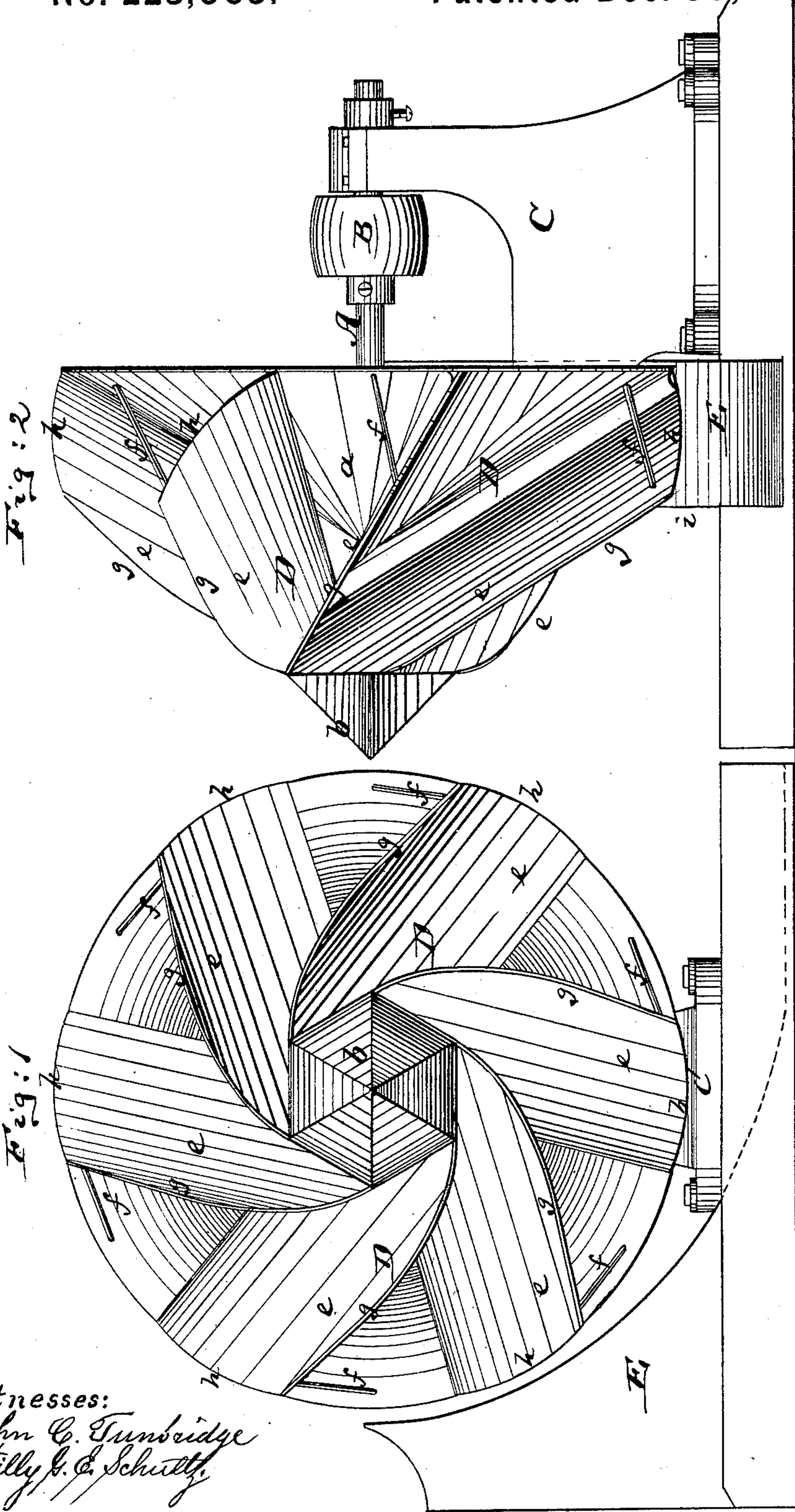


F. PELZER.
Centrifugal and Screw Ventilator.

No. 223,005.

