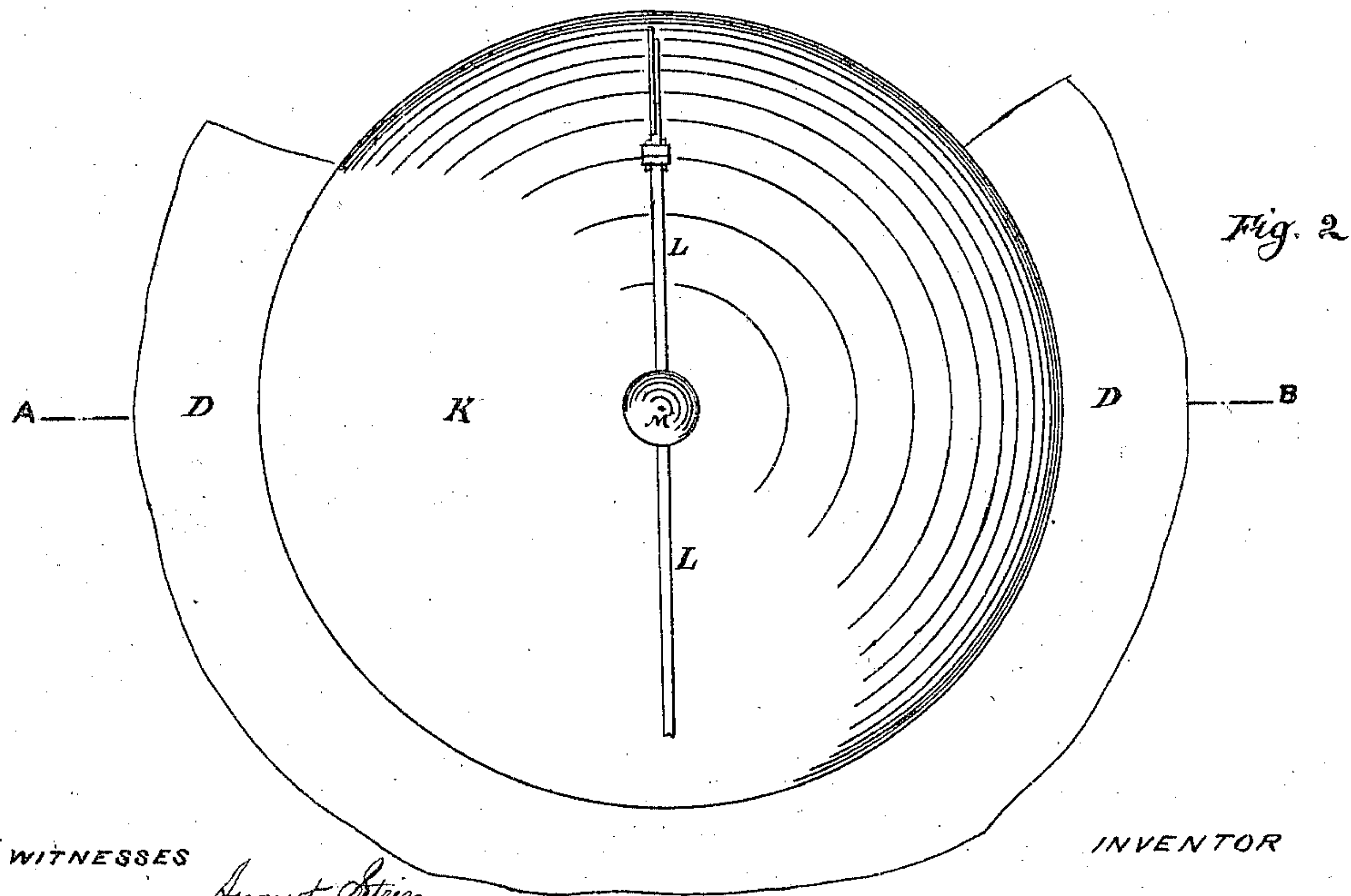
