(No Model.)

H. C. SIMPSON.

SMOKE STACK.

No. 312,912. Patented Feb. 24, 1885.

Fig. 1

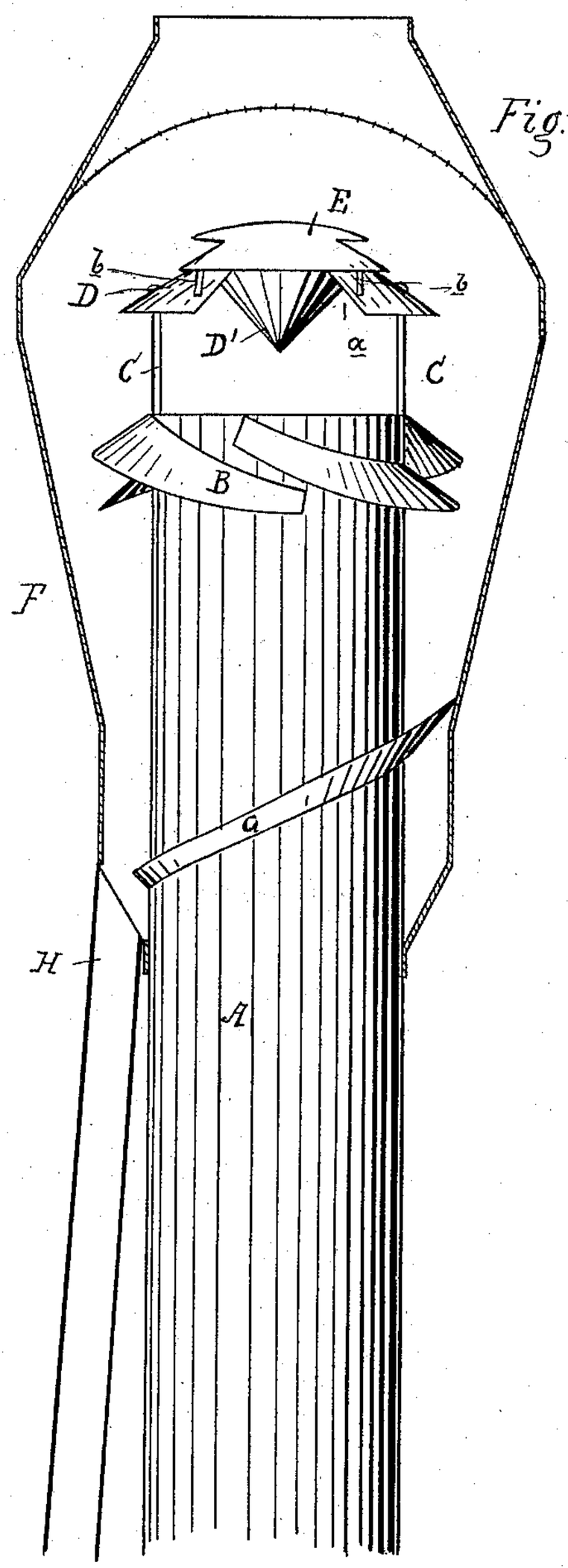


Fig. 2

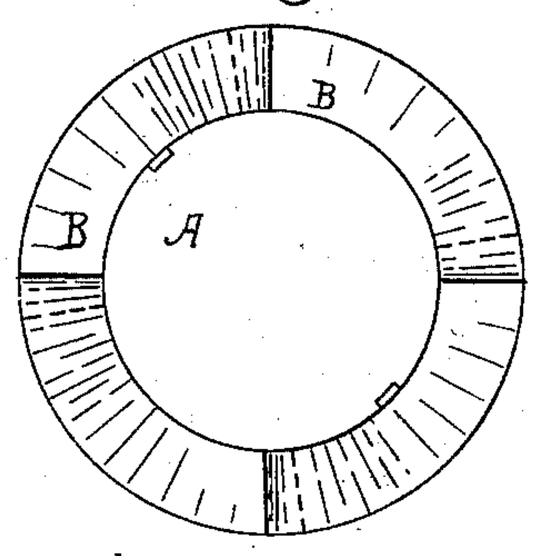
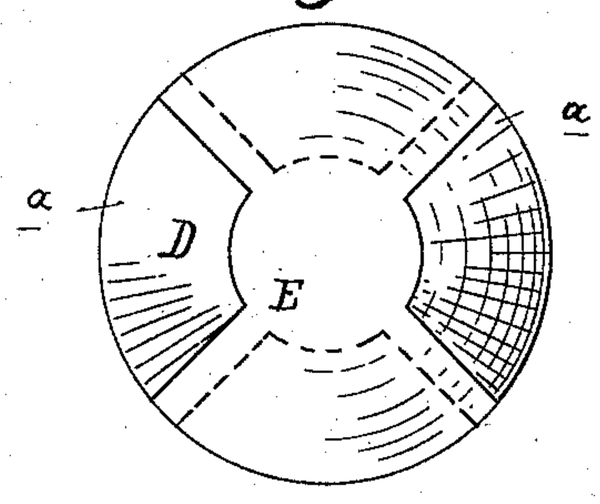


Fig. 3



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UNITED STATES PATENT OFFICE.

