

L. F. BETTS.  
Ventilating Cap.

No. 168,961.

Patented Oct. 19, 1875.

FIG. I.

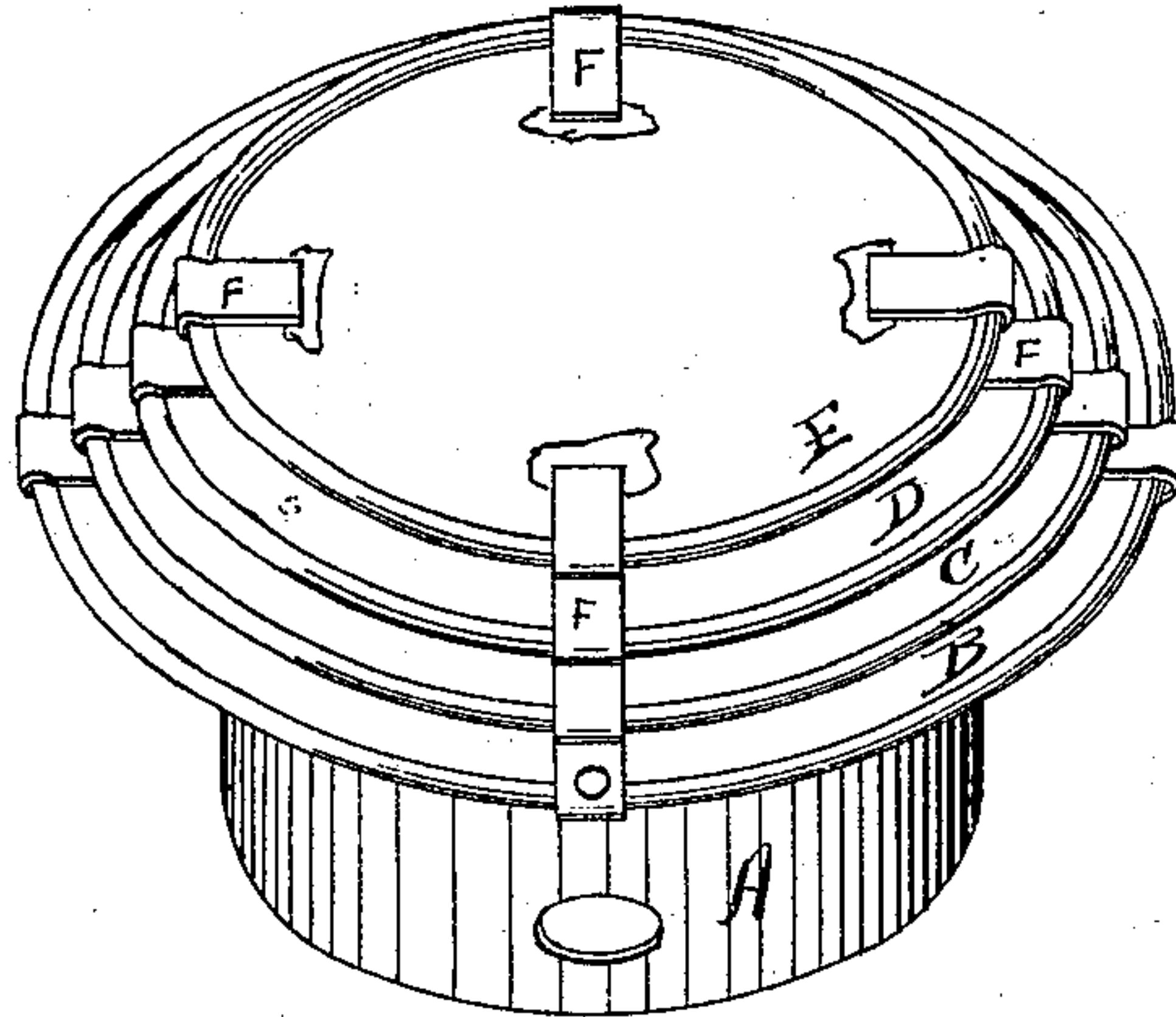


FIG. II.

