating-valve D in the throat *a*, in combination with the flaring mouth B and ejector C, substantially as described.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

TOLBERT LANSTON.

Witnesses:

GEORGE E. UPHAM,
FRANK J. MASL.