J. Darling,

Bellows.

No. 4,533. Patented May 23, 1846.

Fig. 1.

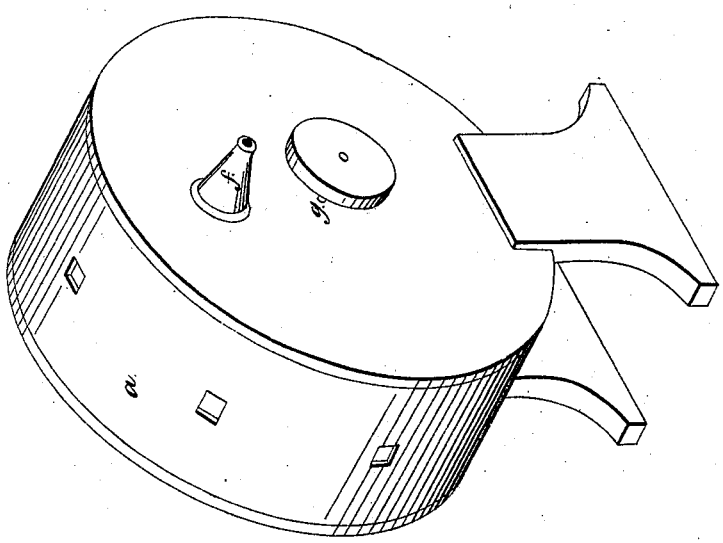
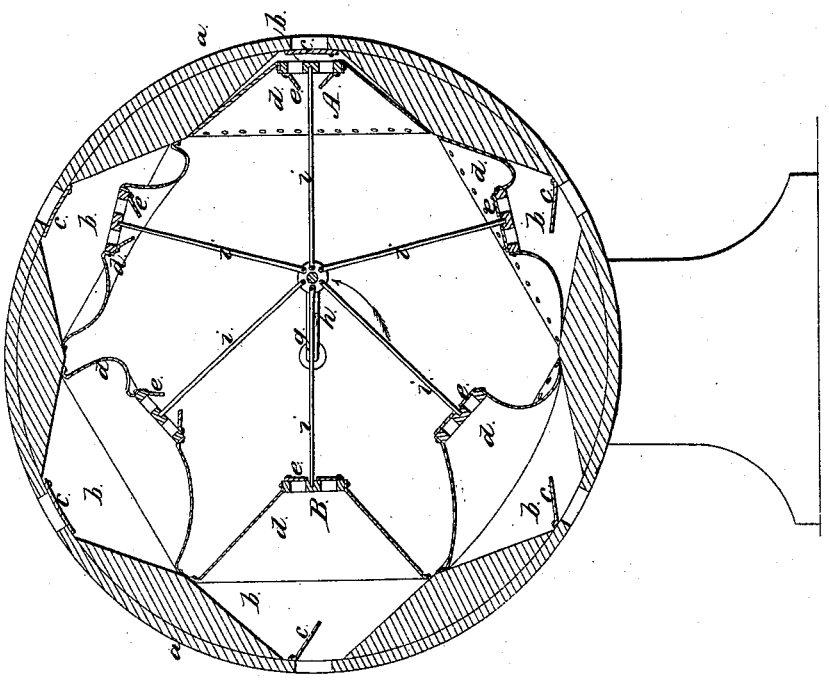


Fig. 2.



UNITED STATES PATENT OFFICE.

JEREMIAH DARLING, OF ADRIAN, MICHIGAN.

IMPROVEMENT IN ROTARY BELLOWS.

Specification forming part of Letters Patent No. **4,533**, dated May 23, 1846.

To all whom it may concern:

Be it known that I, JEREMIAH DARLING, of Adrian, in the county of Lenawee and State of Michigan, have invented a new and useful Improvement in Forge-Bellows; and I do hereby declare that the following is a full, clear, and exact description of the principle or character thereof, which distinguishes it from all other things before known, and of the manner of making, constructing, and using the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is an isometrical view, and Fig. 2 a vertical section, of my machine.

The same letters indicate like parts in all the figures.

It has long been considered a desideratum with blacksmiths and others to have a perfect and continous blast without the enormous outlay of power consequent upon the employment of a fan-blower. My object is to do away with the friction of a piston and cylinder blower, while I command an equal force of blast. This I effect in the following way: I construct a case, (designated by letter *a* in the drawings,) either cylindrical, as there shown, or it may be made square or polygonal to suit the convenience of the constructer. Within this case are affixed four (more or less) bellows, which I prefer making in the following manner: Around the inside of the case are pyramidal depressions *b*, at the apex of which there is a hole through the case, covered by a valve, *c*, that opens inward. Around the base of this depression a flexible riser, *d*, is attached, of similar shape to the depressions above named. This riser can be forced into the cavity, as shown, on the side A of the section of the case, or it can be drawn out, as shown on side B of the same section. The riser is also furnished with a valve at *e*, opening into the interior of the case, so that when the riser *d* is drawn into the position shown on side B the interior of the cavity *b* is filled with external air, and when said riser is again pressed into the cavity the air passes into the interior of the case, in one side of which there is a nozzle, *f*, for its exit. The risers are all moved in the manner about to be described. A shaft, *g*, passes through the axis of the cylinder, in the center of which there is a sunk crank, *h*. To this crank are attached a number of pitmen, *i*, equal to the number of risers around the case, which serve to connect said risers with the crank. It will be obvious that as the crank is made to revolve the risers will be made to move out and in, and will keep up a constant blast through the nozzle above named.

Although I have described one form of bellows, it is obvious that any other form may be used with equal effect.

The shaft can be driven by any suitable power outside the case.

Having thus fully described my improved bellows, what I claim as my invention, and desire to secure by Letters Patent, is—

The combination of a series of bellows on the inside of an inclosed case and operated by a crank in the center, substantially in the manner and for the purpose set forth.

JEREMIAH DARLING.

Witnesses:

CHAS. M. KELLER,

A. P. BROWNE.