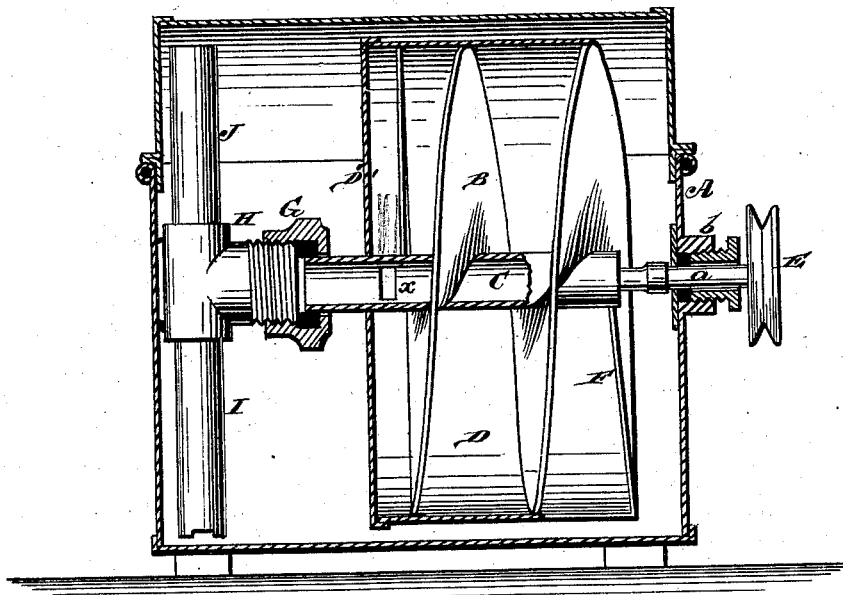


O. MILLARD.  
Air-Forcing Apparatus.

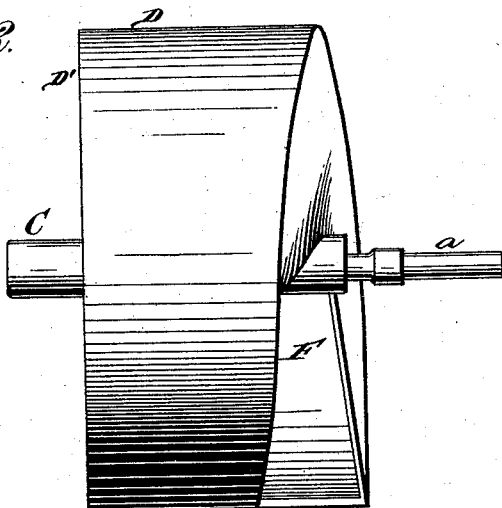
No. 203,752.

Patented May 14, 1878.

*Fig. 1.*



*Fig. 2.*



WITNESSES

*Robert Smith*  
*Geo. J. Sprock*

INVENTOR,

*Orson Millard*  
*James W. Smith*  
ATTORNEYS.

# UNITED STATES PATENT OFFICE.

ORSON MILLARD, OF FLINT, MICHIGAN, ASSIGNOR OF ONE-HALF HIS RIGHT TO FRANK P. HAMILTON, OF SAME PLACE.

## IMPROVEMENT IN AIR-FORCING APPARATUS.

Specification forming part of Letters Patent No. 203,752, dated May 14, 1878; application filed February 9, 1878.

*To all whom it may concern:*

Be it known that I, ORSON MILLARD, of Flint, in the county of Genesee and State of Michigan, have invented a new and valuable Improvement in Air-Forcing Apparatus; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of longitudinal vertical section of my air-forcing apparatus, and Fig. 2 is a front view of the wheel.

The nature of my invention consists in the construction and arrangement of an apparatus for forcing air, for any purpose to which the same may be applied, as will be hereinafter more fully set forth.

The annexed drawing, to which reference is made, fully illustrates my invention.

A represents a closed reservoir of any suitable form and dimensions, within which is an Archimedean screw, B. This screw is secured on a hollow shaft, C, and is inclosed within a casing, D, forming a cap, D', at the rear end, and the front end forming one or more lips, F, to catch the air.

The front end of the hollow shaft C forms a solid journal, *a*, which passes through the side of the reservoir and through a stuffing-box, *b*, attached thereto, the end of said journal being provided with a pulley, E.

The rear end of the hollow shaft C is open, and has its bearing in a stuffing-box, G, which is screwed on the center arm of a T-joint or coupling, H, said coupling being secured in

any suitable manner to the inside of the reservoir.

From the lower end of the T-coupling H extends a pipe, I, nearly to the bottom of the reservoir, and from the upper end extends the air-exit pipe J.

The hollow shaft C is provided with perforations *x x* at or near the rear end, but within the cap D'.

As the screw with its casing and cap are revolved in the reservoir, said reservoir being filled with water to just above the center shaft, the lip or lips F catch the air, and said air forced, by the water through the perforations *x*, into the hollow shaft C, and from thence out through the exit-pipe J, the water being carried back to the reservoir through the pipe I.

What I claim as new, and desire to secure by Letters Patent, is—

1. In an air-forcing apparatus, the combination of an Archimedean screw, B, provided with casing D and cap D', and the hollow perforated shaft C, substantially as herein set forth.

2. The combination of the hollow shaft C, with solid journals *a* and perforations *x*, the screw B, cover D D', stuffing-box G, T-joint H, and pipes I J, all substantially as and for the purposes set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

ORSON MILLARD.

Witnesses:

GEO. R. GOLD,  
W. I. HOLDEN.