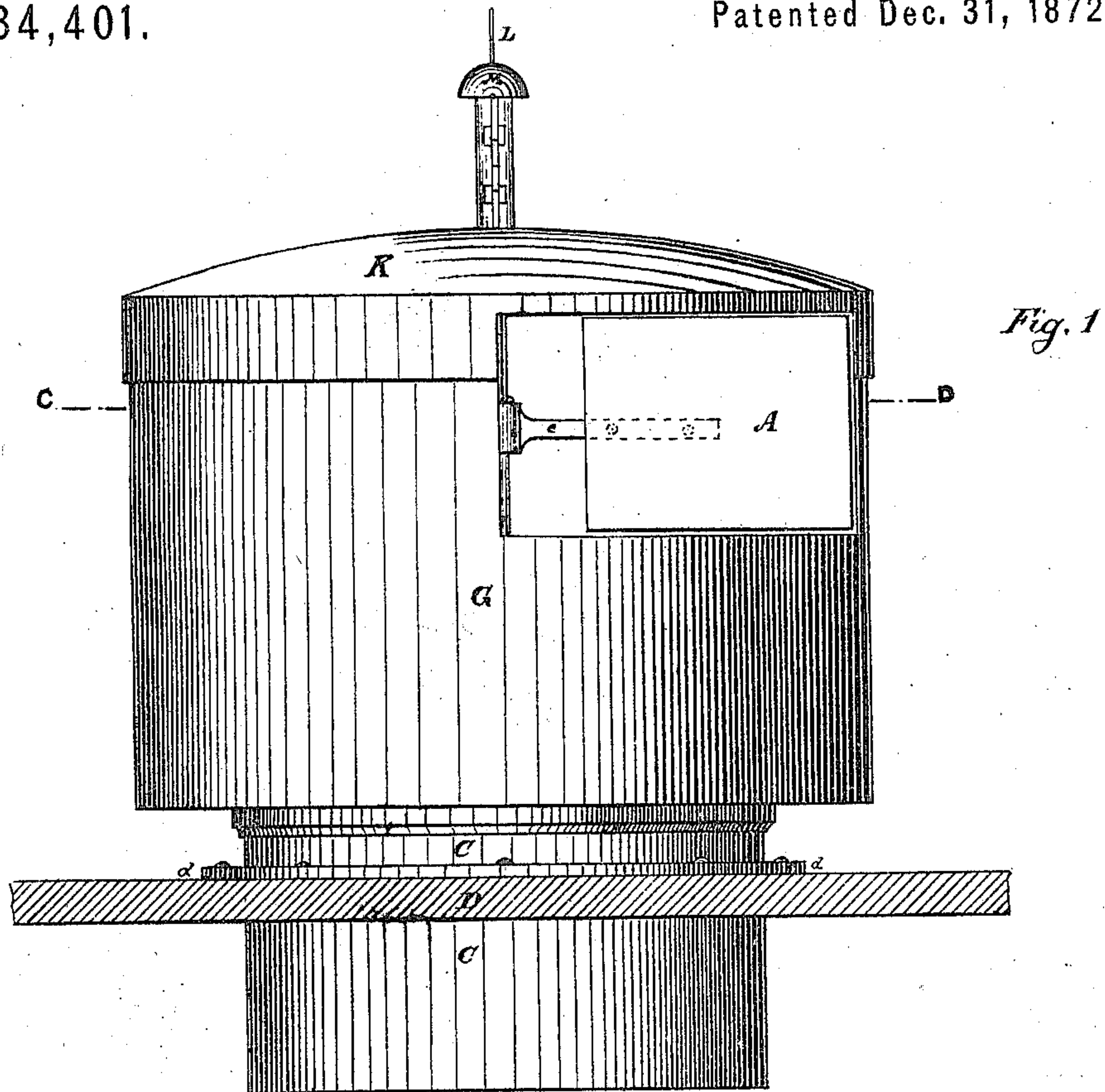


