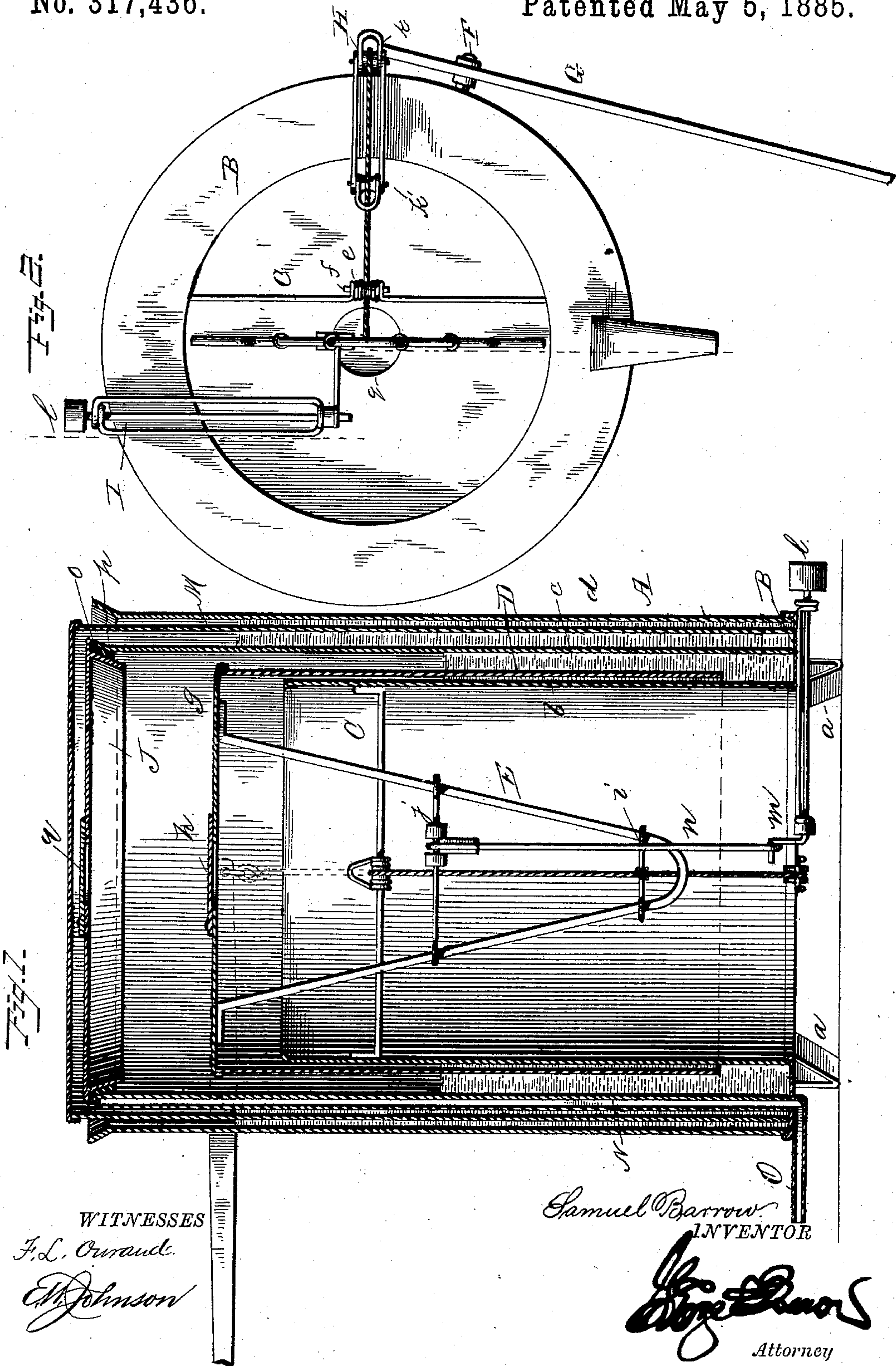


(No Model.)

S. BARROW.
BLOWER.

No. 317,436.

Patented May 5, 1885.



WITNESSES

F. L. Ormrod.

E. Johnson

Samuel Barrow
INVENTOR

George B. Davis
Attorney

UNITED STATES PATENT OFFICE.

SAMUEL BARROW, OF KEMPTON, INDIANA, ASSIGNOR TO THE SHEET IRON BELLOWS COMPANY, OF SAME PLACE.

BLOWER.

SPECIFICATION forming part of Letters Patent No. 317,436, dated May 5, 1885.

Application filed August 9, 1884. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL BARROW, a citizen of the United States of America, residing at Kempton, in the county of Tipton and State of Indiana, have invented certain new and useful Improvements in Blowers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to blowers; and it consists in the improvements hereinafter described, whereby a simple and effective blower is constructed, in which all the moving parts are effectively sealed, and requiring but a small amount of power for its operation.

