

No. 659,619.

Patented Oct. 9, 1900.

T. W. GREEN.  
ROTARY BLOWER.

(Application filed July 17, 1900.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

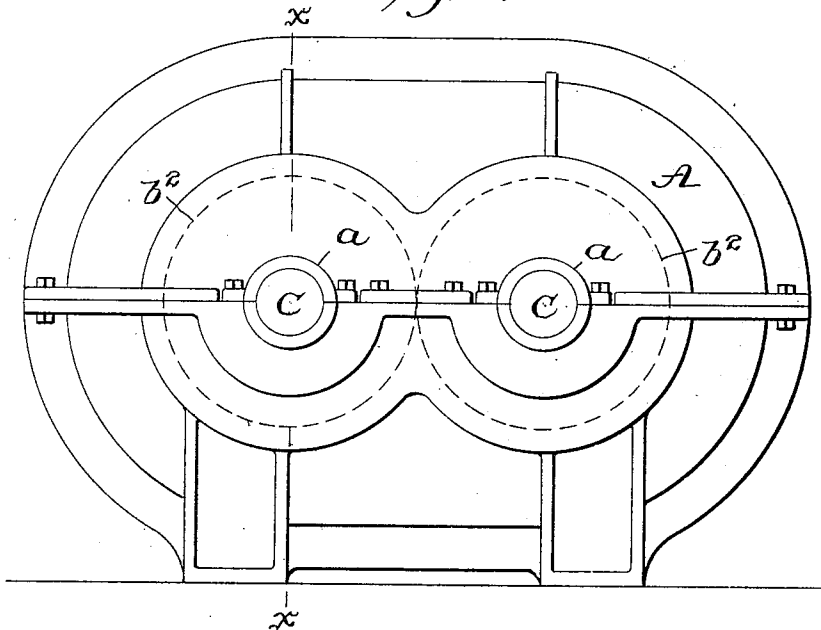
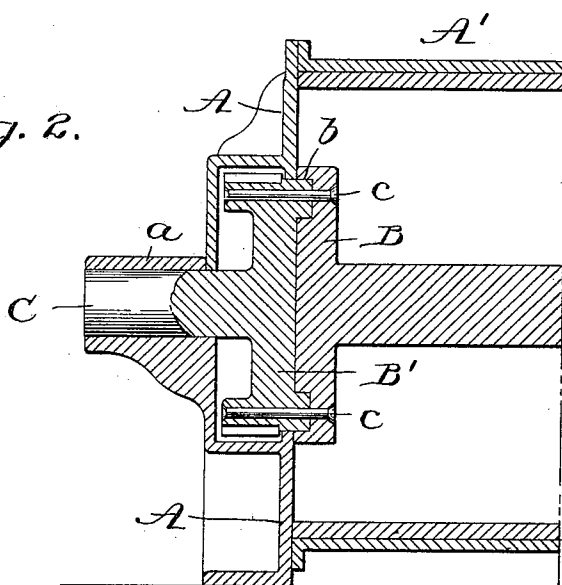


Fig. 2.



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INVENTOR

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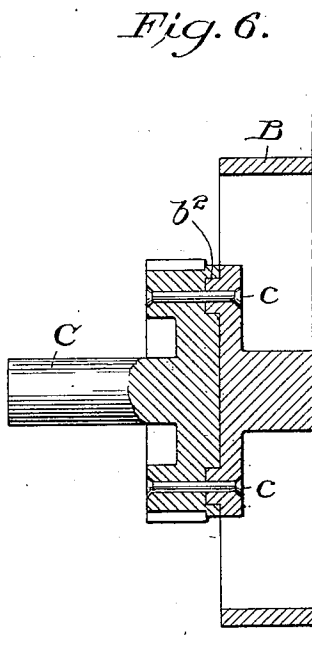
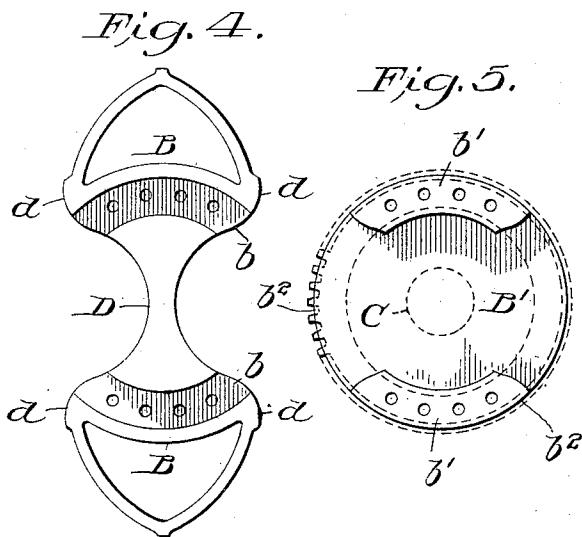
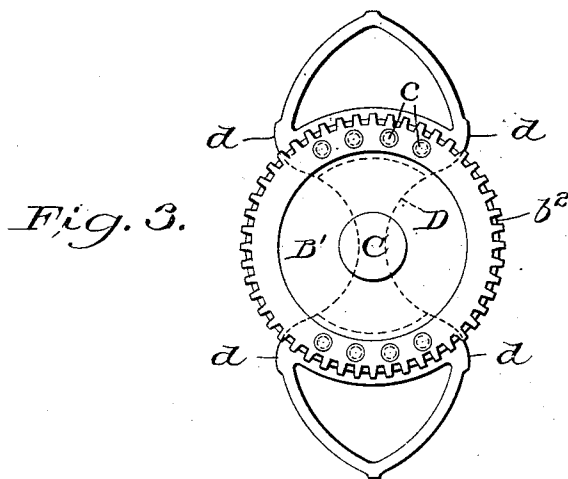
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WITNESSES:

