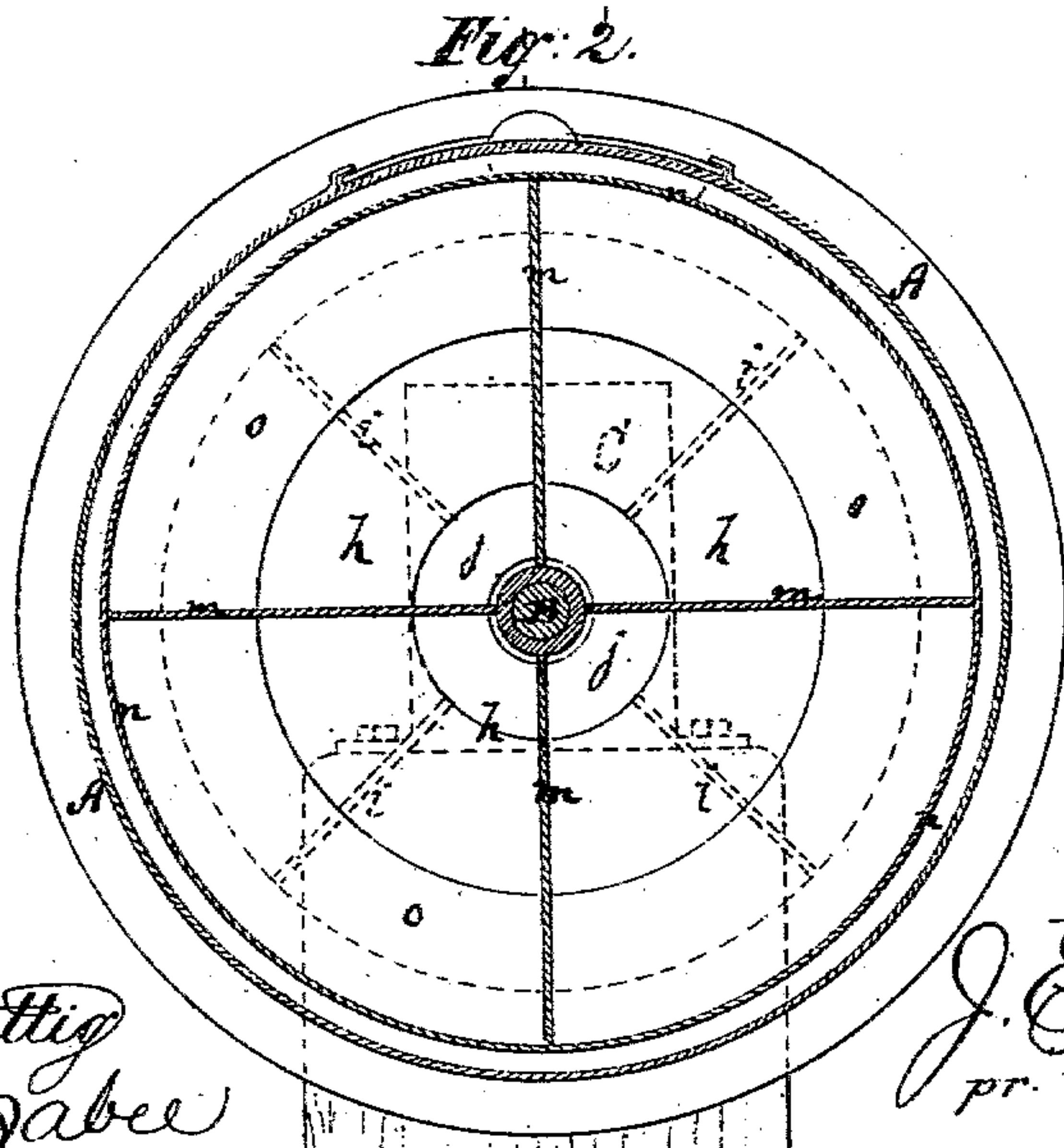