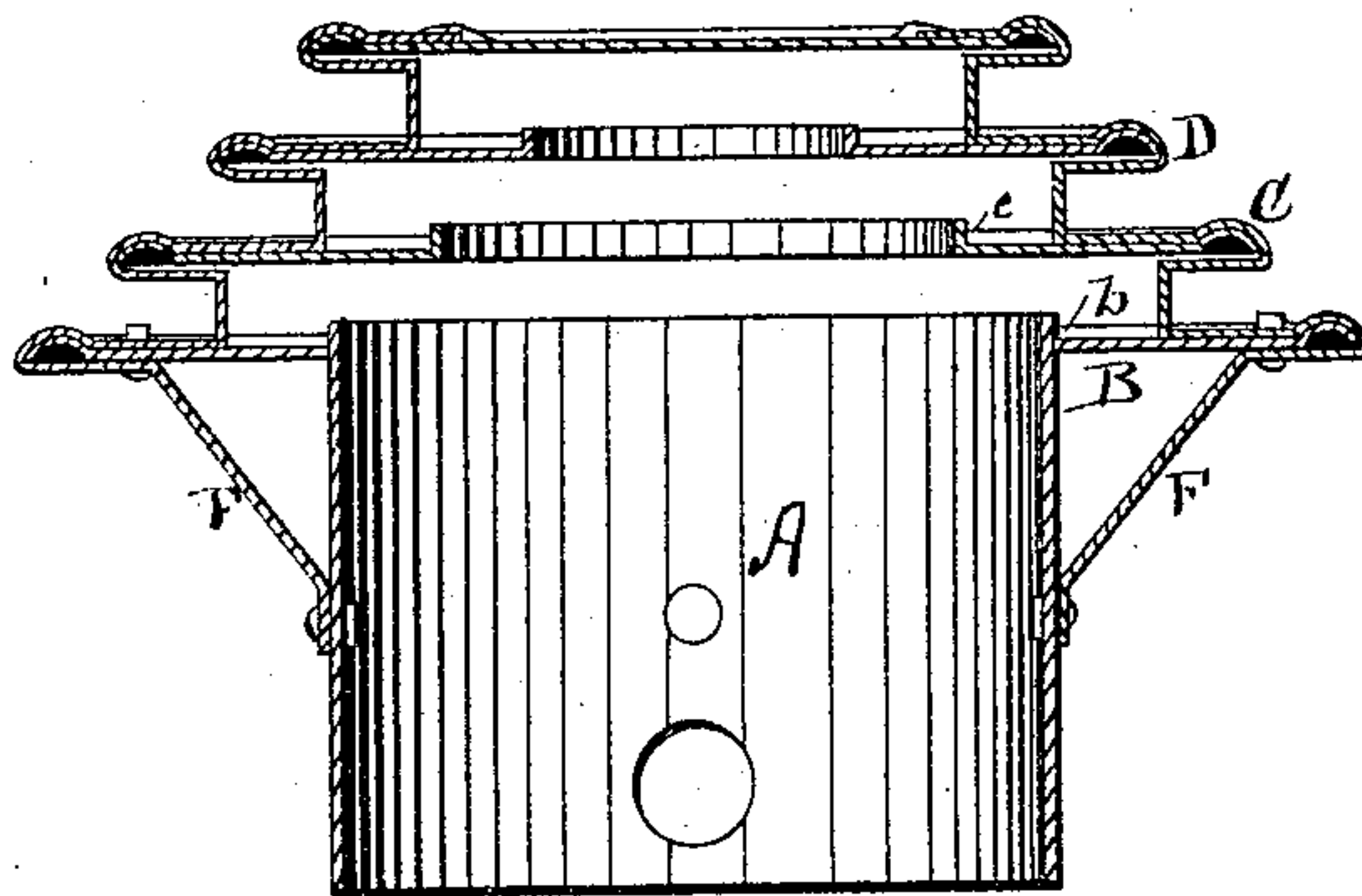