No. 134,401.

P. I. SCHOPP.
Ventilators.

3 Sheets--Sheet 1.

Patented Dec. 31, 1872.



WITNESSES

August Stein
Hermann Weiser

INVENTOR

Philip I. Schopp

No. 134,401.

P. I. SCHOPP.
Ventilators.

3 Sheets--Sheet 2.

Patented Dec. 31, 1872.

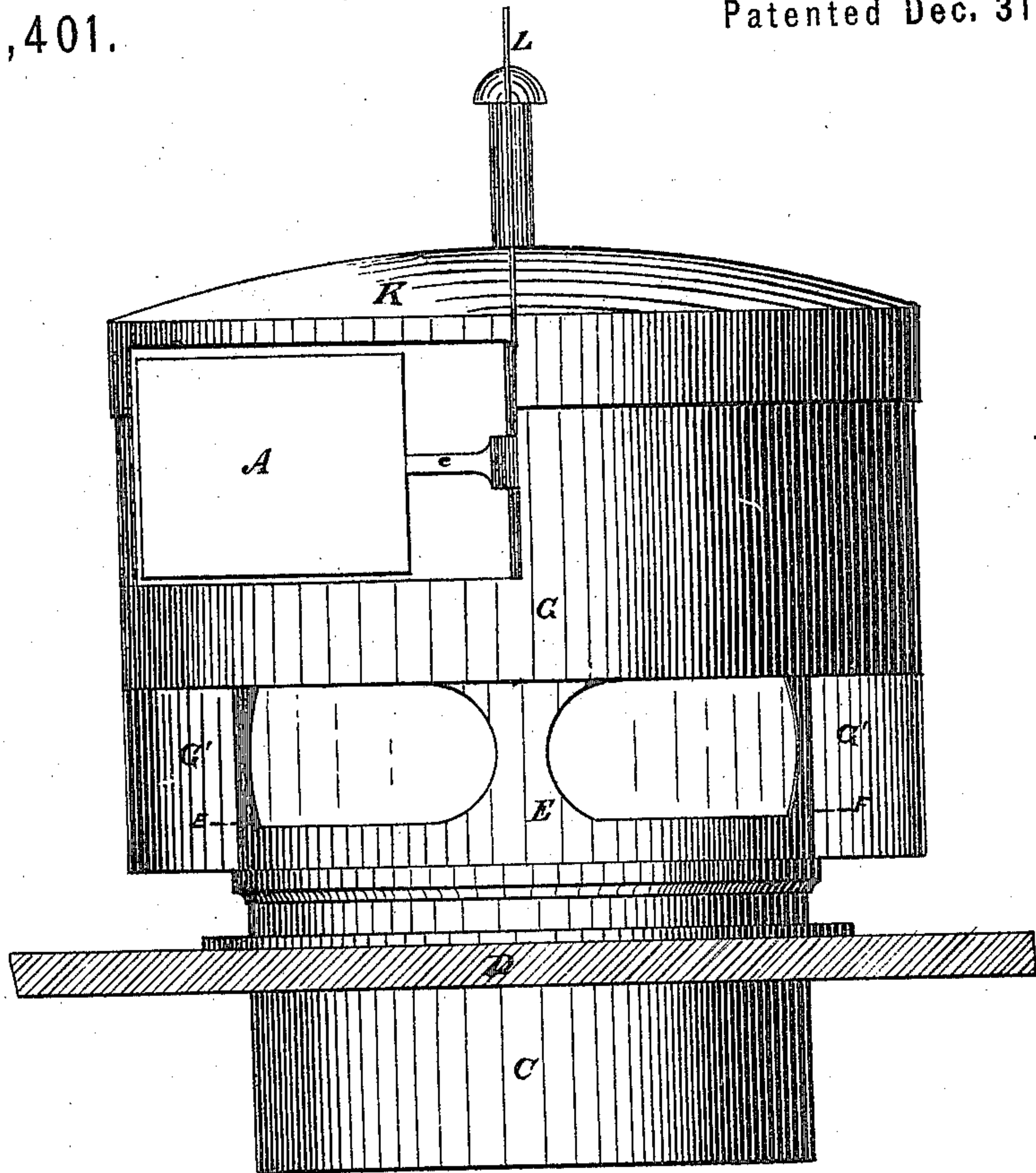


Fig. 3

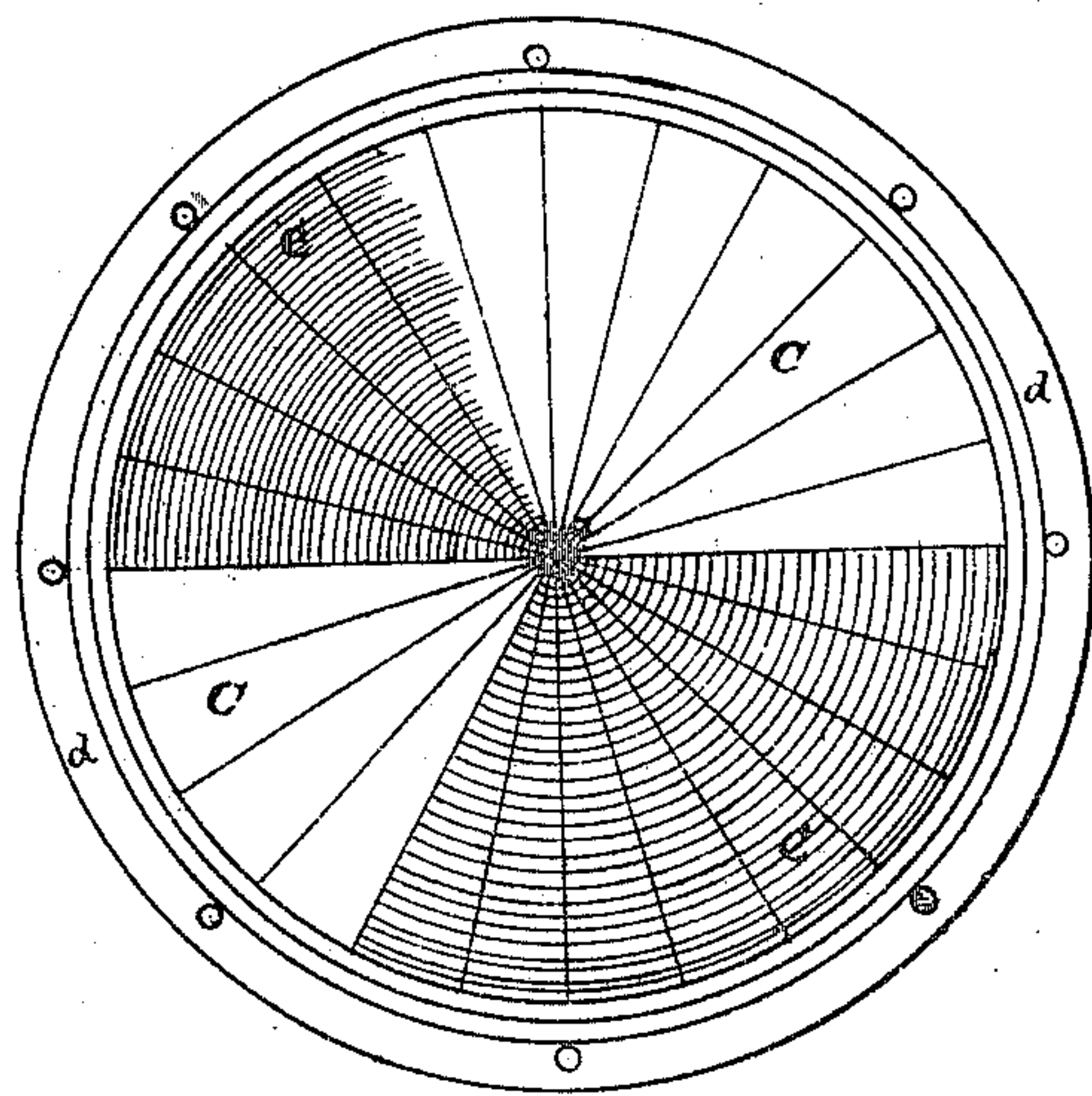


Fig. 4

WITNESSES

August Stein
Herman Werner

INVENTOR

Philip S. Schopp

P. I. SCHOPP.
Ventilators.

No. 134,401.

Patented Dec. 31, 1872.

