

W. J. ELLIS.

Machinery for Forcing and Exhausting Air

No. 147,623.

Patented Feb. 17, 1874.

Fig. 1.

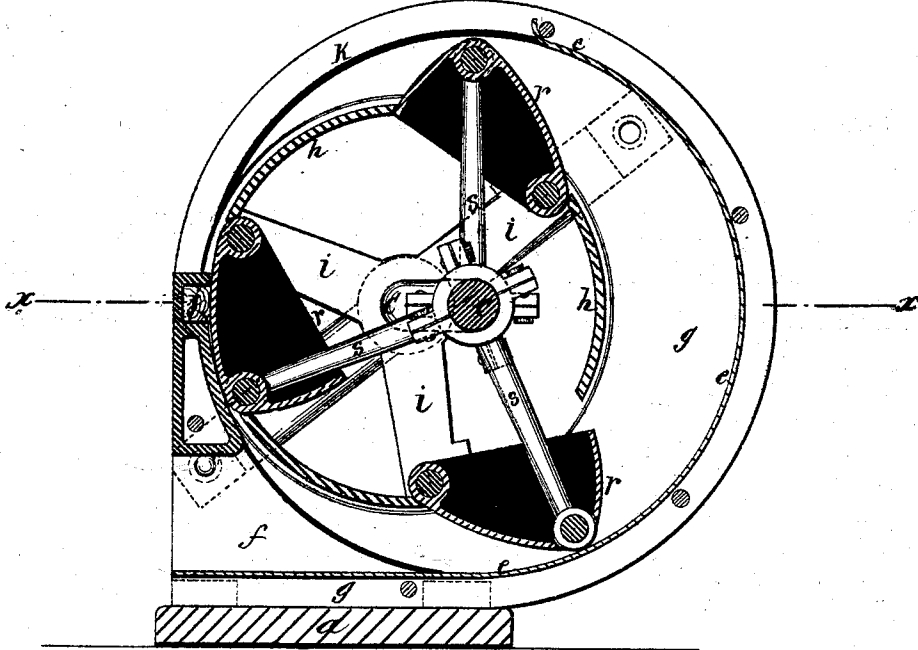
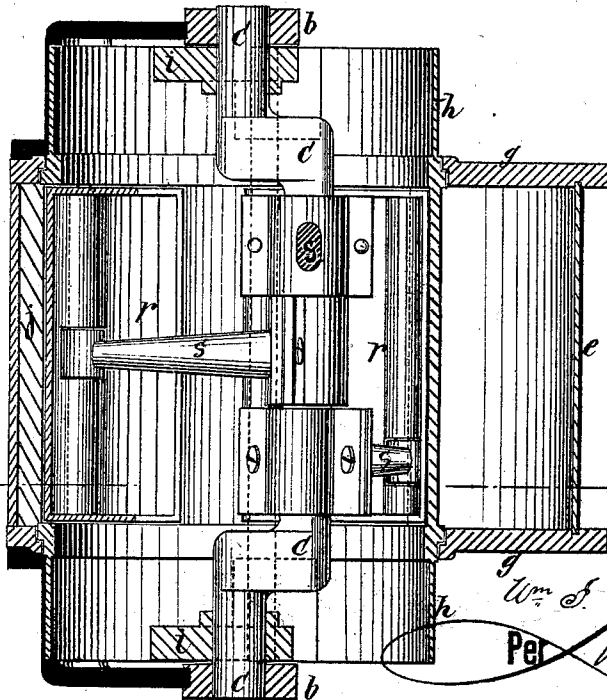


Fig. 2.



Witnesses:

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Per [Signature]

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UNITED STATES PATENT OFFICE.

WILLIAM I. ELLIS, OF MANCHESTER, ENGLAND.

IMPROVEMENT IN MACHINERY FOR FORCING AND EXHAUSTING AIR.

Specification forming part of Letters Patent No. **147,623**, dated February 17, 1874; application filed December 15, 1873.

To all whom it may concern:

Be it known that I, WILLIAM IRLAM ELLIS, of Manchester, in the county of Lancaster, England, have invented a new and useful Improvement in Machinery for Forcing and Exhausting Air; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming a part of this specification, in which—

Figure 1 is a cross-section, and Fig. 2 a horizontal section, of the machine on line *xx* of Fig. 1.

The invention is an improvement on the well-known McKenzie blower; and relates to the construction and arrangement of parts, as hereinafter described generally, and specifically indicated in the claim.

In the drawing, *a* is the bed-plate of the machine, on which two stands, *b*, are cast or fixed, to carry the stationary cranked shaft *c*. The outer cylinder or casing *e* has ends *g g*, through which project the ends of the inner cylinder *h*, said ends serving as pulleys for driving-belts to work on. The outer casing has an outlet, *f*, similar to the outlet of casings of turbine-wheels. The inner cylinder is placed eccentrically to the casing, and revolves on the stationary shaft *c*, being supported thereon by radial arms *i*. The inner cylinder revolves with its periphery close as possible to the wood packing-piece *j*, which is for the purpose of forming an air-tight joint against the cylinder. The inner cylinder has longitudinal slots in its periphery, of a size sufficient to allow the quadrants or segments *r r* to work in and out through them. These quadrants or segments are hinged to the cylinder at one edge, and attached to radius rods or arms *s*, which revolve around the cranked shaft *c*, and are secured thereto by bosses of suitable construction. A substitute for this shaft would be eccentrics mounted on a straight shaft.

The inner cylinder revolves in contact with one side of the casing, and the shaft, (*i. e.*, its cranked portion,) being concentric with the inner surface of the outer casing, the outer sides of the quadrants *r* are carried round close to said inner surface, the air or gas being thus drawn in at inlet *k* in the upper part of the outer casing, and carried round and discharged by outlet *t*.

The quadrants are made equal in length to the distance between the ends of the casing *g*. They are made convex on their outer surface, to an equal radius with the inner surface of the cylindrical part of the casing, and are provided with an internal flange to each, to regulate the extent of opening through the circumference of the inner cylinder. The distance between the middle of the depth of the wood packing-piece and the top of the outlet *t* should not be less than the width of one of the quadrants. Thus the inner cylinder acts as a driver for the fans or quadrants, carrying them round with it, and by their operation in the space between the two cylinders, drawing in and forcing out the air.

The inlet *k* will, in practice, be inclosed, so as to be connected with the main pipe, vessel, mine, &c., from which the gas is to be drawn.

What I claim as new is—

The combination, with the cranked shaft *c* and revolving inner and stationary outer cylinder, of the quadrants *r r*, hinged to the inner cylinder, and caused to oscillate through openings therein by means of the radius-rods connecting them with the shaft, all as shown and described.

WILLIAM IRLAM ELLIS.

Witnesses:

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