HENRY C. SIMPSON, OF EAST SAGINAW, MICHIGAN, ASSIGNOR OF ONE-HALF TO PETER WILLOX, OF SAME PLACE.

SMOKE-STACK.

SPECIFICATION forming part of Letters Patent No. 312,912, dated February 24, 1885.

Application filed August 20, 1884. (No model.)

To all whom it may concern:

Be it known that I, HENRY CLAY SIMPSON, of East Saginaw, in the county of Saginaw and State of Michigan, have invented new and useful Improvements in Smoke-Stacks; and I 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 the construction of smoke-stacks especially designed for portable engines. This class of engines is very largely employed to furnish the power for running thrashing-machines in the open air, and where it becomes important to so control the sparks thrown out that surrounding objects will not be endangered; and this is the object of the present invention.

The invention consists in the peculiar construction of the various parts employed, their combinations, and operation, as more fully hereinafter described.

Figure 1 is a vertical section of my improved stack. Fig. 2 is a horizontal transverse section of the same. Fig. 3 is a top plan.

In the accompanying drawings, which form a part of this specification, A represents the stack proper, which is made cylindrical in form and of a uniform diameter in its whole length. 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. At a little distance above the upper end of this stack proper there is supported by suitable rods, C, an inverted-saucer-shaped cap or deflector, D, with a segmental-shaped notch, *a*, cut out of the rim on two opposite sides. Pendent from the center of this deflector, and supported thereby, is the inverted cone D′, so that its apex is in the axial line of the stack. Supported upon proper risers, *b*, resting upon this deflector, and at a short distance above it, is a similar deflector, E, with its edges similarly cut away, but so arranged that the cut-away portions are above the imperforate portions of the deflector below.

The cone is designed to spread the sparks as they are thrown out against the lower face of the lower deflector, whence they are forced downward outside the stack and fall upon the segmental spirals, whence they fall, passing through the spaces formed by the overlapping ends of such spirals, into the space between the stack proper and the shell F, which surrounds its upper portion. Should any sparks escape from the lower deflector, they, being within the draft force, will be carried up through the notches in the sides of such lower deflector, and be arrested and thrown down by the upper deflector.

G is a flange-guide nearly surrounding the stack and entirely filling the space between it and the surrounding shell at that point, and upon this guide the deflected sparks fall by their own gravity, and are conducted to the pipe H, which projects through the shell, and which conducts them to a place of safety. This place of safety should be a hole in the ground covered by a wire screen, through which the pipe passes, or a tank of water covered in the same way.

It will readily be seen that by the construction described there is the least possible obstruction to the necessary draft of the stack; that the employment of the usual wire screens in the top of the shell is rendered unnecessary, and that absolute safety from fire is obtained if the device is operated as directed in the foregoing description.

What I claim as my invention is—

1. In a smoke-stack, and supported above it, a pair of inverted-saucer-shaped deflectors with notches cut out of their opposite edges, and arranged one above the other, substantially as and for the purposes described.

2. In a smoke-stack having the deflectors constructed and arranged as described, the combination therewith of the inverted cone pendent from and supported by the lower of the two deflectors, substantially as and for the purposes specified.

3. In a smoke-stack having the two deflectors and cone constructed and arranged as described, and in combination therewith, the segmental spirals surrounding the upper end of such stack, substantially as and for the purposes set forth.

4. In a smoke-stack having deflectors ar-

ranged above the upper end thereof, and in combination therewith, the guide surrounding such stack and filling the space between it and its shell, substantially as and for the purposes described.

5. A smoke-stack having the two deflectors and inverted cone supported above its top, and arranged with relation to each other as described, segmental spirals surrounding its top, and a guide filling the space between it and its surrounding shell, and leading to a discharge-pipe which projects through such shell, and which leads to a place of safe deposit, substantially as and for the purposes specified.

HENRY C. SIMPSON.

Witnesses:
H. S. SPRAGUE,
E. W. ANDREWS.