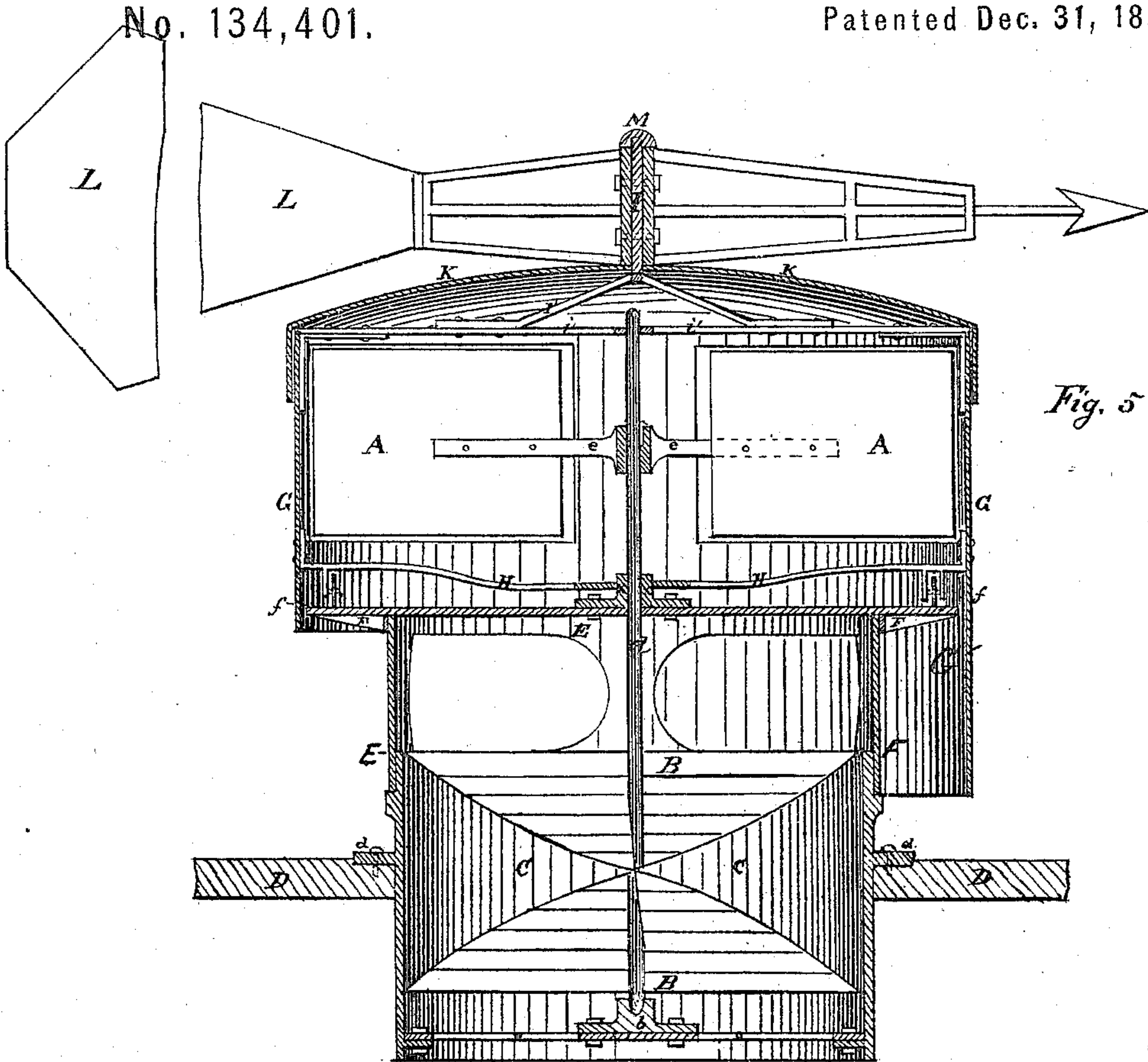


Fig. 5

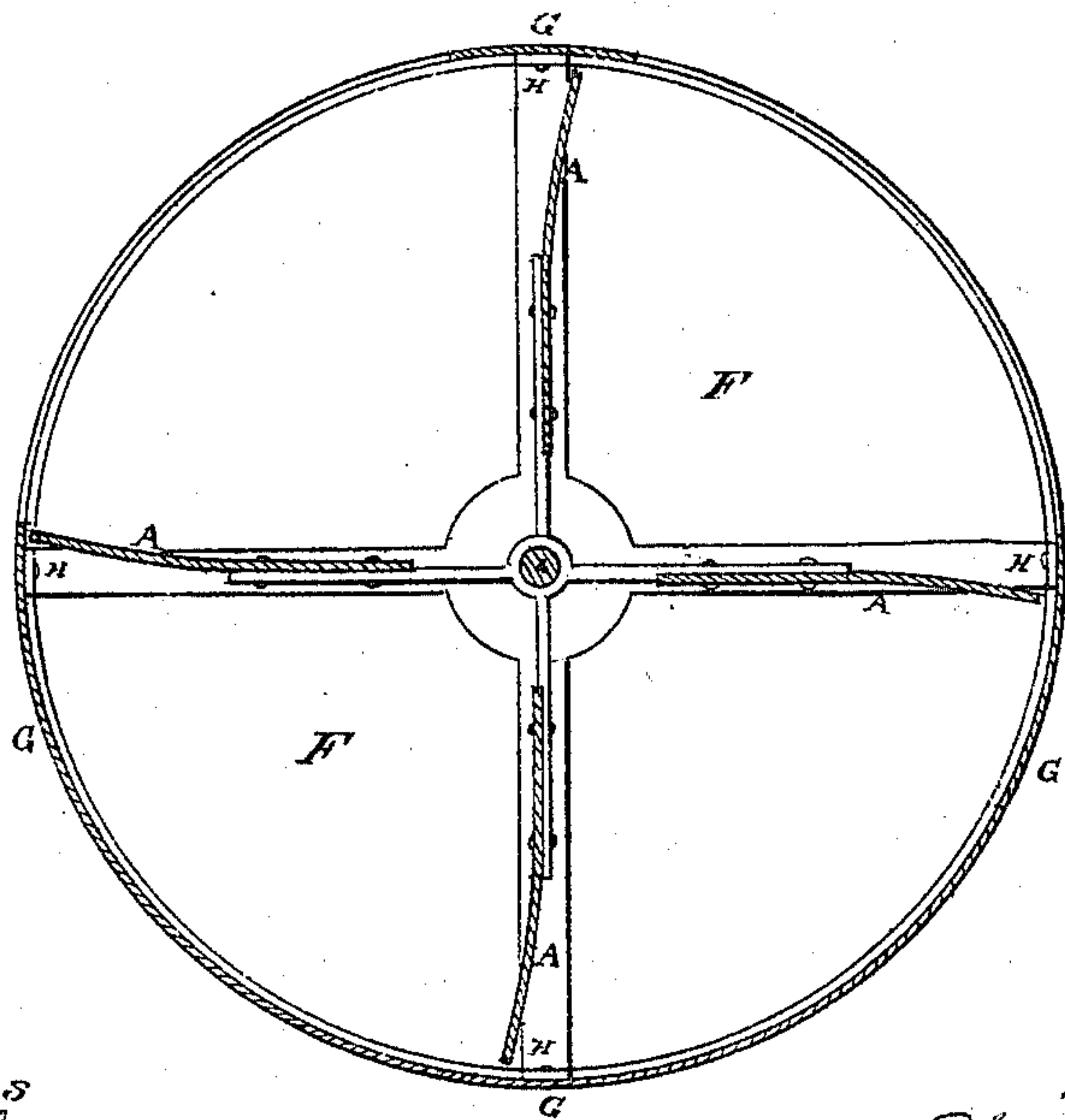


Fig. 6.

WITNESSES
August Stein
Hermann Hermer

INVENTOR
Philip I. Schopp

UNITED STATES PATENT OFFICE.

PHILIP I. SCHOPP, OF LOUISVILLE, KENTUCKY.

IMPROVEMENT IN VENTILATORS.

Specification forming part of Letters Patent No. 134,401, dated December 31, 1872.

To all whom it may concern:

Be it known that I, PHILIP I. SCHOPP, of Louisville, in the county of Jefferson and State of Kentucky, have invented certain Improvements in Ventilators, of which the following is a specification:

The first part of my invention relates to the combination of an incased screw with a horizontal wind-wheel in such a way as to use the motive power of the latter to set the former in motion, for the purpose of exhausting from or supplying air to closed apartments, particularly railroad cars. The second part relates to the combination of a peculiarly-constructed movable turret and shield with the wind-wheel and screw, by which only one-half of the wings of the wheel will be exposed to the current of the air and the returning wings protected from the same, thus securing a constant motion in one direction only, to the right or left, as the opening in the turret may indicate.

