T. A. COCHRANE & J. HENDY.

BLOWING-MACHINE.

No. 190,828. Patented May 15, 1877.

Fig. 1.

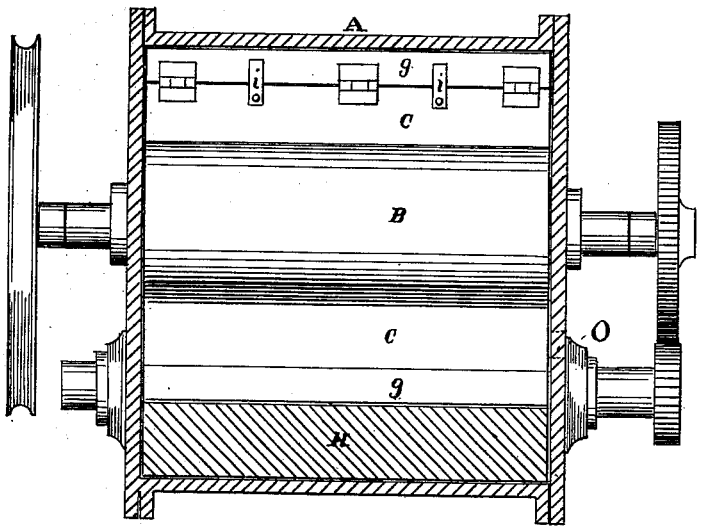
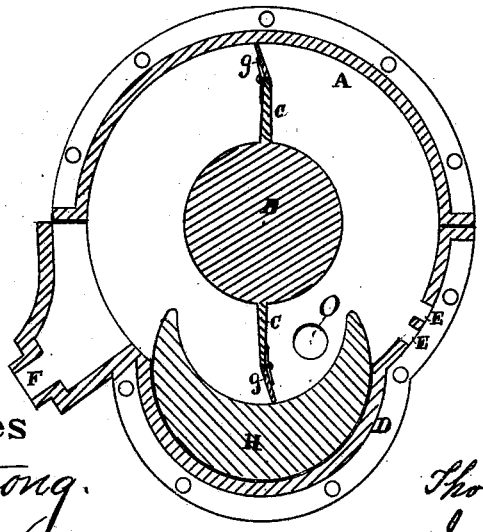


Fig. 2



Witnesses

Geo. H. Strong.

Jno. L. Boyle

Inventor

Thos. A. Cochrane

Joshua Hendy

by Dewey & Co

attys.

UNITED STATES PATENT OFFICE.

THOMAS A. COCHRANE AND JOSHUA HENDY, OF SAN FRANCISCO, CAL.

IMPROVEMENT IN BLOWING-MACHINES.

Specification forming part of Letters Patent No. **190,828**, dated May 15, 1877; application filed March 23, 1877.

To all whom it may concern:

Be it known that we, THOMAS A. COCHRANE and JOSHUA HENDY, of the city and county of San Francisco and State of California, have invented Improvements in Blowing-Machines; and we do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings.

Our invention relates to certain improvements in that class of blowing-machines in which one or more radial vanes are secured to a cylinder or axial shaft inside of a cylindrical case or shell, and in which a rotary abutment is used for closing communication between the air inlet and exhaust passages, said rotary abutment being provided with a longitudinal recess, in which the vanes are received and passed from one side of the machine to the other.

In blowing-machines of this class the rotary abutment is operated by a gear-connection with the main shaft in such a manner that the outer ends of the vanes will successively enter the recess in the abutment at the proper instant, while the rotation of both will allow the vanes to pass from one side of the machine to the other, and at the same time preserve a sufficiently air-tight joint between them.

Heretofore the vanes have each been made in a single piece, which would not yield to any irregularity of the synchronal movement. The machine was therefore liable to be broken or rendered useless by the natural wear upon its parts.

This difficulty we remedy by constructing the vanes in two parts and hinging them together, so as to allow them to yield to any irregularity of motion. We also provide other improvements, all of which are fully set forth in the following specification.

Referring to the accompanying drawings, let A represent the cylindrical shell or case, inside of which the axial small cylinder B, which carries the vanes, is rotated.

D is the semi-cylindrical chamber, inside of which the rotary abutment H is placed. In our improved blower we place this rotary abutment in the lower part of the case or shell. E is the inlet, and F the exhaust ports or passages.

Each of the vanes we make in two parts, consisting of a rigid and fixed portion, C, and a hinged portion, *g*. The rigid portion is formed upon or attached to the cylinder, while the hinged portion is secured by hinges to the outer edge of the fixed portion. The relative width of either part is immaterial.

The hinges are so constructed that the outer portion of the vanes can close only on the side toward which the vane is moving, while a shoulder prevents it from passing the radial line in the opposite direction.

Usually the centrifugal force which is generated by the rotation of the cylinder will be sufficient to keep the hinged portion thrown out to its radial position; but in order to insure this position we secure one end of a flat spring, *i*, to the fixed portion of the vane, so that it will extend partially across the hinged portion, and thus keep it in its open position. The presence of the air in front of the vane also aids in keeping it open, so that its edge will move close to the inner wall of the case or shell.

The abutment H makes two rotations while the cylinder makes but one; it therefore travels twice as fast as either of the vanes, so that when the outer edge of one of the vanes enters the recess in the abutment the superior speed of the abutment will carry it forward, and thus preserve a tight joint, at the same time that the vane yields or adjusts itself to any irregularity of motion.

This arrangement allows for a considerable variation in the synchronal action of the abutment and cylinder, so that the machine will last much longer, with but little chance for accident.

To prevent the recess in the abutment-cylinder from carrying air around with it, we make a hole, O, in the end of the semi-cylindrical case, in which the abutment rotates, in such a position that after the recess stops itself from the main cylinder the air contained in it will be released through the hole.

We thus render this class of blowing-machines much more durable and reliable than heretofore.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. The cylinder B of a rotary pressure-

blower, provided with flexible or hinged vanes *c g*, in combination with the rotary recessed abutment H, the whole mounted in a single shell or case, A E, substantially as and for the purpose described.

2. The combination, with the rotary recessed abutment H, of the cylindrical shell A, provided with opening O, substantially as and for the purpose specified.

In witness whereof we have hereunto set our hands and seals.

T. A. COCHRANE. [L. S.]
JOSHUA HENDY. [L. S.]

Witnesses:
GEO. H. STRONG,
OLWYN T. STACY.