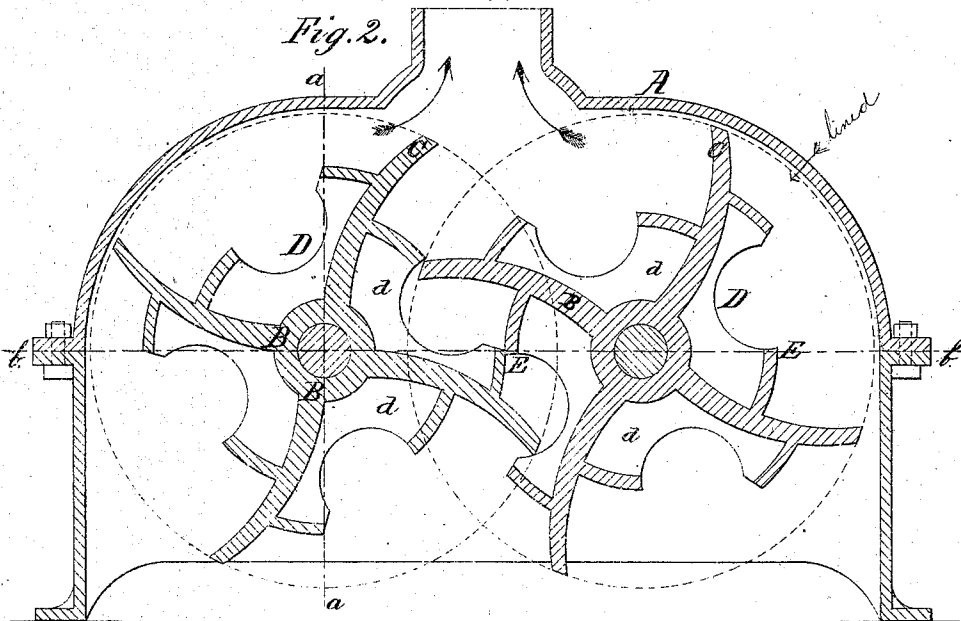
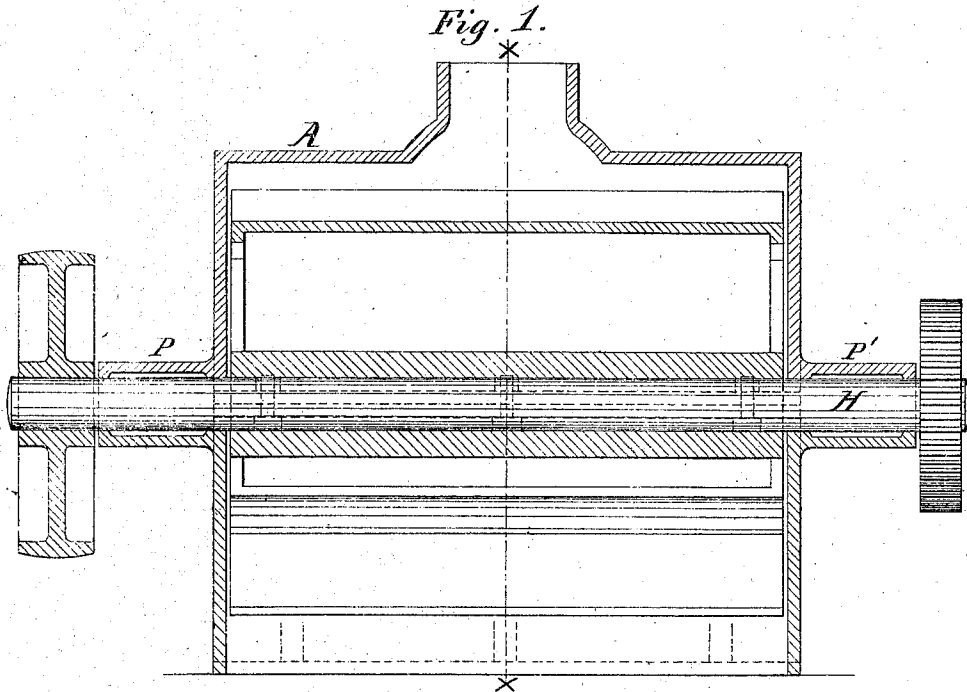


W. G. Hyndman

Rotary Blower.

No. 106165.

Patented Aug. 9. 1870.



Witnesses.
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Letters Patent No. 106,165, dated August 9, 1870.

IMPROVEMENT IN ROTARY BLOWERS.

The Schedule referred to in these Letters Patent and making part of the same.

I, WILLIAM G. HYNDMAN, of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain Improvements in Rotary Blowers, of which the following is a specification.