Patented Dec. 30, 1879.



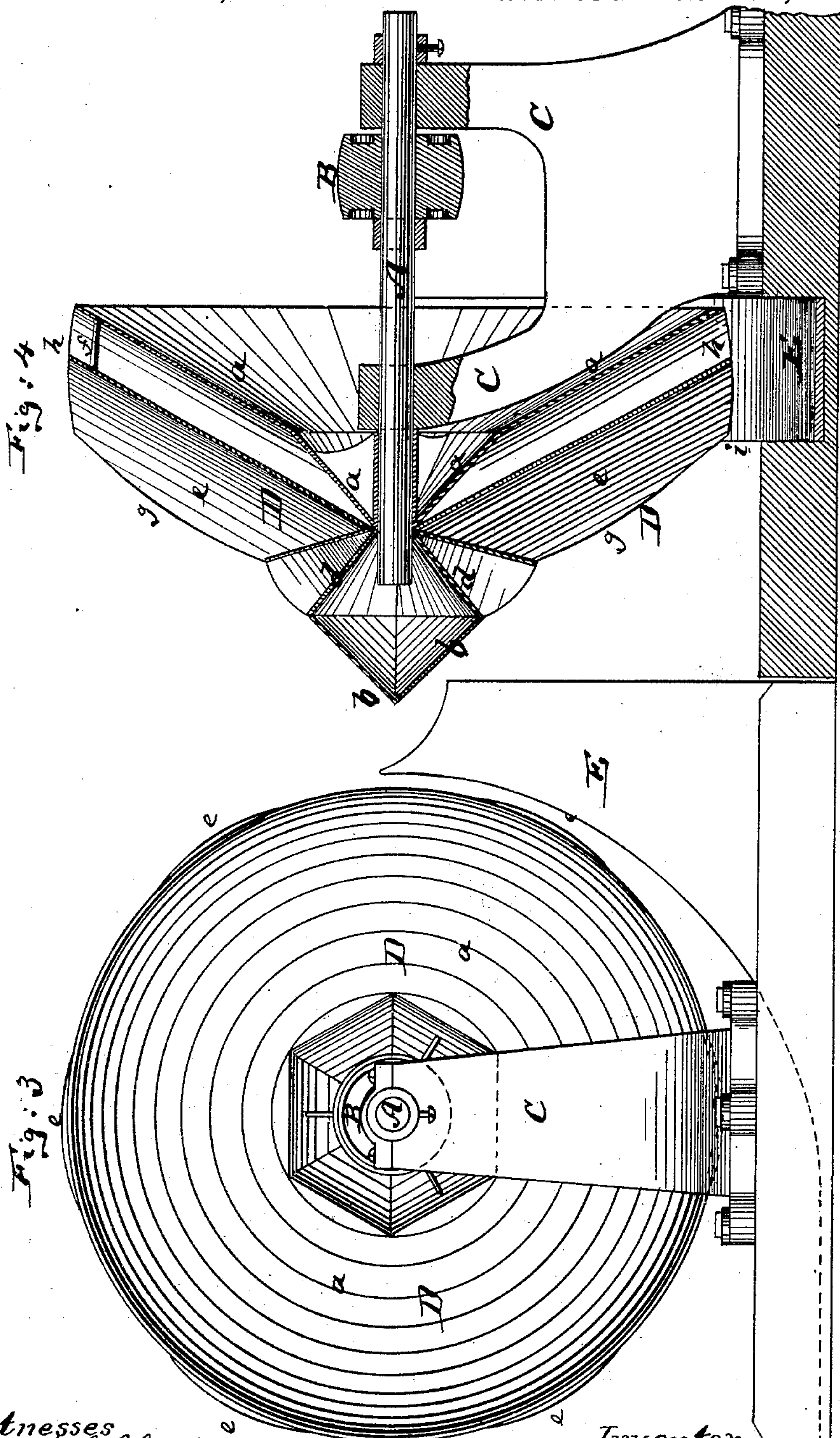
Witnesses:

John C. Tunbridge
Willy C. Schutty

Inventor:

Friedrich Pelzer
by his attorney
A. Briesen

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Hilly S. Schmitt.
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UNITED STATES PATENT OFFICE.