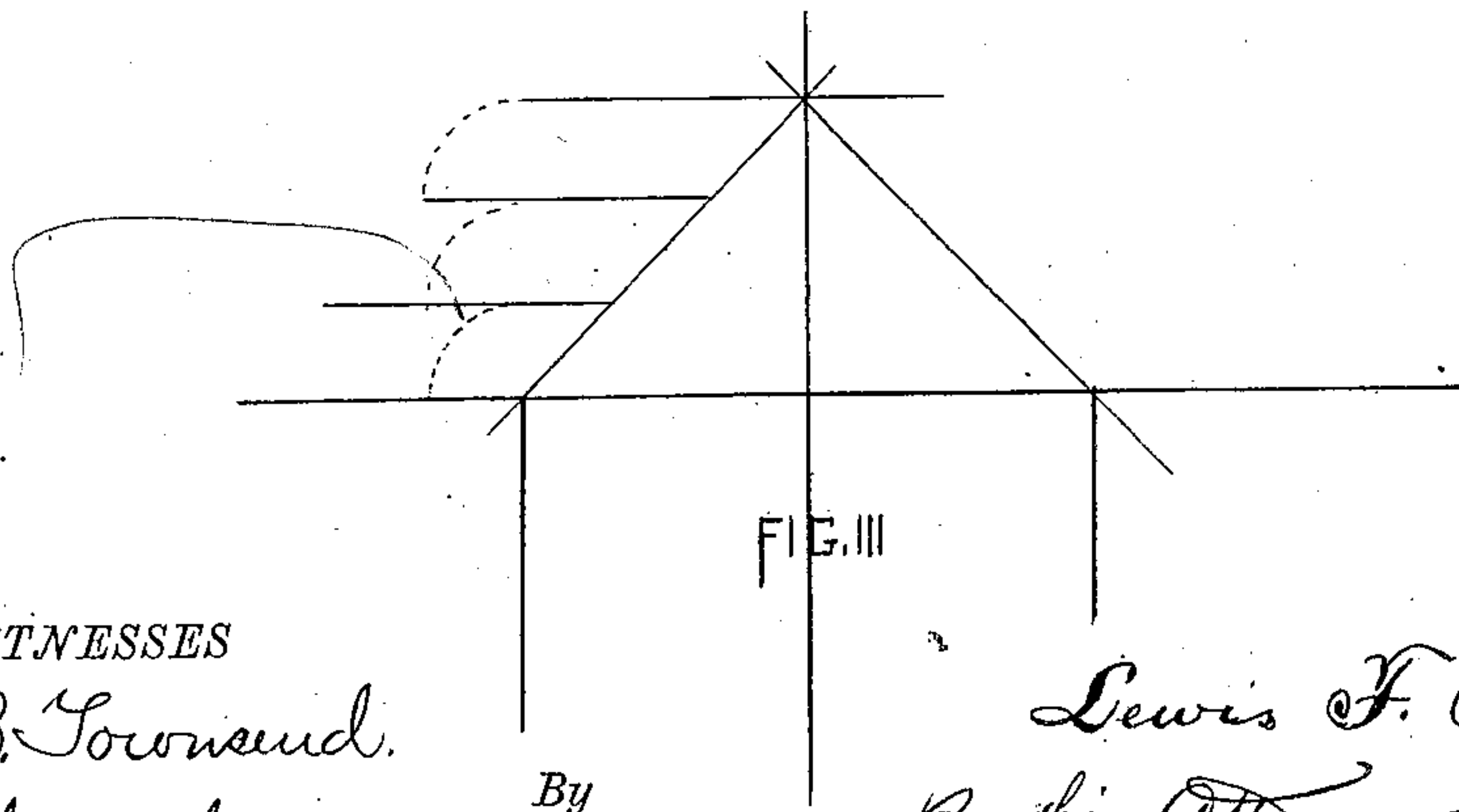


