(No Model.)

S. J. VODEN.

FAN OR BLOWER.

No. 366,535. Patented July 12, 1887.

Fig. I.

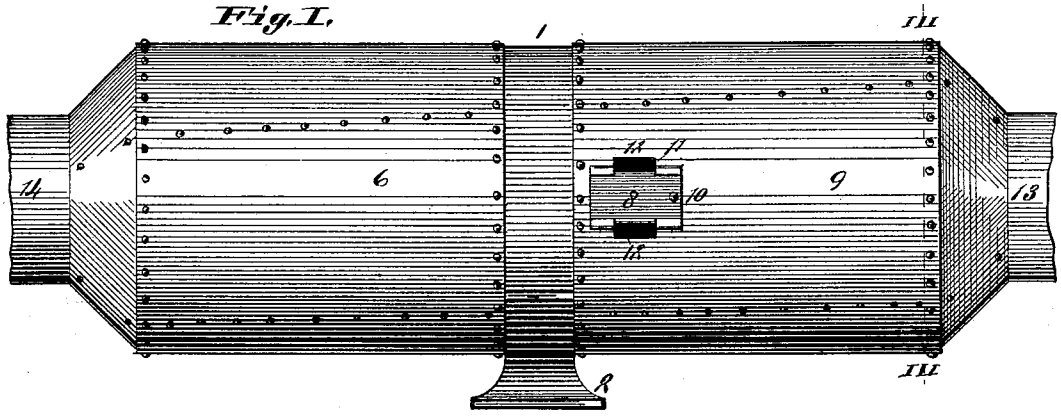


Fig. II.

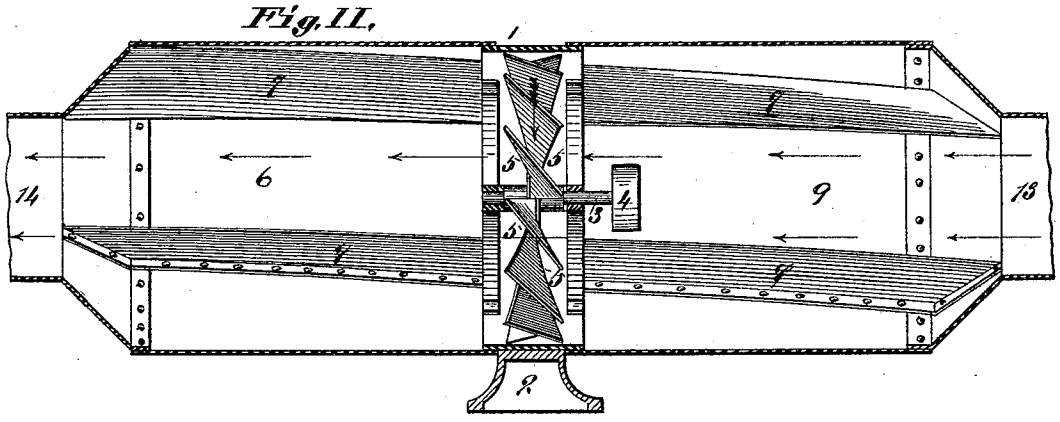
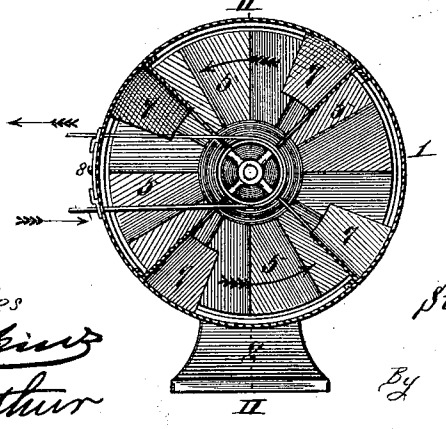


Fig. III.



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UNITED STATES PATENT OFFICE.

SIDNEY J. VODEN, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF TO JAMES W. BELL, OF SAME PLACE.

FAN OR BLOWER.

SPECIFICATION forming part of Letters Patent No. 366,535, dated July 12, 1887.

Application filed February 28, 1887. Serial No. 229,221. (No model.)

To all whom it may concern:

Be it known that I, SIDNEY J. VODEN, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Fans or Blowers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, and in which—

Figure I is a side view of the apparatus. Fig. II is a longitudinal section at line II II, Fig. III. Fig. III is a transverse section at line III III, Fig. I.

This is an improvement in the class of rotary blowers in which the wings are inclined, so that the air passes through in the direction of the axis or shaft. The current is, however, not direct, but has a very considerable spiral motion imparted to it, which interferes with its direct motion and robs the blast of a large part of its forward movement and force.

The improvement consists in placing longitudinal wings or strips in a tube into which the air is forced to deflect the current and change the spiral into a straight-forward motion. The effect of the blower is also increased by placing a tube upon the receiving side, having on the interior wings or strips which are somewhat spirally arranged, so as to give a spiral direction to the air before it reaches the blower, but in a contrary direction to the motion of the blower, so that it shall tend to insinuate itself between the wings of the blower. The rotary blower turns in a short cylindrical case, 1, which is shown supported on a base, 2. 3 is the shaft; 4, the belt-pulley carrying the driving-belt, and 5 the inclined wings of the blower, which are so inclined that they cause the air to pass longitudinally or in direction of the blower-shaft.

6 is a pipe, which may for some distance have equal diameter with the case 1 of the blower, and may or may not be contracted, as shown, at a distance from the blower.

7 are longitudinal deflecting-strips, of which three are shown. There may, however, be only one of them, or any number found desirable. These strips are riveted to the inside of the pipe, from which they extend inwardly. They are curved in a spiral form in such a way as to correct the spiral motion imparted to the air-current by the blower, being preferably so curved that this spiral motion will be corrected somewhat gradually, so that no violent eddies shall be formed in the air-current, for it will be understood that all eddies or spiral movements interfere with the forward movement of the air-current and impair the efficiency of the blower. The direction of these strips or wings is indicated in full lines in Fig. II and by the rows of rivets in Fig. I.

9 is a pipe through which the air passes to reach the blower. This pipe may have equal diameter with the pipe 6 and the blower-case; or it may be made either tapering or flaring. It contains deflecting wings or strips 7, similar to those of the pipe 6; but their purpose is different—namely, to impart to the entering air a somewhat spiral motion in the opposite direction to the rotation of the blower, so that the wings of the blower will act upon it more effectually and will not impart to it so great a spiral motion as would be the case if the air approached the side of the blower-wheel in a directly longitudinal direction or in a line direct with the blower-shaft.

Access is had to the interior through an aperture, 11, closed with a sliding door, 8, except for the slots 12, through which the driving-belt passes. The door is secured by any suitable fastening, 10.

13 is a pipe communicating with pipe 9, and 14 a pipe communicating with the pipe 6. These pipes may be dispensed with or may lead to or from any desired point.

The tubes 6 and 9 may be regarded as part of the case 1, and they may all be in one piece.

I claim as my invention—

In a fan or blower, the combination of the fan-case and rotary fan driven by the belt on the pulley 4, said fan having inclined wings, and the longitudinal deflecting-wings 7, within the inlet and outlet chambers of the case, arranged to deflect the rotary air-current into a longitudinal direction, all substantially as described, and for the purpose set forth.

SIDNEY J. VODEN.

In presence of—

BENJN. A. KNIGHT.

SAML. KNIGHT.