

T. F. CONKLIN.
Smoke-Stacks.

No. 145,279.

Patented Dec. 9, 1873.

Fig. 1.

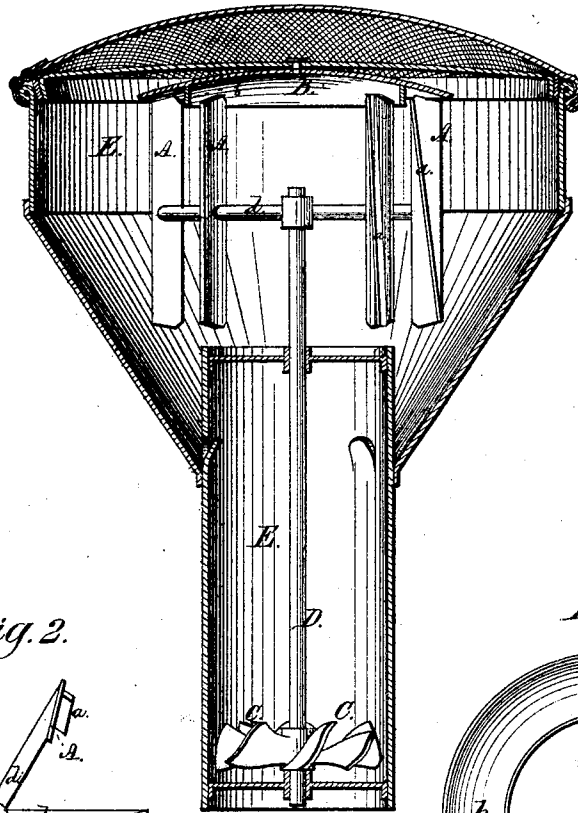


Fig. 2.

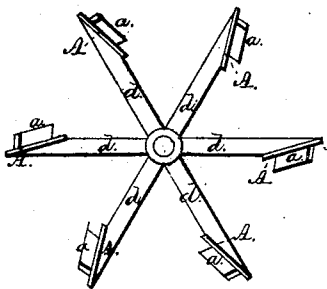


Fig. 3.

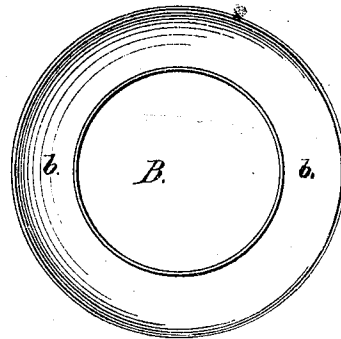
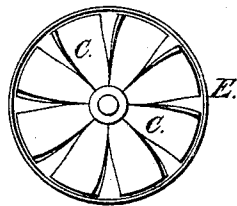


Fig. 4.



Witnesses

W. D. Conklin

B. G. Moore

Inventor

Theodore F. Conklin

UNITED STATES PATENT OFFICE.

THEODORE F. CONKLIN, OF FOND DU LAC, WISCONSIN.

IMPROVEMENT IN SMOKE-STACKS.

Specification forming part of Letters Patent No. 145,279, dated December 9, 1873; application filed September 30, 1873.

To all whom it may concern:

Be it known that I, THEODORE F. CONKLIN, of Fond du Lac, in the county of Fond du Lac and State of Wisconsin, have invented a certain Smoke-Stack Attachment, of which the following is a specification:

My invention relates to the combination of a set of fan-beaters, with feathers running diagonally across their wind-surface, and attached by horizontal arms to an upright shaft and screw-wheel fixed to lower part of said shaft, with a stationary concave cap with rim, placed immediately over the fan-beaters. This apparatus is adjusted by braces, bearings, &c., on the inside of a locomotive or other steam smoke-stack. The screw-wheel is propelled by the column of steam from the exhaust-pipes rushing upward through the inner smoke-stack, or by other outside power applied, causing the fan-beaters to revolve with great velocity within the top or dome of the stack, the upper ends of said fan-beaters revolving in the rim of said stationary cap.

The objects of this device are, first, by the blast of the revolving-fans in the top or dome of the stack to largely increase the draft of the furnace and flues below, and at the same time to balance and regulate the draft between the alternate exhausts of steam in the base of the stack, and thereby effect a large saving of fuel, and decrease of sparks and cinders; secondly and separately, by the guard of the cap, the force of the fan-beaters, and the operation of the feathers across the beaters, to arrest, pulverize, and destroy the sparks and cinders from the furnace below.

Figure 1 is a transverse section of a smoke-stack containing an elevation of the apparatus embodying my invention. Fig. 2 is an end view of the fan-beaters with projections of feather attachments. Fig. 3 is an outline end view, showing shape and proportions of the concave cap and rim. Fig. 4 is an end view of screw-wheel that propels in a smoke-stack the fan machinery.

A A are the fan-beaters, which are oblong, and of dimensions, respectively, and number, according to size and apparent needs of the stack to be furnished with the apparatus. These beaters set on a draft from the line of

center shaft D, and nearly perpendicular to horizontal arms *d d*, and revolve just outside of the periphery (extended upward) of the main smoke-stack. *a a* are the feathers, which run diagonally from inside top of fan to outside bottom of same, and project from the face of the fan about one-half inch, on an inclination of about forty-five degrees with the said face of the fan. B is a concave cap, attached by braces across the top of stack, and covering closely, but without touching, the beater apparatus. The tops of the beaters revolve in the rim of cap *b b*, as in a circular groove. C is the screw-wheel, and is attached, when inside of stack, to lower part of shaft D, and in the main current of the exhaust steam, &c. D is the main shaft, running in boxes in bridge-trees, &c. *d d* are the horizontal arms, attaching beaters to shaft D. E E is the outline representation of a locomotive-stack, inside which the apparatus is attached and adjusted.

Applied to a locomotive or other smoke-stack, it is believed the force of the steam from the exhausts, passing up the inside stack E, will propel the screw-wheel C with force and velocity, regulated, as desired, by the size, number, and inclination of paddles. (The steam is vaporized and loses its force in contact with the air at top of stack.) This motion, communicated to the system of fan-beaters and cap above will create therefrom a blast and vacuum sufficient to largely increase the draft of the stack, and dispense with the necessity of contracting the exhaust-pipe's nozzles; and will expel the smoke and vapor from the dome of the stack with a force to keep the top netting clean and clear of ashes, soot, and other ordinary choking matter. The momentum of the apparatus will further control and balance the draft, and thereby obviate the choking and disturbance of the fire in the furnace and flues, consequent on the alternating exhausts of the steam-nozzles, and will generally effect an increase of power and large saving of fuel in the working of locomotive and other steam-engines. Secondly and separately, all sparks and cinders from the flues that may escape the screw-wheel C and arms *d d* will be effectually arrested, pulverized, and

destroyed by the fan-beaters A A, feathers *a* *a*, and concave surface of cap B.

I claim as my invention—

1. The combination of the fan-beaters A A, the cap B, rim *b*, and screw-wheel C, attached as stated, in and to locomotive and other smoke-stacks, substantially as and for the purpose hereinbefore set forth.

2. The combination of the fan-beaters A A and feathers *a a*, substantially as and for the purpose hereinbefore set forth.

THEODORE F. CONKLIN.

Witnesses:

WM. D. CONKLIN,
B. F. MOORE.