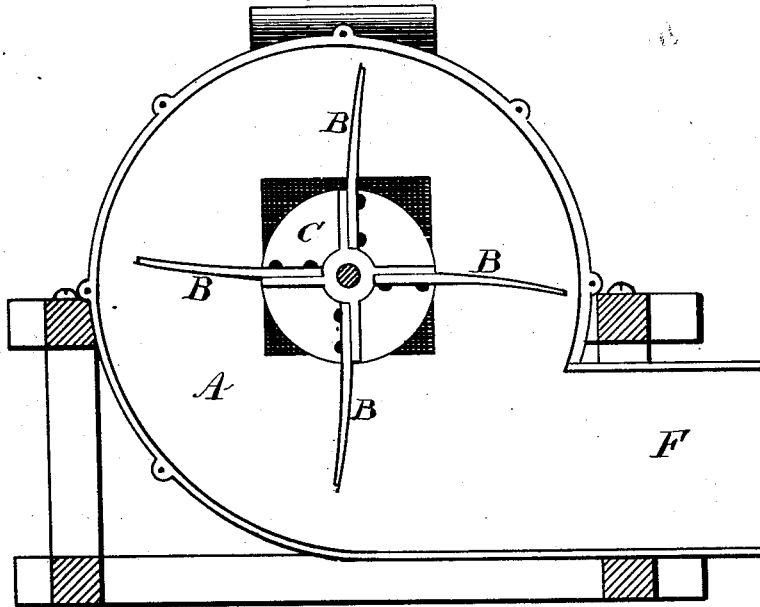


J. WHITE.  
Helical-Cone Suction-Fan.

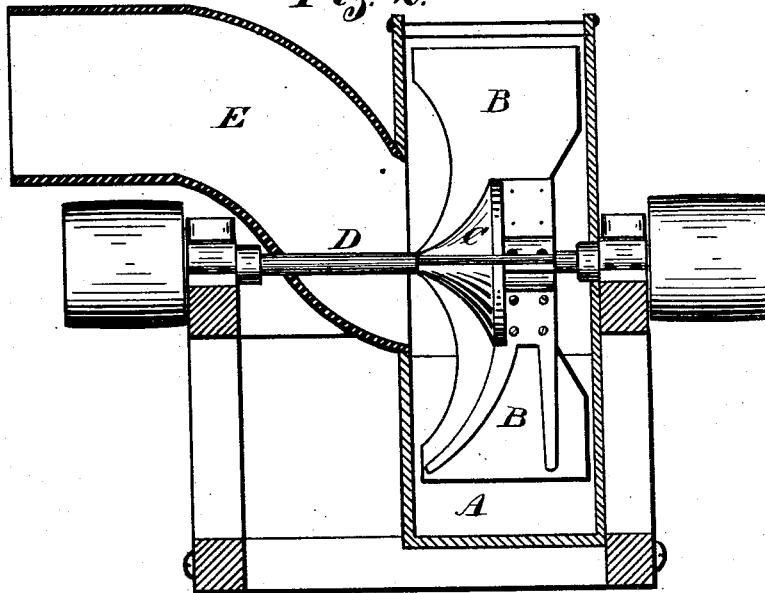
No. 163,710.

Patented May 25, 1875.

*Fig. 1.*



*Fig. 2.*



*Witness.*

*H. B. Tibbitts Jr.*

*Frank R. Tibbitts*

*Inventor.*

*James White*

*By Geo. H. Tibbitts, Atty*

# UNITED STATES PATENT OFFICE.

JAMES WHITE, OF CLEVELAND, OHIO.

## IMPROVEMENT IN HELICAL-CONE SUCTION-FANS.

Specification forming part of Letters Patent No. **163,710**, dated May 25, 1875; application filed March 5, 1875.

*To all whom it may concern:*

Be it known that I, JAMES WHITE, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a Helical-Cone Suction-Fan, of which the following is a specification:

The object of my invention is to carry off long slender shavings made by machinery in planing wood by constructing a rapidly-revolving fan, as hereinafter described and claimed.

In the accompanying drawing, Figure 1 is a side elevation of a fan embodying my improvement, the side of the fan-case removed. Fig. 2 is a vertical transverse section of the same.

A is the circular case in which the fan revolves, which is supported in a suitable frame-work, the fan-shaft passing through said case and having its bearings supported by the same frame-work. The fan consists of wings B B, secured to a cone-shaped hub, C, on the shaft D. The cone is placed with its apex toward the induction-pipe E. The wings B B also have their edges on the side toward the induction-pipe cut away in a curved line from the apex of the cone to near their outer end, and said curved edge is bent or turned backward a little to give them a curved edge from which the shavings may easily slip. The apex

of the cone and the edges of the wings are curved down to where they are joined to the shaft, so as to leave no shoulder or projection to obstruct or resist the passage of the shavings. The induction-pipe is curved at its connection with the fan-case, so as to allow a pulley to be placed on each end of the shaft, whereby a steadier motion is given to the fan. The induction-pipe E passes along over head to any desired length, gradually tapering in size, from which branches extend downward to the machine to receive the shavings, which are caught up by the suction and conveyed to the fan-chamber, and are thence discharged by the fan out through the eduction-pipe F.

For cooperage machinery, as stove-jointers and the like, which make long ribbon-shavings, this fan has proved, by actual use for several months, to be perfect in its operation.

Having described my invention, I claim—

In a suction-fan, the combination of the cone C, curved edge wings B B, with the revolving shaft D and fan-case A, substantially as described.

JAMES WHITE.

Witnesses:

GEO. W. TIBBITTS,  
J. H. ROGERS.