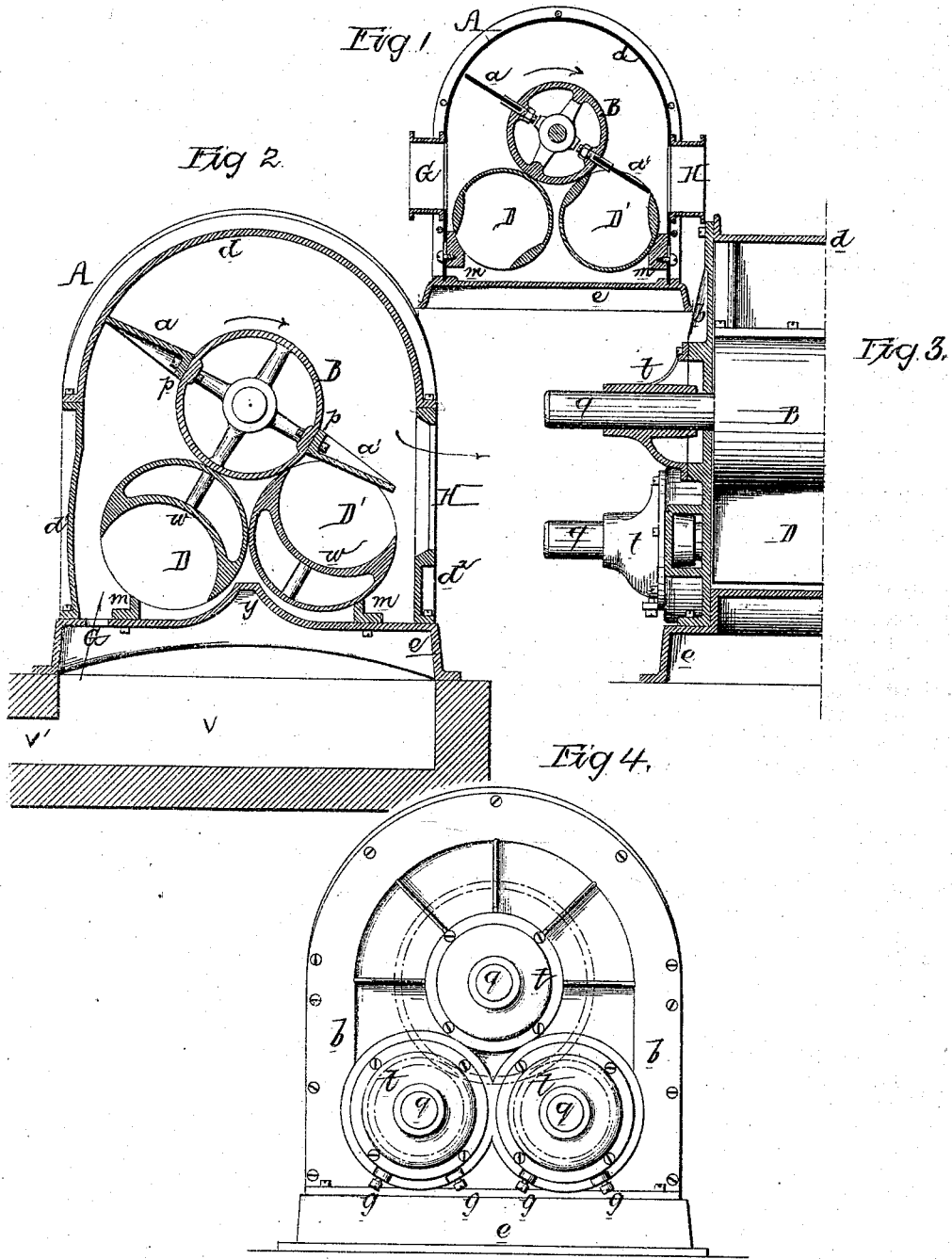


J. W. WILBRAHAM.  
BLOWING-MACHINE.

No. 182,503.

Patented Sept. 19, 1876.



Witnesses  
 Harry Housgraves  
 Harry Smith

John W. Wilbraham  
 by his Attorneys  
 Housens and Son

# UNITED STATES PATENT OFFICE.

JOHN W. WILBRAHAM, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO HIMSELF, THOMAS WILBRAHAM, AND JAMES WILBRAHAM, OF SAME PLACE.

## IMPROVEMENT IN BLOWING-MACHINES.

Specification forming part of Letters Patent No. 182,503, dated September 19, 1876; application filed June 30, 1876.

*To all whom it may concern :*

Be it known that I, JOHN W. WILBRAHAM, of Philadelphia, Pennsylvania, have invented certain Improvements in Blowing-Machines, of which the following is a specification :

My invention relates to improvements in that class of blowing-machines in which a cylinder with vanes is combined with a cylinder or cylinders for admitting the vanes, and for cutting off the communication between the inlet and outlet of the chest or casing in which the cylinders are caused to revolve; and the objects of my invention are, first, to so construct the chest that access may be readily had to its interior without disturbing the working parts of the machine; second, to prevent the intermittent concussions, which create a disagreeable noise in blowers of this class; and, third, to prevent the loss of compressed air.

In order that my improvements may be readily understood, I have shown them in the accompanying drawing as applied to the blower, for which Letters Patent No. 145,382 were granted to J. G. Baker, December 2, 1873. It should be understood, however, that some of my improvements are applicable generally to that class of blowers to which the patent of the said J. G. Baker relates.

