

J. HUGHES.

Cones for Smoke-Stacks.

No. 156,288.

Patented Oct. 27, 1874.

Fig: 1.

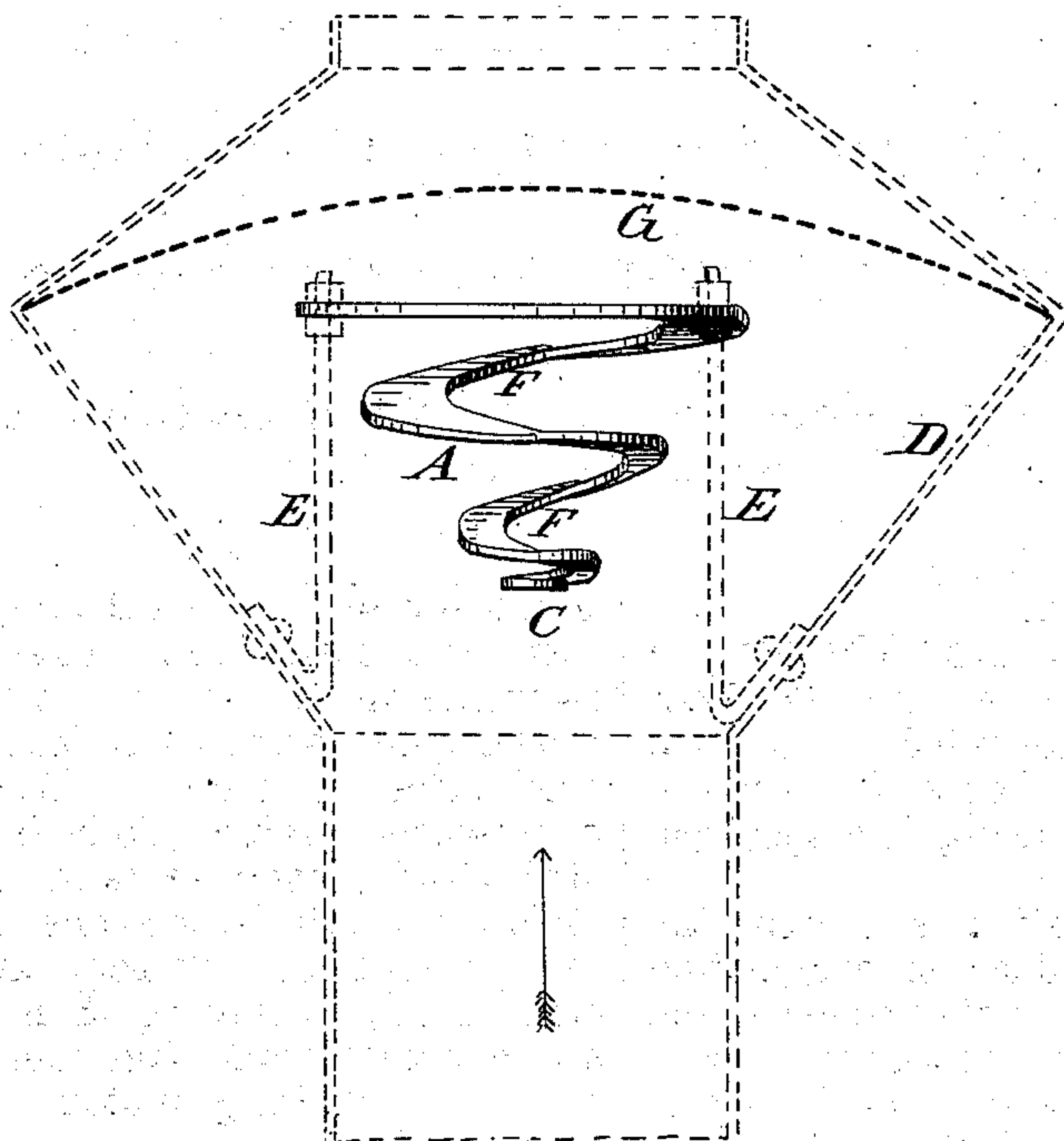
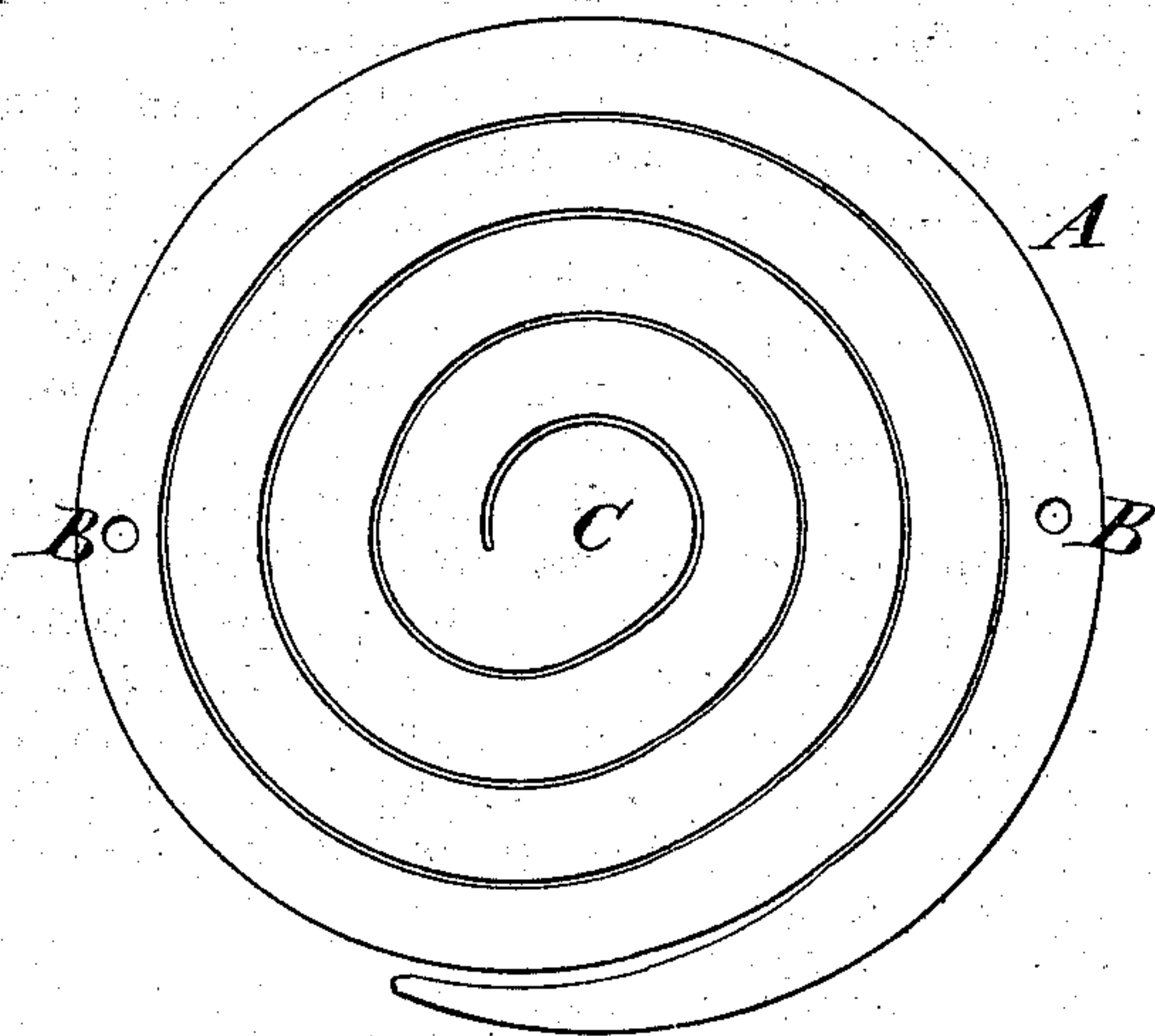


