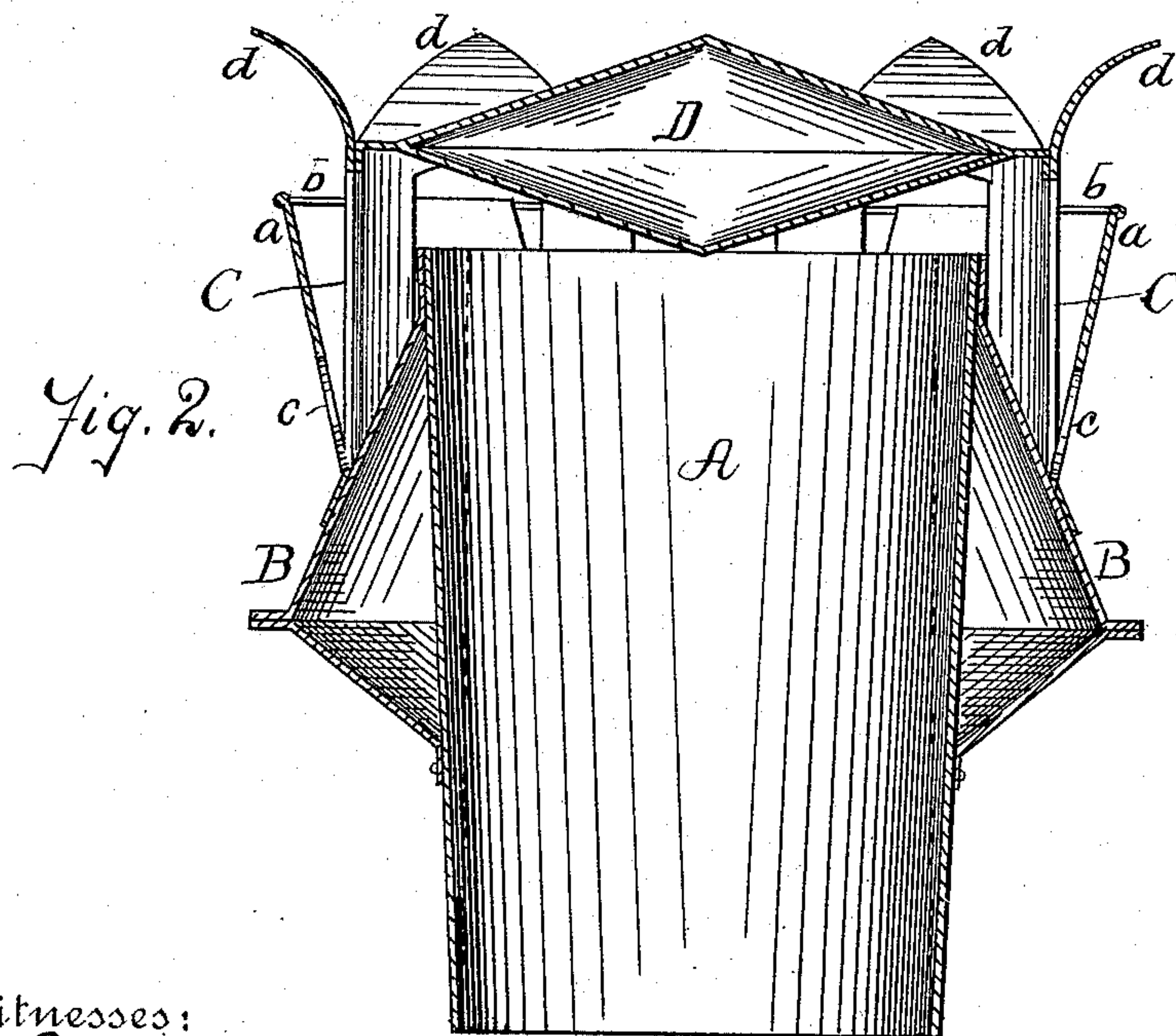