Figure 1 of the drawing is a vertical section of the Baker blower; Fig. 2, a vertical section of a blower made according to my improvements; Fig. 3, a longitudinal section of Fig. 2, and Fig. 4 an end view.

In the above-mentioned patented blowing-machine of Baker, as shown in Fig. 1, a continuous supply of compressed air is obtained by combining in a chest, A, a revolving cylinder, B, and its two vanes, *a a'*, with two revolving and slotted cylinders, D D', the cylinder B turning in the direction of the arrow, Fig. 1, at one-half the speed of the cylinders D D', so that air will enter the chest at the inlet G, and will be discharged under a pressure depending upon the speed of the cylinder at the outlet H, the cylinders D and D' serving, in conjunction with blocks *m m'*, to cut off communication between the inlet and outlet.

The chest A of Baker's patented blower is

composed of two heads, an intervening casing, *d*, of sheet-iron, and a base, *e*.

The objection to this mode of constructing the casing is that access cannot be had to the interior without disturbing the working parts of the machine, a defect which I overcome in the following manner: Each end of the chest consists of a cast-iron head, *b*, one only of which is shown in Fig. 3 of the drawing, and each head is bolted to the base *e* and to the intermediate casing, which consists of the arched top *d*, concentric with the cylinder B and the opposite side pieces *d'* and *d''*, which are bolted to the arched piece and to the base, as shown in Fig. 2, both side pieces and arched piece being bolted to the heads *b*.

When access has to be had to the interior of the blower, either or both of the side pieces can be removed without disturbing the arched piece or base of any of the operating parts of the machine.

The manner of securing the vanes *a* and *a'* to the cylinder B is an important feature of my invention. Each vane consists of a plate, the ends of which are as near to the heads of the chest as possible without being in absolute contact therewith, and the outer edge of each vane, as the cylinder revolves, moves in close proximity to, but not in absolute contact with, the interior of the arched portion *d* of the casing.

Each vane has a flange, *p*, through which bolts or screws pass into the cylinder. After loosening these screws, thin packing-pieces may be introduced between the flanges *p* of the vanes and the cylinder when the outer edges of the vanes have to be brought into closer proximity with the arched portion *d*.

The flanges on the vanes also permit the longitudinal adjustment of the latter on the cylinder in respect to the heads of the chest, and their circumferential adjustment; in other words, the flanged vanes tend to facilitate and economize the construction of the machine.

In the Baker patent, and in other machines of analogous character, the inlet is so exposed that, as the cylinder and its vanes revolve,

concussions and a repetition of disagreeable sounds take place, an evil which I obviate by placing the base of the machine over a recess or chamber, *v*, in the foundation, air entering the chamber through a passage, *v'*, communicating with the external air at some convenient point distant from the machine, and the air entering the chest through an opening, *G*, in the base. By thus introducing the air from a distant point into a closed chamber before it enters the chest of the machine the objectionable shocks and concussions are obviated.

Blocks *m m*, extending from end to end of the chest, are secured to the base *e* and so as to be near the cylinders *D D'* without being in absolute contact therewith, these blocks serving, with the cylinders, to cut off all communication between the inlet and outlet during the operation of the machine. The nearer these blocks are to each other, the less will be the waste of the compressed air; hence I combine them with the base *e*, and make them adjustable therein in respect to the cylinders *D D'*, a feature which can also be applied to other blowing-machines of this class.

In the Baker patent the top of the base *e*, Fig. 1, is flat, and between the two cylinders and this flat top of the base there is a vacant space, which is objectionable, as in the operation of the machine it represents a loss of compressed air. This defect I in a great measure obviate by extending the top of the base upward at *y* between the two blocks *m m*, Fig. 2, this extension partially filling the space in a manner too clearly shown in the drawing to need explanation.

Instead of making each of the cylinders *D D'* with a longitudinal slot, into which the vanes pass as the machine operates, an arrangement which results in a waste of compressed air, I extend across the interior of

each cylinder a segmental web, *w*, which leaves a cavity of a proper form to permit the outer edges of the vanes to freely clear the said web *w*, the latter having the additional advantage of strengthening the cylinder.

I wish it to be understood, however, that I do not desire to claim in this application either the segmental webs *w* extending across the interior of each of the cylinders *D* and *D'*, or the manner of securing the vanes *a a* to the cylinder *B*, as these features form the subject of a separate application for a patent which I am about to make. Neither do I desire to claim broadly and separately from the base the blocks *m m* as they are shown in the aforesaid patent of Baker, in which, however, they cannot be brought so closely together as when they are combined with the base; but

I claim as my invention—

1. The combination of the cylinder *B* and its vanes with the chest, composed of the heads *b b*, arched top-piece *d*, concentric with the said cylinder, the base *e*, and detachable side pieces *d' d'*, all substantially as set forth.
2. The combination, in a blowing-machine, of a vaned cylinder, *B*, arranged to revolve in a chest, with a chamber, *v*, below the base, an inlet passage, *v'*, and an opening, *G*, in the base, all substantially as set forth.
3. The combination of the cylinders *D D'*, the base *e*, and the adjustable blocks *m m* on the base, as specified.
4. The combination of the two cylinders *D D'* with the extension *y* of the base.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN W. WILBRAHAM.

Witnesses:

HARRY HOWSON, Jr.,  
HARRY SMITH.