Fig: 2.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

JAMES HUGHES, OF SCRANTON, PENNSYLVANIA.

## IMPROVEMENT IN CONES FOR SMOKE-STACKS.

Specification forming part of Letters Patent No. **156,288**, dated October 27, 1874; application filed September 19, 1874.

*To all whom it may concern:*

Be it known that I, JAMES HUGHES, of Scranton, in the county of Luzerne and State of Pennsylvania, have invented a new and useful Improvement in Cones for Smoke-Stacks, of which the following is a specification:

The object of the invention is to break the striking force of the products of combustion before they reach the reticulated cover of the bonnet; and the invention consists in placing under the cover, and directly over the top of smoke-pipe, a concave spiral plate, which will readily allow the products of combustion to pass through the center and between the convolutions, but will cause all to strike the plate at some point, all as hereinafter fully described and subsequently claimed.

Figure 1 is a side view, the smoke-stack and bonnet being shown in dotted lines and vertical section. Fig. 2 is a plan view of the cone, showing the manner in which it is cut from a flat sheet of iron.

Similar letters of reference indicate corresponding parts.

A is the cone, which is cut from a flat round plate of iron, in the form of a volute or scroll, having more or less number of convolutions, as may be required. The outer convolution is made fast at the points B B, and the center C is drawn down substantially as seen in Fig. 1, so that a spiral opening is made from the center upward. The cone is fastened in the bonnet D by means of the stays E, which pass through holes B B in the outer and upper convolution, as shown. This form presents a

broad surface to the exhaust steam. The inner edge F of the strip or cone is rounded off to facilitate the upward movement of the draft.

The operation of the cone thus placed in the smoke-stack is as follows: The exhaust steam and accompanying products of combustion strike the central plate or disk C, and pass inside and outside the cone, striking the surface of each convolution, and breaking the cinders and spreading them with the ashes and exhaust steam, thus compelling the draft to take a whirling motion as it passes up through the cone, which prevents the direct impinging of the ashes and exhaust steam against the sides of the stack, or against the netting G, and preventing the rapid wearing out of those parts.

Two of these spiral cones may be used in the same smoke-stack, if desired, arranged in any desired manner; but, for ordinary smoke-stacks, one cone is sufficient.

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

The combination, with a smoke-pipe bonnet, D, having sieve G at the top, of the plate A, bent spirally into a conical form, its aggregate surface covering a cross-sectional area equal to that of the smoke-pipe, and its central opening increasing from bottom toward the top, as and for the purpose specified.

JAMES HUGHES.

Witnesses:

THOMAS ENGLISH,  
W. O. WILSON.