

(No Model.)

2 Sheets—Sheet 1.

T. W. GREEN.
ROTARY BLOWER.

No. 581,418.

Patented Apr. 27, 1897.

Fig. 1.

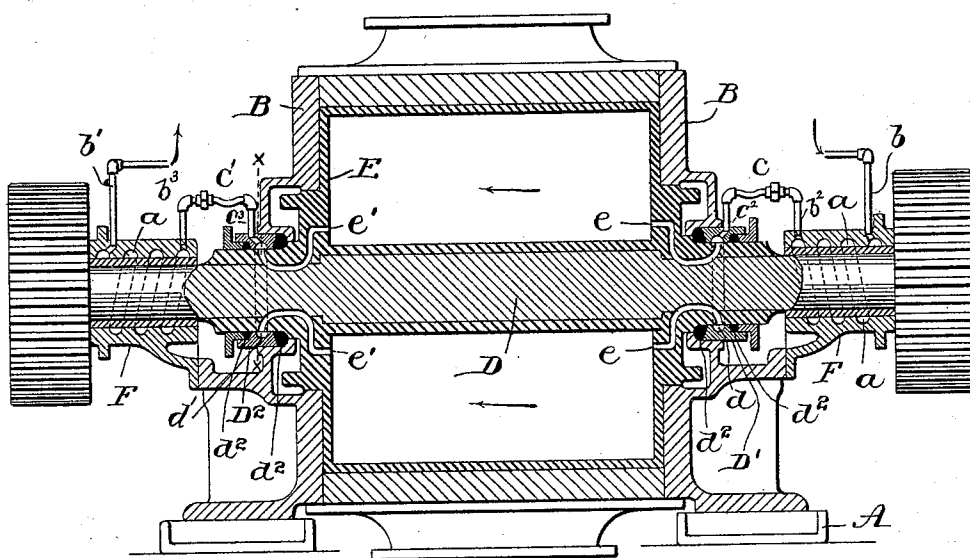
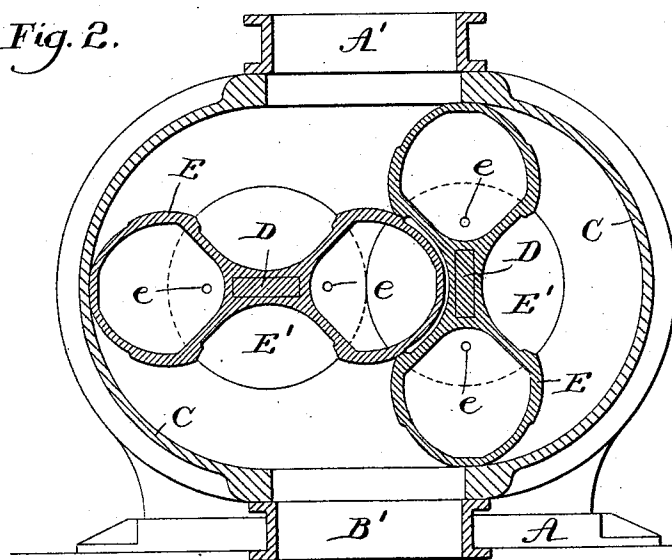


Fig. 2.



Witnesses.

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J. Maub.

Inventor.

Thomas H. Green
by Thos. H. Inowldg

Attorney.

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2 Sheets—Sheet 2.

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Fig. 3.

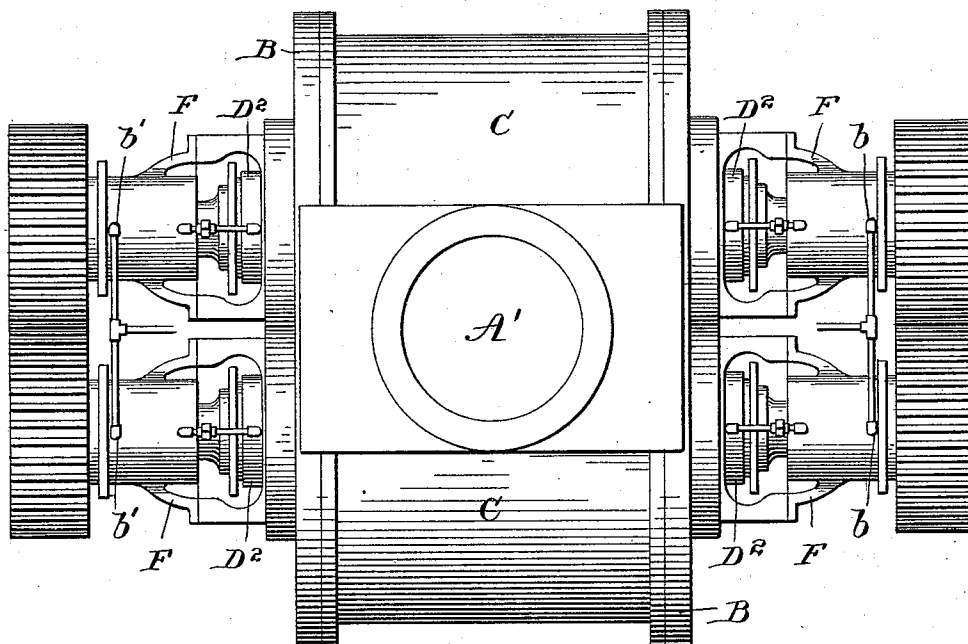
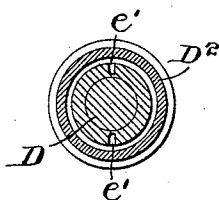


Fig. 4.