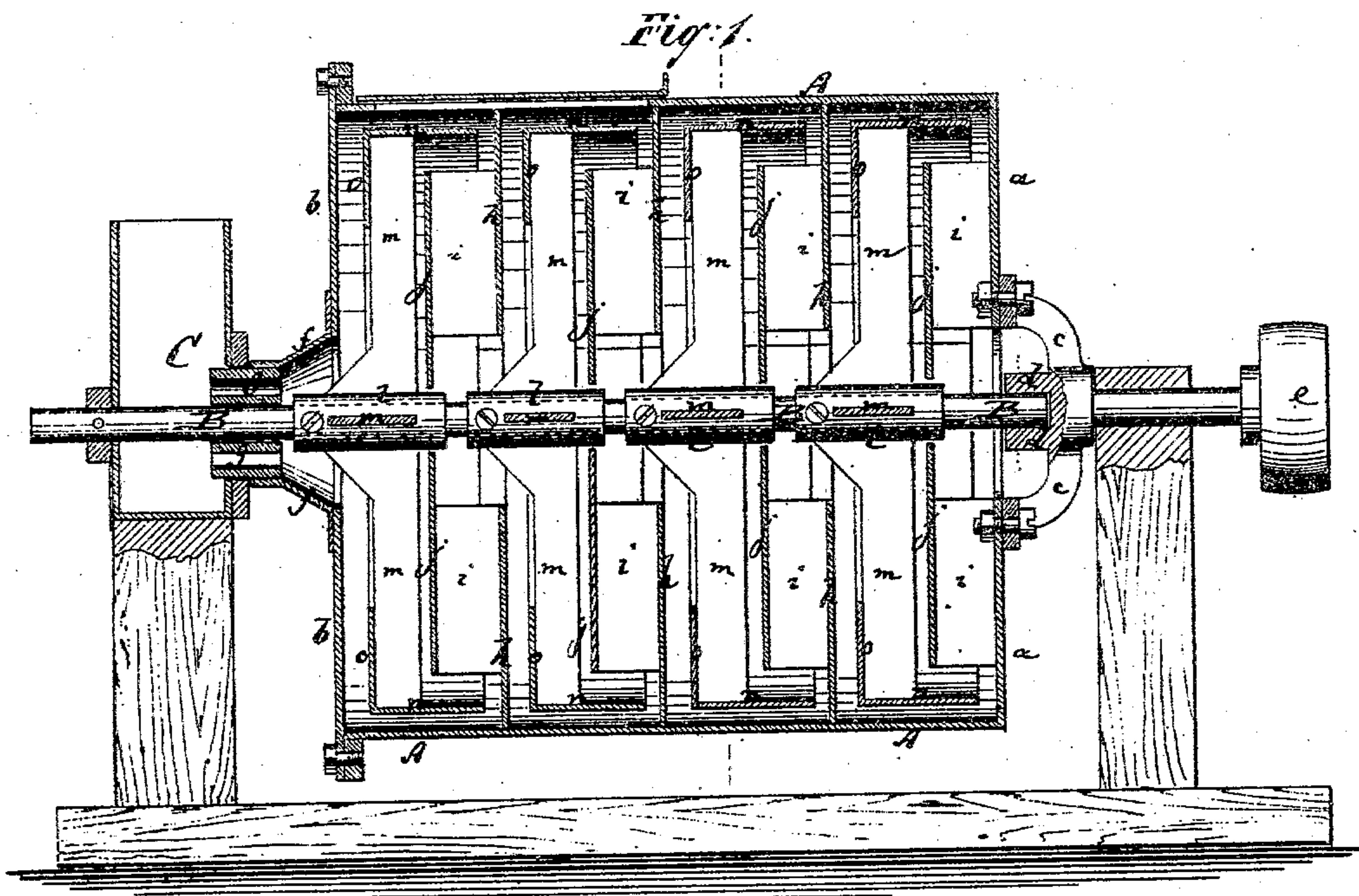


