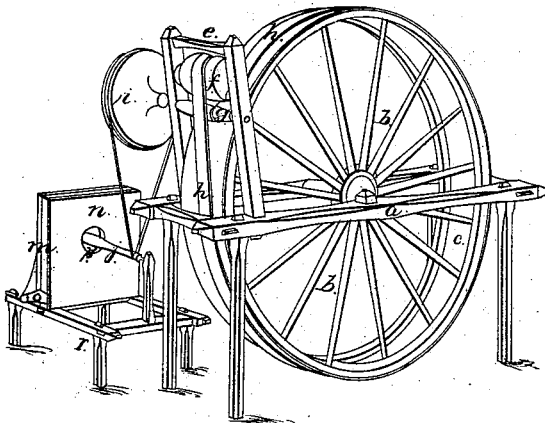


B. L. Johnson,

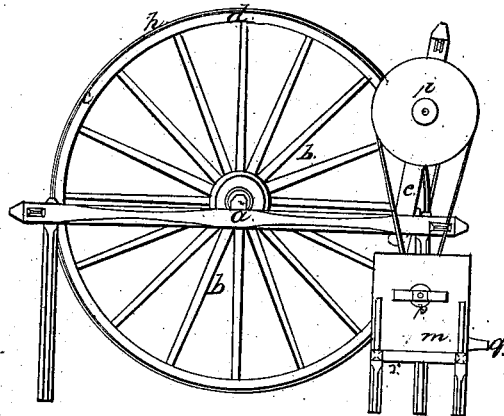
Fan Blower,

No. 5,498,

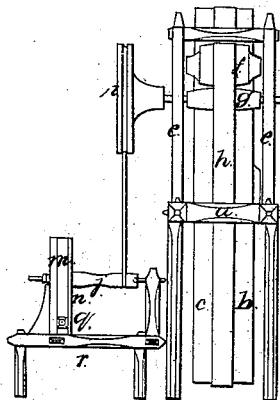
Patented Apr. 4, 1848.



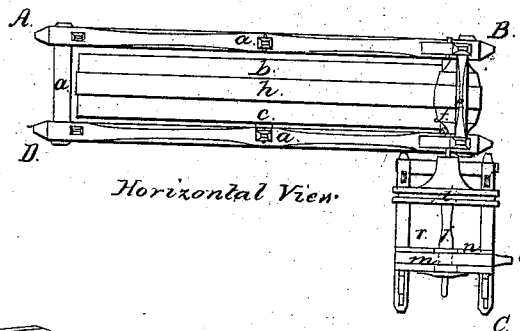
Perspective View from B



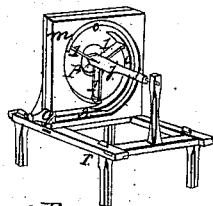
Elevation D to C,



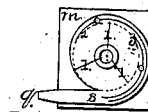
Elevation B to C,



Horizontal View



View of Fan Case with n removed,



Interior of Fan Case,

Witnesses:
B. L. Johnson
Chas. Bradley

Inventor.
Benjamin L. Johnson

UNITED STATES PATENT OFFICE.

BENJ. L. JOHNSON, OF CASSAWAGO, PENNSYLVANIA.

BLOWER FOR FURNACES, &c.

Specification of Letters Patent No. 5,498, dated April 4, 1848.

To all whom it may concern:

Be it known that I, BENJAMIN L. JOHNSON, of the town of Cassawago, in the county of Crawford and State of Pennsylvania, have invented a new and useful Improvement in Rotary Bellows; and I do hereby declare that the following is a full and exact description of the same, reference being had to the annexed drawing, forming part of this specification, in which—

a is a frame supporting shafts of a driving wheel *b*. *c* is a flange on said wheel on which the ascending stepping of a dog shall form the motive power.

d d are the fellies on wheel.

e is a frame nearly vertical fixed in frame *a* supporting shafts of two pulley wheels *f* and *g*. Around *f* the belt *h* is carried from driving wheel *b* in the manner more fully shown on perspective view and returning wraps the pulley *g*, thereby securing the action of the belt on more than half the circumference of said pulley *g*. To the shaft of *g* is attached a wheel *i* around which a belt is carried that communicates and gives revolution to shaft *j* of fan wheel *k*. The wings *l* of this wheel are of novel construction, being long and narrow, forming one of the peculiar advantages of my improvement.

m is a fan case from which the inclosing face *n* can be removed.

o o are partitions of tin or sheet iron forming narrow passages through which the air entering at draft hole *p* is forced at three points 1, 2 and 3 toward the outlet or nozzle *q*.

r is the frame supporting fan shaft and case wheel is separate from the other part of the machine, and removable any where within range of communication from wheel *i*.

The machine may be varied in size, but a convenient one for blacksmithing may be made of the following proportions, viz., the driving wheel *b* eight feet in diameter, the pulley *f* 10 inches in diameter; the pulley *g* 6 inches in diameter, the wheel *i* 2 feet 3 inches in diameter, the shaft *k* 1½ inch in diameter, the flange *c* to be 14 inches wide, the length of the shaft *j* to be 12 inches long, the length of the wings *l* from the center of the hub to the point 1 to be 7 inches. The first scroll commencing at point 1 may gain on a true circle formed by the extremities of the fan wings in revolution 3 inches in going around to *s*; the second scroll commencing at point 2 may gain 2 inches in going around to *s*, and the third scroll commencing at 3 may gain 1 inch in going around to the same place.

The advantages resulting over my former rotary bellows resulting from my improvement is to obtain an increased blast with the application of equal power in consequence of the construction of the passages inclosed by the scroll partitions and the formation of the fan wings.

I do not claim the invention of an original rotary bellows.

What I do claim as my invention and desire to secure by Letters Patent is—

The formation of the passages above described and new mode of constructing the fan wings combining with the same to secure the advantage before mentioned.

BENJAMIN L. JOHNSON.

Witnesses:

T. R. JOHNSON,
HIRAM BRADLEY,