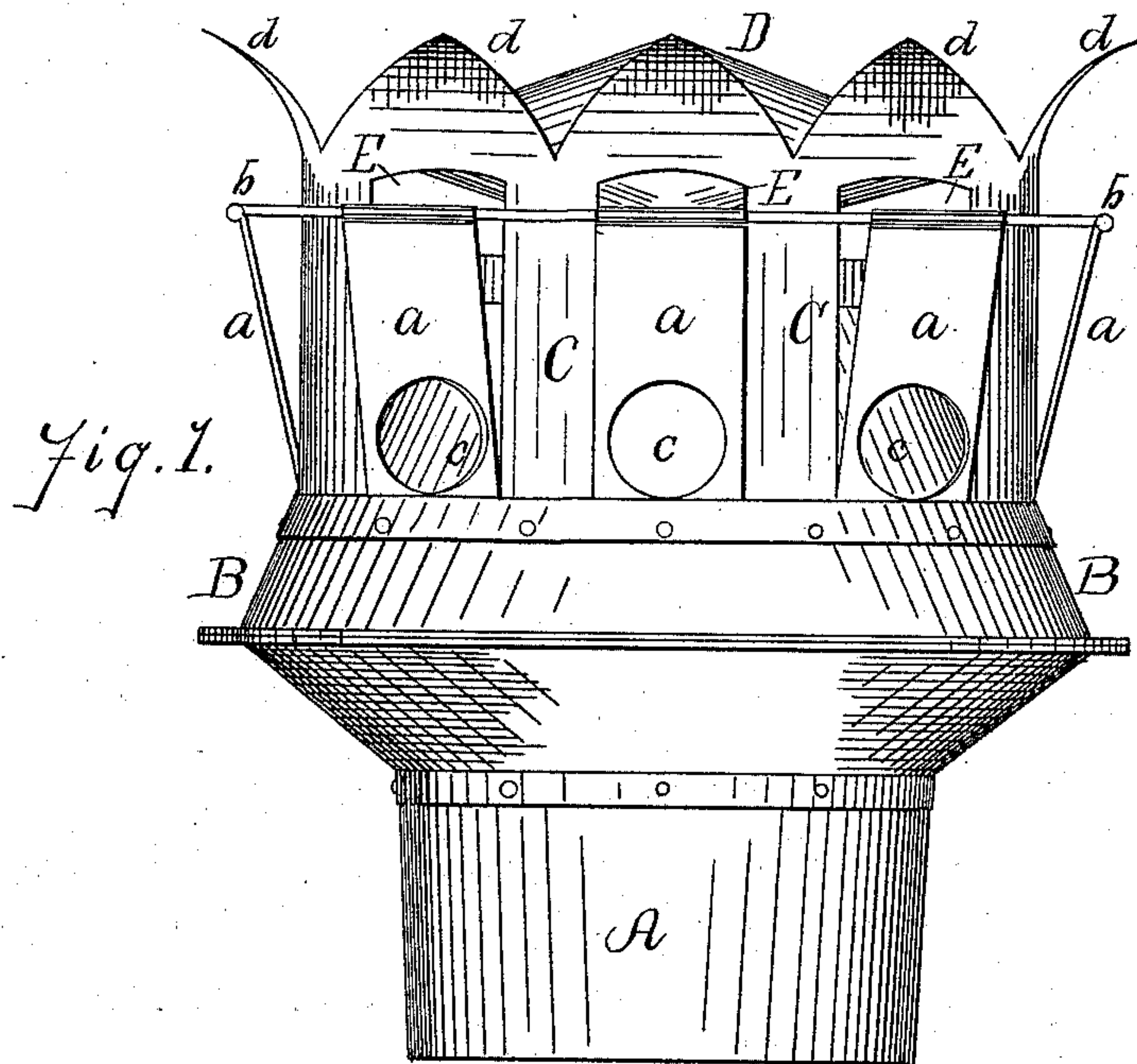


