

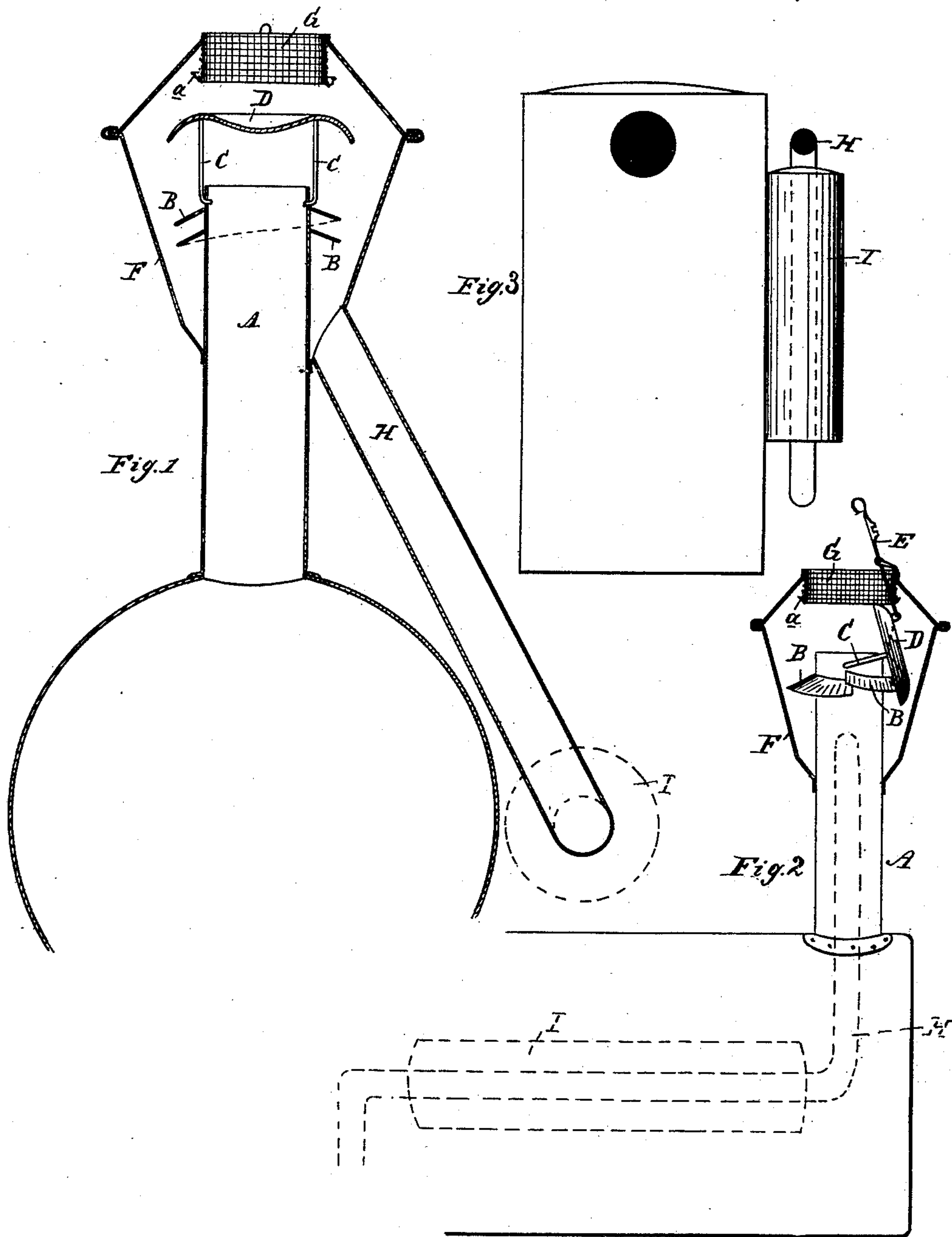
(No Model.)

H. C. SIMPSON & P. WILLOX.

SMOKE STACK.

No. 354,255.

Patented Dec. 14, 1886.



Attest:  
John Schuman.  
A. Sprague

Inventors:  
Henry C. Simpson,  
Peter Willox.  
By Thos. S. Sprague  
Atty

# UNITED STATES PATENT OFFICE.

HENRY C. SIMPSON AND PETER WILLOX, OF EAST SAGINAW, MICHIGAN.

