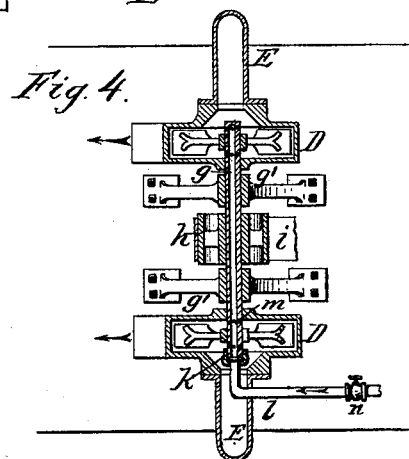
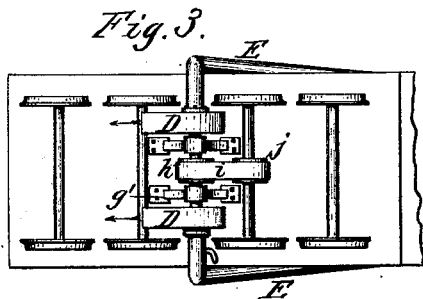
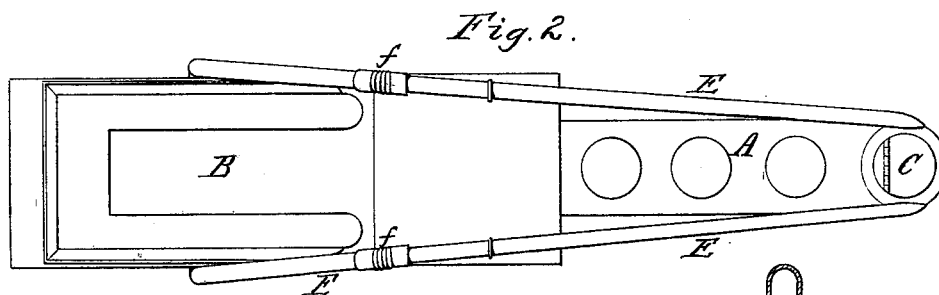
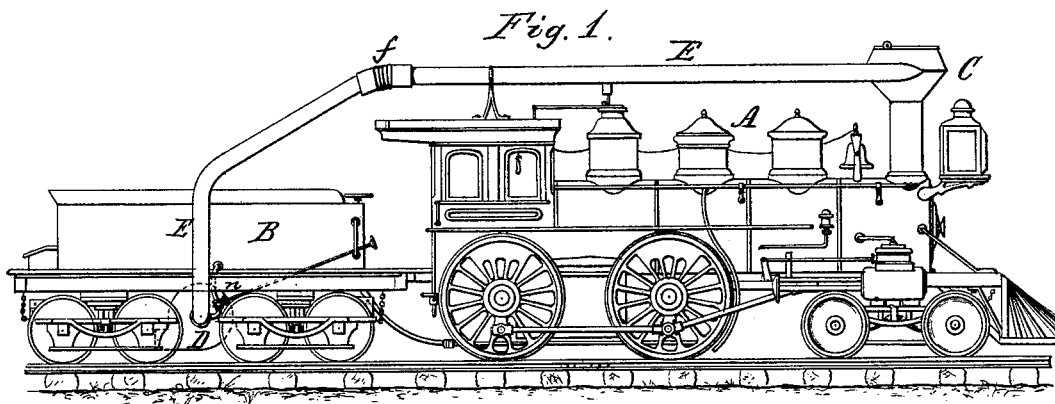


A. HEINE.
Smoke and Cinder Conveyor.

No. 220,832.

Patented Oct. 21, 1879.



Chas. J. Buchheit.
Edw. J. Brady. } Witnesses

Aug. Heine. Inventor.
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UNITED STATES PATENT OFFICE.

AUGUST HEINE, OF SILVER CREEK, NEW YORK.

IMPROVEMENT IN SMOKE AND CINDER CONVEYERS.

Specification forming part of Letters Patent No. **220,832**, dated October 21, 1879; application filed August 26, 1879.

To all whom it may concern:

Be it known that I, AUGUST HEINE, of Silver Creek, in the county of Chautauqua and State of New York, have invented new and useful Improvements in Smoke and Cinder Conveyers, of which the following is a specification, reference being had to the accompanying drawings.