FRIEDRICH PELZER, OF DORTMUND, GERMANY.

IMPROVEMENT IN CENTRIFUGAL AND SCREW VENTILATORS.

Specification forming part of Letters Patent No. **223,005**, dated December 30, 1879; application filed November 17, 1879.

To all whom it may concern:

Be it known that I, FRIEDRICH PELZER, of Dortmund, in the Empire of Germany, have invented a new and Improved Centrifugal and Screw Ventilator, of which the following is a specification.

Figure 1 is a face view of my improved ventilator; Fig. 2, a side view of the same; Fig. 3, a back view, and Fig. 4 a vertical central section, of the same.

The invention relates more particularly to the peculiar placing of the parts of the winged wheel of this screw-propeller, which winged wheel is composed of a main cone fastened upon an axle, a double pyramid in front of said cone, and a series of peculiarly-placed wings, which are attached to the outer face of the cone and to the inner side of the double pyramid, all as hereinafter more fully described.

In the drawings, the letter A represents the axle, the letter B the driving-pulley, the letter C the supporting-frame, and the letter D the winged wheel. This wheel is fixed upon the axle, which axle is hung in the frame, as shown, the arrangement of the frame being such that it is entirely behind the wheel. The rear part of the wheel or base thereof is composed of a cone, *a*. In front of this cone is also mounted upon the axle the double pyramid *b d*. The point of the front part, *b*, of this double pyramid is the extreme forward point of the wheel. The point of the inner portion, *d*, of this double pyramid reaches to and is in contact with the point of the cone *a*, which cone is of much larger diameter than the pyramid, as clearly shown in Fig. 4.

I style the part *a* a "cone," although it is not shown as exactly a plane cone, there being, preferably, a break in its inclined face, as clearly indicated in Fig. 4; but for the purposes of this description I shall term it a "cone."

The wings *e* of the ventilator are flat blades placed diagonally, so to say, upon the outer face of the cone in such a manner that they bear upon the inner part, *d*, of the double pyramid, and also upon the outer face of said cone *a*, as clearly shown in the drawings. They thus form slanting wing-shaped projections, which may be braced by suitable rods *f*, or in any other proper manner.

It will be perceived from an inspection of Fig. 1 that the wings are so formed as to constitute continuations of the faces of the double pyramid, thus utilizing the faces of the pyramid to substantially the same extent as the wings, there being exactly as many wings—six in this instance—as the pyramids *b d* have faces or angles.

The front parts of the wings have slanting edges *g*; but their outer edges, *h*, are substantially at right angles with the base of the cone *a*, so that, in truth, the back part of the winged wheel will form an interrupted cylinder and the front part an interrupted cone; or, in other words, the back part of the wheel would fit and revolve within a cylindrical cavity, while the front part would fit and revolve within a conical cavity. The suction-chamber is entered by the conical part of this wheel—that is to say, the wheel enters this suction-chamber, or the apartment from which the air is to be taken, as far as the line *i*. (Shown in Fig. 4.)

The cylindrical portion of the winged wheel, which is formed by the edges *h* of the wings, is not within the suction-chamber, but is in line with a spiral wall, E. The air taken by the forward parts *g* of the wings is gradually led into the recess between the parts *h* of the wings, and thence discharged by centrifugal force at a right angle to the plane of the axle A. In other words, the air is gradually screwed by the slanting wings to the periphery of the cone, and then thrown out by centrifugal force, thus utilizing the two functions, where heretofore usually but one was used.

I claim—

The ventilator-wheel composed of the cone *a*, double pyramid *b d*, and inclined wings *e*, all arranged so that the air will be affected by the screw action, and also by the centrifugal action, of the wings, substantially as herein shown and described.

The foregoing specification of my invention signed by me.

F. PELZER.

Witnesses:

E. HALLENSTEIN,
NIC. GRANDPRÉ.