

D. D. HARDY & E. E. WOOD.

Blower.

No. 104,585.

Patented June 21, 1870.

Fig. 1.

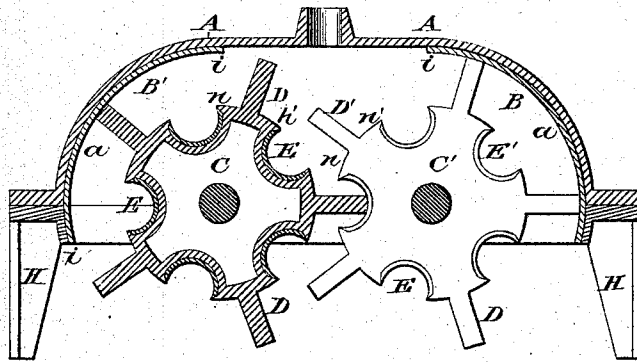


Fig. 2.

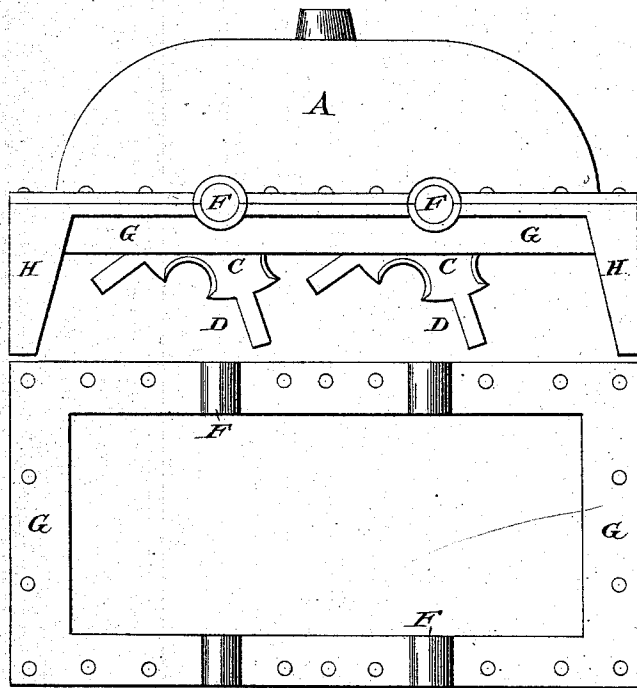


Fig. 3.

Witnesses.

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DEXTER D. HARDY AND ED E. WOOD, OF CINCINNATI, OHIO, ASSIGNORS TO PHILANDER H. ROOTS AND FRANCIS M. ROOTS, OF CONNERSVILLE, INDIANA.

Letters Patent No. 104,585, dated June 21, 1870.

IMPROVEMENT IN BLOWERS.

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

Be it known that we, DEXTER D. HARDY and ED E. WOOD, of Cincinnati, in the county of Hamilton, and State of Ohio, have invented certain new and useful Improvements in Rotary Blowers; and we do hereby declare that the following is a full and correct description of the same, reference being had to the annexed drawing making a part of this specification.

The object of this invention is to construct both the interior parts of the case and the abutments, or interior working-parts of the blower, so as to be true and accurate in their combined operation, in an improved manner and at a very small cost for workmanship, compared with that of boring out the case or fitting it and the interior working parts on the lathe or planer.

Our method of accomplishing this object is to construct the abutments and case in such manner as most advantageously to receive and retain adhesive compounds, other than the hydrates, such as any of the adhesive gums dissolved, and the solution thickened by any suitable substance, so as to give thereto sufficient consistency, by which, when properly applied, the operating parts are rendered true and accurate; and also to construct the abutments with such number of wings or pistons as will most advantageously preserve the contact of the pistons with the recesses in which they operate; and also to make certain useful projections on the sides of the pistons; and also to intersect the case at the plane of the axis of the shafts, and to construct the opposite part of the case in the most suitable manner, as hereafter described, to complete its operation.

In the accompanying drawing similar letters of reference indicate corresponding parts.

Figure 1 is a vertical cross-sectional view of the blower, showing the position of the abutments relatively to each other and to the case.

Figure 2 is a front elevation of the end of the blower.

Figure 3 is a top view of the bottom of the case.

A A represent the upper part of the blower-case.

B B' represent the concave arcs of the case.

i i show the terminations of the arcs B B'.

C C' represent the co-acting abutments.

D D' are the pistons.

E E' are the recesses in which the pistons operate.

n n' are the projections on the sides of the pistons.

G represents the lower part of the case.

F F' are the shafts of the abutments.

H H represent the legs cast on the lower part of the case.

Five pistons and five recesses are represented in each abutment in the drawing. There are peculiar advantages in making them with this number, for, with this number of pistons, the recesses E E' will consist of but little more than half circles, and the

contact of the piston is preserved with its corresponding recess in its revolution, until the secondary piston of the opposite abutment will come in contact with its recess. Another important advantage secured by this arrangement is the projections n n' on the sides of the pistons, which form a valuable support for the lining of the recesses.

The projections n n', on the sides of the pistons shown in the drawing, are not on the pitch-circles, (that is, equal tangent circles drawn on the centers of the abutments,) but are within the pitch-circles. This is an important feature, which greatly facilitates the construction of the machine.

With a less number of pistons, these results cannot be secured, while, with a greater number, these results can be secured in some degree, but not so advantageously. We consider five pistons much the best number to be used.

The arcs B B' are concentric with the shafts of the abutments, and should extend somewhat more than the distance from the outer extremity of one piston to that of the next piston.

The lower part of the case G is connected with the upper part A at the axial plane of the shafts of the abutments, with screws or bolts, and may be made of any desired dimensions, and when used for purposes of both exhausting and blowing, should have its lower opening so contracted as to make a suitable connection with an exhaust-pipe. Thus constructed the pistons can be only introduced or removed by separating the upper part A from the lower part G of the case.

We render the interior arcs B B' of the case, and also the ends of the case, true, so as accurately to fit the revolving abutments as follows:

We have found by experiment that, when the surfaces of the iron are suitably cleaned, a cement made of a solution of some of the gums, as copal, shellac, &c., when brought to a suitable consistency with brick-dust, earth, paints, plumbago, &c., adheres with great tenacity to the surface of the iron. A coating of this or similar material is applied with a paint-brush, or any convenient manner, until a coating of sufficient thickness is obtained. And, when partially hardened, the parts are made to operate together in their proper position, by which means any superfluous amount of the cement is removed. In like manner the lower part of the case G, or so much of it as is required to preserve the contact of the parts, as shown in figs. 2 and 3, may be lined.

The recesses E E' of the abutments are lined with the same material, applied and rendered true in the same manner as the interior of the case.

The abutments are connected and made to revolve simultaneously by two cog-wheels.

The operation of the machine is as follows:

When the abutments are made to revolve in the di-

rection of the arrows, the air carried in by the pistons, in contact with the arcs B B', being prevented from escaping backward internally, by the contact of the pistons with their respective recesses, will be forced through the discharge-opening at the top of the case.

Having thus described our invention,

What we claim, and desire to secure by Letters Patent, is—

1. The abutments C C', having five or more pistons and five or more recesses with curved projections *n n'*, made so as not to come in contact with each

other, when constructed and arranged to operate substantially as and for the purpose set forth.

2. A blower-case, consisting of the upper and lower parts A and G, united at the plane of the axes of the shafts F, when constructed and arranged to operate in combination with internal co-acting abutments, substantially as herein described.

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Witnesses:

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