In the accompanying drawings, forming a part of this specification, Figure 1 is a vertical section of a structure embodying my improvements, and Fig. 2 an inverted plan of the improvement.

The body of the blower consists, primarily, of a receptacle, A, supported upon suitable feet, *a*, and divided into two compartments by a series of concentric cylindrical partitions, *b* *c* *d*, which are connected together at their bottom edges by means of an annular band, B. A rod, C, is secured in the upper portion of the cylinder *b*, so as to transversely span the same, and the said rod is bent at its center to form bearings for a pulley, *e*, the journal *f* of which bears in loops formed by the said rod. A cylinder, D, loosely embraces the cylinder *b*, extending down into the space formed between cylinders *b* *c*, which space contains oil or other sealing-fluid, which forms a complete airtight packing around cylinder D, and is provided with a head, *g*, which is centrally perforated, and has secured upon its upper side a flap-valve, *h*, which normally covers said perforation. A rod, E, has its ends secured on the under side of the head *g* of the cylinder D, and the said rod E depends down into the cylinder *b*, and is contracted at its lower bent end, as indicated in Fig. 1. A brace, *i*, is secured to the lower bent end of the rod E, while a second brace, *j*, is secured a little farther up.

An arm, F, projects from one side of the outer cylinder *d*, and has pivotally fulcrumed thereon a lever, G, one end of which has secured thereto a cable, H, which cable passes around the cylinder *d* over pulleys *k k'*, journaled on the under side of the band B, and thence around the pulley *e*, and finally secured to the brace *i*. A stub-shaft, I, is journaled on the under side of the band B, and carries at its outer end a band-pulley, *l*, and is bent at its inner end to form a crank, *m*, which is connected by a pitman, *n*, to the brace *j*. The upper edge of the cylinder *c* is bent outward to form a seat, *o*, and is adapted to receive the cover J, which cover is provided with an annular packing-ring, *p*, to afford an air-tight bearing for the cap J upon the cylinder *c*. The said cap J is centrally perforated, and has secured upon its upper side a flap-valve, *q*, which normally covers said perforation. A headed cylinder, M, is adapted to be placed over the cylinder *c*, so that its cylindrical portion will rest in the space formed between the cylinders *c* *d*, which space contains oil or other sealing-fluid, which forms a complete packing around the cylinder M. A pipe, N, is arranged on one side of the cylinder *c*, and extends down to the bottom of said cylinder, for the purpose of conveying the air from the receptacle-cylinder M, down through the said oil or liquid sealing and packing, to the outlet, where it is bent to project therefrom in the form of an exit-tube, O.

The operation of the invention is as follows: Oil or other sealing-fluid is introduced into the annular spaces formed between the cylinders *b* *c* *d*, the cap J properly placed in position, and the cylinder M placed over the same. If the blower is to be operated by hand, the pitman *n* is disengaged from the crank *m*. The lever G is then vibrated upon its pivot to cause the rapid elevation and descent of the cylinder D. Upon each descent of said cylinder the air contained in the cylinder *b* lifts the flap-valve *h* and passes into the space above the head *g*, and is there retained by reason of the effective seals afforded at the various points of the device. Upon the ascent of the cylinder D the flap-valve *h* is held rigidly upon its seat, so as to close with the perforation beneath, and the head *g* acts as a piston to compress the air in the space above, thereby raising the valve *q*,

and forcing the said air into the space above the cap J, and down through the pipe N to the exit.

It will be apparent that as the compressed air will be forced through the opening covered by the valve *q* much faster than it will escape through the pipe N, the cylinder M will be partially lifted to accommodate the surplus air, and will, upon the succeeding descent of the cylinder D, close the valve *q* and gradually descend under its weight, thereby regularly forcing the compressed air beneath through the pipe N.

The cable H may be readily disengaged from connection with the lever G, and upon the connection of the pitman *n* with the crank *m* the pulley *l* may be belted to drive the device from any suitable engine.

I claim—

1. The combination, in a blower, of the receptacle A, containing a sealing-fluid, and cylinder D, having its lower portion immersed in said sealing-fluid, and having a head provided with an opening covered by a valve, and cylinder *c*,

incasing the cylinder D, having a head provided with an opening covered by a valve, and a discharge-passage located external to said cylinder *c*, and means for reciprocating said cylinder D, substantially as set forth.

2. The combination, in a blower, of a receptacle provided with two independent annular chambers containing a sealing-liquid, a cylinder, D, partly immersed in the liquid in the inner chamber, and an incasing-cylinder, M, immersed in the liquid of the outer chamber, a valve, *h*, covering an opening in the head of the cylinder D, a cylinder, *c*, having a cap, J, bearing on a packing, *p*, and having a valve, *q*, covering an opening in said cap, a pipe, N, located in the second chamber, and devices for reciprocating the cylinder D, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

SAMUEL BARROW.

Witnesses:

GEO. WILSON,
JEFF REESE.