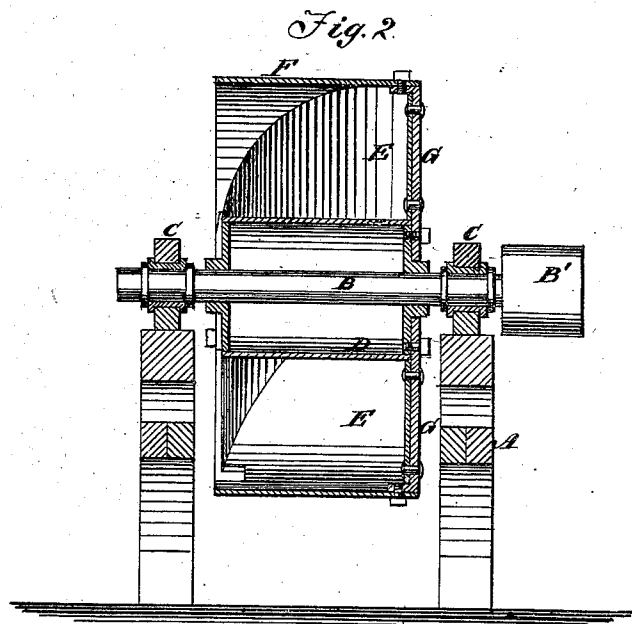
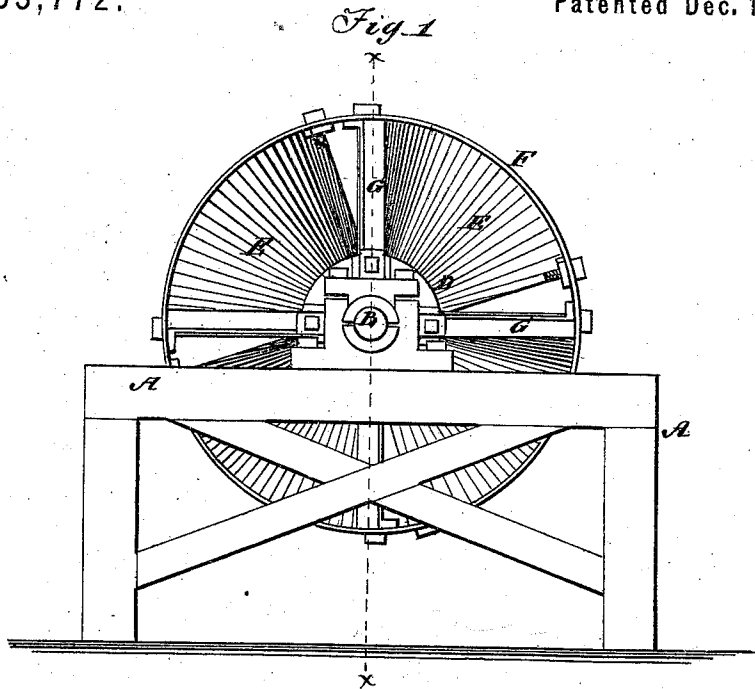


W. H. GOYNE.
Reversible Screw-Fan.

No. 133,772.

Patented Dec. 10, 1872.



Witnesses:
E. Woff.
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UNITED STATES PATENT OFFICE.

WILLIAM H. GOYNE, OF SHAMOKIN, PENNSYLVANIA.

IMPROVEMENT IN REVERSIBLE SCREW-FANS.

Specification forming part of Letters Patent No. 133,772, dated December 10, 1872.

To all whom it may concern:

Be it known that I, WILLIAM H. GOYNE, of Shamokin, in the county of Northumberland and State of Pennsylvania, have invented a new and useful Improvement in Reversible Screw-Fan, of which the following is a specification:

The object of this invention is to furnish a rotating fan, constructed upon the screw principle, which shall be adapted for the ventilation of mines and for other purposes; and consists in a series of spirally-shaped blades or buckets confined between a closed drum on a rotating shaft and a surrounding cylinder or casing, the construction and arrangement being as hereinafter more fully described.

In the accompanying drawing, Figure 1 represents an end view, showing the general construction and arrangement of parts; and Fig. 2 is a vertical longitudinal section of Fig. 1 taken on the line *x x*.

Similar letters of reference indicate corresponding parts.

A is a rectangular-shaped frame of suitable dimension, made of wood or other suitable material. B is the fan-shaft, supported in boxes C C upon the frame, as represented in Fig. 1. B' is the driving-pulley. D is a closed drum on the shaft B. E represents the spiral buckets. These buckets or blades are attached to the drum D, and extending its length at an inclination of forty-five degrees (more or less) over its surface. A cross-section of any

part of the bucket stands perpendicular to the shaft and surface of the drum. F is the cylinder or casing which surrounds the buckets, and which revolves with the shaft, as it is connected with the drum by the arms G. The ends of the buckets or blades are attached to these arms.

It will be seen that the sides of the drum and cylinder are parallel, and the buckets or blades conform thereto. The drum is closed, but the cylinder is open at both ends so that air can be forced in either direction.

This fan may be made of any length and diameter, and of any suitable material. It is calculated to exhaust the air from a mine or to force air in by simply reversing the motion; therefore, for ventilating purposes it cannot be surpassed.

For creating a blast of air for smelting-furnaces or other purposes it is designed to take the place of the common blowers.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

The reversible screw-fan, consisting of the close drum D on shaft B, the spiral blades E, and revolving case C, all constructed, arranged, and combined substantially as shown and described.

WILLIAM HENRY GOYNE.

Witnesses:

WM. GOYNE,
HENRY TREGELLAS.