FIG. III



WITNESSES

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By

INVENTOR

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By his Atty  
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# UNITED STATES PATENT OFFICE.

LEWIS F. BETTS, OF CHICAGO, ILLINOIS.

## IMPROVEMENT IN VENTILATING-CAPS.

Specification forming part of Letters Patent No. **168,961**, dated October 19, 1875; application filed September 28, 1875.

*To all whom it may concern:*

Be it known that I, LEWIS F. BETTS, of Chicago, in the county of Cook and State of Illinois, have invented a Ventilating-Cap, of which the following is a specification:

This invention relates to that class of chimney-caps which are designed to exhaust or cause an outward flow of air from said chimney wherever said cap is exposed to moving currents of the surrounding atmosphere, from whatever direction they may come; and it consists of a series of flat parallel annular rings disposed one above another, decreasing in size and covered by a disk.

It is well known as a law of fluid motion that a moving current passing across the open mouth of a tube will tend to exhaust the same. This effect is observed in chimneys which have a stronger draft during high winds than at other times. Practically, the problem is to prevent wind-currents which are moving in other than horizontal lines from blowing into and down chimneys or ventilating-pipes. Heretofore, no cap or cowl has been produced which, without machinery or moving parts, and of cheap construction, could control the air-currents without regard to their direction, and cause the desired exhaustion. The fundamental requirements appear to be a thin edge for the chimney, across which the moving current must pass, and deflecting-plates capable of reducing all currents to a horizontal direction. I therefore surround the upper end of the ventilating-pipe A with an annular plate or flange, B, the surface of which is perpendicular to the axis of the pipe A. The pipe A projects above the surface of the flange B about one-fourth ( $\frac{1}{4}$ ) of an inch, as shown at *b*. Above the flange B, and parallel thereto, is a similar annular flange, C, having a less diameter than B, and a small cylindrical flange or ledge, *c*, projecting upward around the central opening of said flange, and above the flange C is still another flange, D, similar in all respects, except that it is of less diameter, and the whole series is surmounted by a disk, E, which covers the central openings in the several annular flanges. The relative sizes of the various annular

flanges are determined by the diameter of the pipe A, and, without designing to be limited strictly to the relative dimensions hereinafter given, I think them to be very nearly if not the very best, and constructed by an easy formula which renders it a simple process to lay out the proper dimensions for any sized flue. The width of the flange B is equal to one-half the length of the diagonal of the semi-diameter of the pipe A, as shown in the diagram, Fig. 3. The several annular flanges are equal in width, and the inner edges cut the diagonal above named. The space intervening between the flanges is equal to one-third ( $\frac{1}{3}$ ) the width of flange B.

It is apparent that from whatever direction the wind may come upon a cap constructed as described, it will be deflected to pass over the central openings in a direction perpendicular to the axis, or very nearly so, and the small ledges *c* afford the sharp or thin edges required to enable the moving current to produce the necessary exhaustion.

The flanges B C D E are supported and retained in proper position by three or more strips, F, bent as shown at proper intervals, to receive the edges of the flanges, to which it may be secured by a rivet, while the lower end of said strip F is riveted fast to the side of the pipe A, and thus forms a brace for the whole structure.

Having described my invention, what I claim as new is—

1. The combination of a series of flat parallel annular flanges, B C D E, provided with ledges *c c* and disposed perpendicularly to the axis of the pipe A, for the purpose specified.
2. The combination of a series of flat parallel annular flanges, B C D E, constructed according to the formula of relative proportions herein specified, to form a ventilating-cap.
3. In combination with the annular plates B C D E, the strips F, fashioned as set forth, and secured as described.

LEWIS F. BETTS.

Witnesses:

HENRY C. WHITNEY,  
JEWIS F. JACOBS.