Figure 1 is a front elevation of the ventilator facing the current of air. Fig. 2 is a plan of Fig. 1. Fig. 3 is a rear elevation. Fig. 4 is a horizontal section on line E F, Fig. 3, and a plan of the screw. Fig. 5 is a vertical transverse section on line A B, Fig. 2. Fig. 6 is a horizontal section on line C D, Fig. 1.

A is a wind-wheel of four or more wings; the wings are made of sheet-iron and attached to cast-iron arms *e*, which are keyed to the spindle *a*. To the lower end of spindle *a* screw B (double spiral, right and left) is attached. This screw is made of sheet metal and riveted or otherwise fastened to spindle *a*. Spindle *a* rests in socket *b*, which is screwed to wrought-iron cross-bars *c*, resting on projecting brackets of cylinder C. This cylinder C is made of cast-iron, and provided with a ring or flange, *d*, by which it rests and is fastened to the decking or roof D. The principal office of the cylinder is to receive the screw B, which revolves in it, set in motion by the wind-wheel A. Upon the cylinder C rests the perforated ring E, intended for the purpose partly to make room for the escape or suction of air, partly to form a support for the circular plate F. G is the turret, made of sheet metal. Half of the circle is closed to afford protection to the returning wings of the wind-wheel A; the other half is open to expose the wings to the striking

current of the air. This opening may be to the right or left, either to supply air or exhaust foul air, and have the screw turned correspondingly. The half part of the turret below the wind-wheel, exposed entirely to the current, is closed, and projecting downward beyond the top line of the screw B, forming a shield, G', around half the openings of ring E. The shield will exclude counter currents and permit the free exit of foul air and the undisturbed supply of fresh air, as the case may be. To the inside of the turret four wheels, H, are attached by means of four arms radiating from a ring which revolves around a templet, X, fastened to circular plate F. To these arms turret G is to be screwed. To give support to spindle *a* cross-bars *i* are attached to the turret by means of angle-irons. To these cross-bars are riveted or screwed diagonal braces I', to which is fastened spindle I. To this spindle is secured the vane or rudder L, constructed large enough to secure the moving of the turret. K is a cap slipped over the turret to keep out the rain and dust; M, a small cap slipped over spindle I for the same purpose.

The whole apparatus is set up in the following manner: First, cylinder C, with cross-bars *c* and socket *b* attached, is set upon the roof and the ring E slipped over it; then spindle *a*, with screw B, is inserted and circular plate F slipped over it, and rollers set upon the plate; then the wind-wheel A is attached to the spindle *a* and the turret G placed over it; then cap K is slipped over the turret; and, lastly, vane L attached to spindle I.

The apparatus will operate in the following manner: By means of the vane or rudder L, which is subject to the power of the air current, the turret G will be turned upon the plate F, and, as the rudder is on the opposite side of the shielded part of the turret, that part will always be turned toward the current, and consequently the current will strike only those wings exposed to it through the open part of the turret, the returning wings being shielded by the closed part. For the same reason shield G' will always face the current and protect the opening above the screw. This will secure a motion in the same direction for the wind-wheel and screw. By the revolution of the screw a

vacuum is created or a column of atmospheric air lifted, so to say, which will speedily be replaced by another. By continued motion the foul air in an apartment will be pumped out, and may be replaced with fresh air by an apparatus working the opposite way, or fresh air supplied through doors and windows or special-constructed openings. Spindle *a* fitting only loosely in the hole of cross-bars *i*, the wind-wheel will work independently from the motion of the turret.

I claim as my invention—

The combination of the wind-wheel A, turret G, plate F, perforated cylinder E, screw B, and spindle *a*, cylinder C, cap K, and vane L, substantially and for the purpose hereinbefore set forth.

PHILIP I. SCHOPP.

Witnesses:

AUGUST STEIN,
HERMAN WERNER.