Witnesses.

A. V. Grouse
J. Stuart

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Attorney.

UNITED STATES PATENT OFFICE.

THOMAS W. GREEN, OF PHILADELPHIA, PENNSYLVANIA.

ROTARY BLOWER.

SPECIFICATION forming part of Letters Patent No. 581,418, dated April 27, 1897.

Application filed October 28, 1896. Serial No. 610,259. (No model.)

To all whom it may concern:

Be it known that I, THOMAS W. GREEN, a citizen of the United States, residing in Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Rotary Blowers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to rotary blowers or exhausters; and the object of my improvement is to provide means whereby the fluid acted upon by the blower may be either heated or cooled in its passage through the machine.

To accomplish the desired result, I connect the impellers or revolvers with water or steam supply pipes in the manner hereinafter shown, and more particularly pointed out in the claims.

In the patent granted to me on February 20, 1894, and numbered 515,212 the construction and operation of this class of blowers was particularly described. The shape of the impellers or revolvers shown in this application are described in the patent granted to me on May 5, 1896, and numbered 559,703.

In the accompanying drawings, Figure 1 is a lengthwise sectional view through the middle of the blower. Fig. 2 is a vertical cross-sectional view through the blower. Fig. 3 is a top plan view of the finished machine, showing the water connections. Fig. 4 is a cross-section through the impeller-shaft on line *xx* of Fig. 1.

A represents the bed-plate of the machine; B, the end casting, forming the support for the driving-shaft; C, the external casing; A', the outlet or discharge; B', the intake.

E E are the revolvers or impellers cast around a steel driving-shaft D, having cylindrical ends and a flattened middle portion.

E' E' are the solid heads cast integral with the impellers E E.

F F are the journal boxes or bearings for the journals on the shaft D.

aa are spiral grooves formed in the journal-boxes F.

b b are pipes attached to the journal-boxes and connecting with the outer end of the spiral grooves.

b² b³ are pipes attached to the inner end of the journal-boxes.

c c' are flexible tubes making connections with the pipes *b* and *c²* and *b³* and *c³*, respectively.

D' D² are stuffing-boxes surrounding impeller-shafts.

d d' are annular grooves in the stuffing-boxes.

d² is the packing in the stuffing-boxes.

e e' are openings or passages extending from the annular grooves *d d'* to the inside of the wings of the impellers.

The blower being constructed as shown, when desiring to cool the air passing through the blower the pipe *b* is connected with a suitable water-supply. The water will then flow through said pipe in the direction indicated by the arrows, through the spiral groove *a*, around the journal of the shaft, through the pipe *b²*, flexible tube *c*, to the pipe *c²*, into the annular groove *d*, from there through the opening *e* into the wings of the impeller, filling the cavity therein and going out at the opposite end through the opening *e'* into the annular grooves *d'* on the opposite side of the blower, through the pipe *c³*, tube *c'*, pipe *b³*, through spiral groove *a*, and out through the pipe *b'*.

From the construction herein shown it will be readily seen that a continuous flow through both wings of both impellers will be maintained.

When pumping tar and other fluids that are likely to become thick when cool, a current of steam instead of water is passed through the impellers by connecting the pipe *b* with a steam-boiler, thus keeping the material in a limpid condition.

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

1. In a rotary blower the combination of the impellers E, E, inlet-channel *e* and outlet-channel *e'*, and shaft D upon which said impellers are mounted, with stuffing-boxes D',

D², annular grooves, *d*, *d'*, therein registering with the channels *e* and *e'*, and supply and exit pipes for said stuffing-boxes, as set forth.

5 2. An impeller for rotary blowers, having both ends of the impeller-shaft provided with annular grooves, both of said grooves being connected with passages that lead to and from the inner cavities of the wings of the impellers and surrounded by suitable stuffing-
10 boxes, one of which is connected with an inlet-pipe and the other connected with a discharge-pipe, substantially as and for the purpose described.

15 3. In a rotary blower the combination of the impellers E, E, shaft D upon which said impellers are mounted, annular grooves surrounding said shaft and channels *e* and *e'* connecting said grooves with the interior of the
20 impellers, with stuffing-boxes surrounding said grooves and shaft, and supply and exit pipes for said stuffing-boxes, as and for the purpose set forth.

4. In a rotary blower the combination of the

impellers E, E, having in each wing thereof 25 inlet *e*, and outlet *e'*, the shaft D, having annular grooves connected with the inlet and outlet passages *e* and *e'*, and surrounded with stuffing-boxes D', D², with pipes extending from the stuffing-boxes to the journal-bear- 30 ings F, said journal-bearings having therein the spiral grooves *a*, *a*, and connected with suitable inlet and discharge pipes, substantially as shown.

5. A rotary blower having the inner cavity 35 of the impellers provided with inlet and outlet openings, a shaft upon which said impeller is mounted, annular grooves in the journal-boxes of said shaft connected to a source of supply and also with the interior of said 40 impeller, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS W. GREEN.

Witnesses:

CHAS. J. MILLER,

THOS. D. MOWLDS.