This invention has for its object to convey away and precipitate the smoke and cinders which are discharged from the smoke-stacks of locomotives and other furnaces, and which ordinarily float in the air and occasion great annoyance and discomfort to persons in the neighborhood of such smoke-stacks, and especially to passengers on railway-trains.

My invention consists of a suction-fan connected with the top of the smoke-stack by a pipe, so as to draw the smoke and cinders from the smoke-stack and discharge the same at a convenient point, (in the case of a locomotive underneath the tender or cars,) and of a water-spray introduced into the smoke-passage, as hereinafter described, whereby the smoke and cinders are precipitated after they are discharged from the suction-fan.

In the accompanying drawings, Figure 1 is a side elevation of a locomotive and tender provided with my improvement. Fig. 2 is a top-plan view thereof. Fig. 3 is a bottom-plan view of the tender. Fig. 4 is a horizontal section, on an enlarged scale, of the fans arranged on the under side of the tender.

Like letters of reference designate like parts in the several figures.

A represents a locomotive; B, the tender, and C the smoke-stack of the locomotive. D D represent two suction-fans arranged on the under side of the bottom of the tender, and E is a suction-pipe connecting the eye of each fan with the top of the smoke-stack C. The latter is provided with a hinged top plate, so that the opening in its top can be opened or closed, as may be desired.

The suction-pipes E are constructed in two parts, one secured to the locomotive and the other to the tender, and both parts are connected by a flexible coupling, *f*, which permits the requisite amount of independent movement in each part of the suction-pipe, and enables

the parts to be readily separated when required.

g is the driving-shaft, common to both suction-fans D D. It is supported in bearings *g'*, secured to the bottom of the tender, and carries the blades of both fans upon it.

h is a pulley, which is secured to the shaft *g* between the fans D D, and is rotated by a belt, *i*, from a pulley, *j*, on one of the axles of the tender-trucks. The shaft *g* may, however, be rotated by any other suitable means.

The discharge-spouts of the fans D D open rearward, as clearly shown, so as to deliver the smoke and cinders underneath the bodies of the cars.

As shown in Fig. 4, the shaft *g* is made hollow, and is connected at its open end by means of a stuffing-box, *k*, with a water-pipe, *l*, which communicates with the water-tank of the tender.

The shaft *g* is provided with perforations *m* within each fan-case, which permit the water passing into the shaft *g* to issue in fine streams and mingle with the smoke and cinders passing through the fan-case, thereby moistening the same sufficiently to cause them to be precipitated after they leave the discharge-spout of the fan.

The pipe *l* is provided with a stop-cock, *n*, for regulating the supply of water to the smoke-passage.

The cap at the top of the smoke-stack is preferably enlarged, so as to permit the steam and hot gases to expand as they issue from the narrow part of the smoke-stack, thereby breaking the upward momentum of the steam, smoke, and cinders, and causing the same to enter the suction-pipes E more freely.

When the engine is in motion the hinged cover of the smoke-stack is closed, and the fans D draw the steam, smoke, and cinders through the pipes E to the fans, where the water-jets meet the current charged with smoke and cinders and moisten the latter, so that they are precipitated upon the roadway as they escape from the discharge-spouts of the fans.

When the device is applied to a stationary furnace the fan is driven in any suitable and well-known manner.

It is obvious that a single fan may be em-

ployed instead of the two fans shown, and that the water may be introduced into the smoke-passage in a variety of ways, all effecting the same results.

If preferred, the fan D may be arranged underneath the front part of the locomotive and connected directly with the smoke-box, so as to draw the smoke and cinders therefrom, and a tank for supplying the fan with water may be arranged in front of the smoke-box.

I claim as my invention—

1. The combination, with the smoke-stack C, fans D, and suction-pipe E, of the hollow

perforated shaft *g* and water-supply pipe *l*, substantially as set forth.

2. One or more suction-fans, D, arranged underneath the bottom of the tender, and having their eyes connected with the smoke-stack of the locomotive and their discharge-spouts pointing rearwardly, substantially as and for the purpose set forth.

AUG. HEINE.

Witnesses:

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JNO. J. BONNER.