*J. Ericsson,*

*Fan Blower.*

*No. 106348.*

*Patented Aug. 16. 1870.*



*Witnesses:*

*C. Ruettig*  
*L. J. Mabee*

*Inventor:*

*J. Ericsson*  
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# United States Patent Office.

JOHN ERICSSON, OF NEW YORK, N. Y.

Letters Patent No. 106,348, dated August 16, 1870.

## IMPROVEMENT IN FAN-BLOWERS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JOHN ERICSSON, of the city of New York, in the county and State of New York, have invented a new and improved Fan-Blower; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

Figure 1 represents a longitudinal section of my improved fan-blower.

Figure 2 is a vertical transverse section of the same.

Similar letters of reference indicate corresponding parts.

This invention relates to a new multiplying fan-blower of that class in which a series of wings are rotated between a series of diaphragms for compressing the air by centrifugal force, and utilizing it in the compressed state for suitable purposes.

The invention consists chiefly in the use of a rotary case and stationary shaft instead of the rotary shaft and stationary cases heretofore employed.

The necessity of constructing the case in sections, so as to enable the introduction of the several wings that are mounted upon the shafts, is thus overcome, and the case may be made in one single piece, and, consequently, much cheaper than the ordinary blowers now in use.

The amount of rotating surface gained by making the case revolve adds also considerably to the efficiency of the machine.

A in the drawing represents the cylindrical case or shell of my improved fan-blower.

This case is made of sheet-metal, or other suitable material, and is provided with heads *a* and *b*, which are firmly bolted or otherwise secured to the body or the periphery of the case.

The head *a*, at the forward end, has a central opening, through which air is admitted to the interior of said case.

The other head, *b*, has a discharge-opening in the center.

The shell or case is hung upon a horizontal fixed shaft, B, on which it may turn loosely.

From the head *a* project arms *c c*, toward a sleeve *d*, which turns loose on the shaft B, the said sleeve being provided with a pulley, *e*, crank or gear-wheel, for receiving the requisite rotary motion.

The other end of the case is provided with a projecting flange, *f*, which fits tightly upon a cylindrical or conical flange or ring, *g*, that projects from a box or reservoir, C into which the compressed air is discharged, thence to be conveyed in suitable direction.

The shaft B supports the fixed ring or flange *g*, on which the flange *f* works tight, so that no air can escape between their surfaces.

Within the case A are arranged a series of annular transverse diaphragms, *h h*, which are, at their outer edges, secured to the circumference of the case.

From the inner face of the front head *a*, and also from the corresponding faces of the diaphragms *h h*, project straight or curved wings or ribs *i i*, which, besides acting upon the air, serve also to support annular plates *j j*, as shown.

The outer edge of each plate *j* is some distance from the circumference of the case, and in line with the outer ends of the wings *i*, its inner opening fits close to the shaft, or the sleeve *l* thereon.

Between each pair of diaphragms *h*, and also between each head and diaphragm, is mounted, upon the shaft B, a sleeve, *l*, which carries projecting wings *m m*, that reach about midway between the ends of the wings *i* and the circumference of the case A.

Around the outer ends of each set of wings *m* is fitted a ring, *n*, parallel with the circumference of the case, and this ring has a downward projecting flange or annular plate, *o*, along the outer edges of the wings *m*.

As the case A is revolved it will carry the diaphragms *h*, wings *i*, and plates *j* around with it, while the rings *m*, rings *n*, and plates *o* remain stationary.

The rotary wings *i* create suction, whereby the air will be drawn in through the central openings in the head *a* and diaphragm *h*, and thrown against the inner side of the case A.

The plates *j* confine the course of air thus thrown outwardly.

The air which is in contact with the case A is confined in the narrow space formed between the rings *n* and case, and thereby compressed, and can, in the compressed state, be drawn toward the center again by the action of the next set of wings *i*, which draw it down in the spaces between the plates *o* and diaphragms *h*.

The wings *m* serve also to compress the air which may have been thrown against the inner faces of the ring *n*, and to gradually guide such air toward the center, aiding thereby in producing the current for the air confined in the outer spaces between the case and the rings *n*. In this manner a perfect and rapid action on the air is produced.

The centrifugal force crowding the air against the periphery of the case A will aid in thoroughly compressing the same, without retaining it, so securely that it might not be drawn in again by the suction of the next set of wings *i*.

Having thus described my invention,  
I claim as new and desire to secure by Letters Patent—

1. A fan-blower, provided with a rotary fan on a stationary shaft, substantially as herein shown and described.

2. The rotating case A, provided with the wings *i*, diaphragms *h*, and plates *j*, substantially as herein shown and described.

3. The stationary wings *m*, rings *n*, and plates *o*,

arranged on the stationary shaft within the rotating case A, substantially as herein shown and described.

4. The combination of the rotary wings *i* in the case A, with the stationary wings *m* on the shaft B, arranged to operate as set forth.

J. ERICSSON.

Witnesses:

GEO. MEYER,  
S. W. TAYLOR.