## SMOKE-STACK.

SPECIFICATION forming part of Letters Patent No. 354,255, dated December 14, 1886.

Application filed May 10, 1886. Serial No. 201,663. (No model.)

*To all whom it may concern:*

Be it known that we, HENRY C. SIMPSON and PETER WILLOX, of East Saginaw, in the county of Saginaw and State of Michigan, have invented new and useful Improvements in Smoke-Stacks; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to certain new and useful improvements in smoke-stacks, and is especially designed as an improvement upon the invention patented to H. C. Simpson, February 24, 1885, No. 312,912.

The invention consists in the peculiar construction and operation of a laterally-adjustable cone over the end of the stack, and in the peculiar construction, arrangement, and combination of the various parts, all as more fully hereinafter set forth.

Figure 1 is a vertical cross section through the stack, with cone in position over its mouth. Fig. 2 is a similar view at right angles to Fig. 1, with cone tipped back. Fig. 3 is a sectional plan.

In the accompanying drawings, which form a part of this specification, A represents the stack proper, which is made cylindrical in form, as shown. At its upper end it is surrounded by a series of segmental spirals, B, so arranged with relation to each other that their ends overlap, leaving spaces between them. These segments project at nearly right angles to the wall of the stack.

D is an inverted saucer-shaped cone-cap, which is rigidly secured to the upper ends of the bars or rods C, the lower ends of which are pivotally secured to the upper end of the stack A. This cone is designed to spread the sparks as they are thrown out against its lower face.

The lower edge of the shell F is secured to the stack A upon an incline, as shown, and such incline guides the sparks to the pipe H, which projects through the shell. This pipe H leads to and through a feed-water heater, I, secured to the side of the boiler, and thence to a place of safety. This water-heater communicates with the boiler, and through it the water is fed to the boiler; but as the manner

of connection and operation of such heater forms no part of our invention we do not enter into a description thereof.

The cone-cap D is provided with an adjusting-rod, E, which projects out of the open end of the stack F, and by means of which the cone can be adjusted, as may be desired.

The open end of the jacket F is provided with a downwardly-projecting screen-flange, G, the lower edge of which is provided with an annular V-shaped flange, a.

It will readily be seen that by the construction described there is the least possible obstruction to the necessary draft of the stack when the cone-cap is in the position shown in Fig. 1; that the sparks as they are thrown out strike against the under face of the cone-cap, by which they are deflected downward upon the deflector B, and from whence they fall by gravity to the bottom of the jacket F, from whence they pass into the pipe H, and through the same, being discharged into any proper receptacle. The heat that is thrown off by these sparks in their passage through the pipe H assists materially in the heating of the water contained in the heater I. Should any sparks escape by the cone-deflector they will be caught in the annular flange a without finding an exit from the stack.

By making the cone D laterally adjustable or swinging, as shown, we are enabled to vary the draft of the stack to any desired extent and even entirely disclose the upper end thereof when necessary, which is not the case with a cone vertically adjustable upon rods secured firmly to the stack, as has been proposed.

What we claim as our invention is—

1. In a smoke-stack having deflectors constructed and arranged as described, the combination therewith of a laterally-adjustable cone-cap, D, substantially as and for the purposes set forth.

2. In a smoke-stack, the combination of the stack A, deflector B, cone cap D, and feed-water heater I, independent of the boiler, of the pipe H, independent of the tubes of said boiler and passing through the water-heater, substantially as and for the purpose specified.

3. In a smoke-stack, the combination of the stack A, deflectors B, adjustable cone-cap D, jacket F, pipe H, water-heater I, and screen-



flange G, having annular V-shaped flange a, the said pipe H passing through the feed water heater, all constructed, arranged, and operating as and for the purposes set forth.

- 5 4. The combination, with the stack A, of the rods C, having their lower ends pivotally secured to the upper end of said stack, the cone-cap D, rigidly secured to the upper ends

of said rods, and the adjusting-rod E, connected with said cone-cap, substantially as and for the purpose specified.

HENRY C. SIMPSON.  
PETER WILLOX.

Witnesses:

H. S. SPRAGUE,  
E. SCULLY.