(No Model.)

Z. B. FIFIELD.  
SELF CLEANING SMOKE JACK.

No. 383,875.

Patented June 5, 1888.



Witnesses:  
*S. S. Roberts,*  
*W. B. Wood,*

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By his Attorneys,  
*Lucas & Barrett*



# UNITED STATES PATENT OFFICE.

ZACCHEUS B. FIFIELD, OF ST. PAUL, MINNESOTA.

## SELF-CLEANING SMOKE-JACK.

SPECIFICATION forming part of Letters Patent No. 383,875, dated June 5, 1888.

Application filed August 29, 1887. Serial No. 248,128. (No model.)

*To all whom it may concern:*

Be it known that I, ZACCHEUS B. FIFIELD, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Self-Cleaning Smoke-Jacks; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates especially to smoke-jacks for the stacks and chimneys of furnaces and ranges in which use is made of soft or bituminous coal; and it consists in the peculiar construction and arrangement of the several parts, substantially as hereinafter shown and described.

The object of this invention is to furnish a smoke-jack of such a construction that the accumulation of soot and cinders, produced in great quantities by the combustion of soft or bituminous coal, shall be prevented and the flue and adjacent parts be kept clear of all obstruction to the free passage of the smoke, and at the same time to allow free passage for currents of air in order to produce the necessary draft.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side view of the improved smoke-jack constructed in accordance with my invention, and Fig. 2 is a central longitudinal section of the same.

In the drawings, A is the flue portion of the smoke-jack, being so constructed as to be attached to and form a continuation of the stack or chimney. This portion is cylindrical in form, and is slightly flared, being of the greatest diameter at the top or mouth of the flue.

B is a deflector attached to the outside of the flue portion A, its surface being substantially that of the frustum of a cone and its upper edge being substantially coincident with the upper edge of the flue, thus giving an outer inclined surface to the flue portion. Its lower edge is supported in any convenient manner,

preferably, as shown, by a strip of metal bent in conical form and attached to the lower edge of the deflecting-surface B and to the outside of the flue, whereby little resistance is offered to the wind when the stack is in motion, as when used on railway-cars, &c.

C is a slotted cylinder resting upon the inclined surface B and attached to the cylinder at the upper part and inside thereof by narrow strips of metal, leaving a circular opening around the same. Above the mouth of the flue is a double conical deflector, D.

The cylinder C is provided with a series of oblong slots, E, in its circumference, the same being partially closed by a series of tongues, *a a*, one opposite each slot, and preferably formed by stamping out the metal of which the cylinder is composed upon three sides of the slot, the portion thus stamped out being bent outwardly and forming the tongue. The upper and outer ends of the tongues are supported in position in any convenient manner, a circular wire frame, *b*, to which each tongue is attached, as shown in the drawings, being a convenient method. Each tongue *a* is provided with an aperture, *c*, near its base, the bottom of which aperture is substantially at the point where the lower portion of the cylinder and the deflecting-cone B become coincident, the purpose of the aperture being to allow the free discharge of cinders, soot, &c., which are thrown against the inner surface of the cylinder and tongues. The upper edge of the slotted cylinder C is formed with a series of points, *d d*, one over each slot, which are bent outward at the top, thus forming a deflecting-surface to direct currents of air through the slots, thereby materially assisting the draft.

By means of the slots E E and their respective tongues *a a*, and points *d d*, with which the cylinder C is provided, a free passage of air is allowed in the proper direction to supply draft, and all currents are so directed as to pass over the mouth of the flue. The under surface of the double deflecting-cone D is in the direct line of the said currents of air, and consequently any accumulation of soot that might occur otherwise is prevented, the soot and cinders being driven against the tongues of the slotted cylinder C, whence they



are discharged through the apertures *cc* at the base thereof, over the deflecting-surface B. The flaring shape of the flue A also materially assists in preventing the accumulation of soot, &c., by causing the course of the latter to be directed outwardly in its discharge from the flue.

This smoke-jack may be made of any suitable material, as sheet-iron, zinc, &c.

I am aware that it is not new to employ the double conical deflector over the mouth of a flue, and I therefore make no broad claim to that construction; but

What I do claim as new, and desire to secure by Letters Patent, is—

1. The combination, in a chimney-cap, of a flue portion slightly flared upwardly and outwardly, and provided with an outer deflecting-surface around the top of the flue portion and extending downwardly and outwardly therefrom in the form of a truncated cone, and a slotted cylinder resting thereon having upwardly-extending apertured tongues outwardly bent from the point of contact of the said cylinder with the said deflecting-surface,

the lower edge of the said apertures being in line with the said deflecting-surface, substantially as specified, whereby the cinders, &c., may pass downwardly over the deflecting-surface and be discharged through the apertures.

2. The combination, in a chimney-cap, of a flue portion slightly flared upwardly and outwardly, a deflecting-surface in the form of a truncated cone extending downwardly and outwardly from the upper edge of the said flue portion, a slotted cylinder resting thereon having apertured tongues extending upwardly and outwardly from the bottom of each slot, a deflecting-surface extending upwardly and outwardly over the top of each slot, and a double cone within the cylinder over the mouth of the flue, substantially as and for the purpose herein specified.

In testimony whereof I affix my signature in presence of two witnesses.

ZACCHEUS B. FIFIELD.

Witnesses:

S. G. L. ROBERTS,

ALEX. N. HAYES.