Nature and Objects of the Invention.

The nature of my invention consists—

First, in a blower-case in two parts, the interior surface of which is rendered true and accurate by a coating of bees-wax and asphaltum, bees-wax and resin, sulphur, or brimstone, or any similar substance which may be rendered plastic by artificial heat, and that is not a metal. The object in making the case in two parts is to give additional strength, to save labor and material in its construction, and to enable the removal of the upper part without disarranging the pistons or the lower part.

Second, the nature of my invention also consists in the construction of skeleton pistons, with blades or wings, of equal length, extending from the hub which forms the piston, having grooves formed by plaster of Paris, with which the skeleton pistons are finished, in the hub in which the outer edge of the blades fit alternately as they revolve. The object of thus constructing pistons and blades is to make the blower comparatively air-tight, and to effect a saving of metal.

Description of Accompanying Drawing.

Figure 1 is a longitudinal vertical section of the blower, through the line *a a* of fig. 2.

Figure 2 is a vertical cross-section of fig. 1, through the line *x x*.

General Description.

A is the case, the circles of which correspond with the circumference of the pistons.

B B are the pistons.

C C are the blades or wings of the pistons.

D D are the grooves in which the blades or wings revolve, the circle of which corresponds to the ends of the blades while both are in motion.

The two parts of the case are joined on the line of the axial plane through the journal-boxes, the seat of the journal being upon the lower case, and the caps upon the upper one, and a lip or flange can be made to project upon each side and end, fastened by bolts, similar to the ordinary manner of making journal-boxes.

The upper section of the case is cast in one piece, without the ordinary guards or ledges used to hold a lining, such as is set forth in the patent of P. H. and F. M. Roots, dated August 11, 1868.

The case is rendered true and accurate without machine-work, by the use of a thin coating of bees-wax and asphaltum, or bees-wax and resin, or brim-

stone. This can be applied in the following manner:

I construct a cylinder of the circumference of the blades of the pistons used in the case, with proper journal-bearing upon the shaft, and apply the material for lining when melted, and revolve the cylinders, to render all parts of the case true.

This lining has many advantages over all others before used, it being tougher and more durable than plaster of Paris, which oxydizes the iron, and cools much more rapidly than plastics applied in a cold condition, which harden slowly, and being much cheaper than molten lining.

Another and more important advantage of using this material is, no lips or guards are necessary upon the case, and a very thin coating will be effectual.

The lower case is made in the ordinary rectangular shape. The seat of the journal-boxes and legs to fasten down are usually cast on the case, as shown in fig. 2, and open upon the bottom for a free admission of air.

The abutting pistons B B are designed to revolve each upon journal-bearings P P', and are relatively arranged within the respective arc of the case, as shown.

Concavities D D are formed to conform to the arc of the circle each blade describes in its abutting the concavity between the blades upon the opposite piston. The contracting or abutting surfaces of the blades and concavities should not touch sufficiently to cause any appreciable amount of friction, but yet so near as to prevent escape of air.

The projecting shoulders E E are iron, cast on the blades, and are located at the point where the concavities cease, so that they may overlap and form a contracting surface, as seen at E, in fig. 2, and the cavities are formed by and filled with bees-wax and resin, or other similar substances.

The pistons B, blades C, shafts H, and ledges or flanges E are cast in one piece, and trued or fitted by ordinary machine-work to the case, and made to revolve in the bearings P P.

The cavities *d* are filled with bees-wax and resin, and, while in a heated and plastic condition, the pistons are slowly revolved, to form the desired shape of the concavities D, or they may be shaped by molds or patterns, the plaster being poured around them while in a liquid state.

Pistons made as described are much easier shaped or fitted to form faces working air-tight, or nearly so, and effect a much greater saving of metal than when constructed in the ordinary manner.

I am aware blower-cases have been made all cast in one piece, such as are shown in the patents of P. H. and F. M. Roots, of January 21 and August 11, 1868. I do not, therefore, claim a blower-case, broadly.

I am also aware that plaster of Paris has been used

in lining blower-cases, as described in the patents of P. H. and F. M. Roots, of August 11, 1868. I do not, therefore, claim the lining of blower cases, broadly; but

What I do claim is—

1. The blower-case A, made to support the abutting pistons, the circle or sweep of which in the surrounding case is lined with a cement of bees-wax and resin or brimstone, retained without the use of guards and ledges, all substantially as herein set forth.

2. The pistons B B, composed of the blades C C, guards E E, concavities D D, with the lining *d* applied in a liquid condition, while heated, to form a continuous contact of the blade-surfaces, all substantially as herein set forth.

W. G. HYNDMAN.

Witnesses:

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EDWARD BOYD.