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# UNITED STATES PATENT OFFICE.

THOMAS W. GREEN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE  
WILBRAHAM BAKER BLOWER COMPANY, OF SAME PLACE.

## ROTARY BLOWER.

SPECIFICATION forming part of Letters Patent No. 659,619, dated October 9, 1900.

Application filed July 17, 1900. Serial No. 23,872. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS W. GREEN, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented new and useful Improvements in Rotary Blowers, of which the following is a specification.

My invention relates to rotary blowers and exhausters; and the objects of my improvement are to lessen the width of the blower, reduce the weight thereof, and to so construct the impellers that the parts cooperating with each other to form the locking device may be easily, quickly, and accurately finished at the smallest possible cost. To accomplish these results, I cast each impeller in three separate parts, the middle or wing portion being cast in one piece and the end or head portions in two other separate pieces that are adapted to be fitted upon the ends of the wing portion in the manner hereinafter described.

In blowers and exhausters as ordinarily constructed for the purpose of strengthening the part solid circular ends or headpieces are cast integral with the wings of the impeller. Outside of these solid circular ends or headpieces and upon the driving-shafts of the impellers the gear-wheels that convey the power from one impeller to the other are placed. In my improved blower the solid head portions and the gear-wheels are formed in one piece, the two parts combined taking up very little, if any, more space than is ordinarily needed for one of them. By this construction I am enabled to very materially reduce the weight of the machine and lessen its width, thus making it more compact and at the same time greatly facilitating the work of finishing those parts of the impellers that form the locks or cut-offs.

In the accompanying drawings, Figure 1 represents an end view of my improved blower. Fig. 2 is a vertical sectional view of a portion of the blower, as on line *xx* of Fig. 1. Fig. 3 is an end view of one of the impellers removed from the blower. Fig. 4 is an end view of an impeller having the combined gear-wheel and circular end headpiece removed therefrom. Fig. 5 is an end view of the reverse side of the combined gear-wheel and circular headpiece removed from the end

of the impeller. Fig. 6 is a vertical sectional view of a modified form of my improvement.

The general construction and arrangement of the several parts of blowers of this class being well known, I have described herein only the parts connected with my improvement.

A represents the casing inclosing the ends of the impellers: This end casing is necessarily divided horizontally, as shown in Fig. 1.

A' is the usual form of casing fitting over and surrounding both impellers.

B is the middle portion, containing the wings of the impellers and extending from one side of the blower to the other.

B' is a circular solid head portion adapted to be fitted one on each end of each impeller. These solid end head portions are each provided with a series of cogs and form a combined end headpiece and gear-wheel, obviating the necessity of an extra gear-wheel being fitted upon the shaft.

C is the shaft of the impeller, cast integral with the head-piece B'. *a* is the journal box for the shaft C. These shafts and journal-boxes are of the usual construction.

*b b* are depressions cast in the ends of the impellers, as shown in Figs. 2 and 4.

*b' b'* are two projecting parts cast upon the inner portions of the headpieces B' and are adapted to fit into the depressions *b b*, formed on the ends of the impellers.

*c c* are rivets passing through the headpieces B' and the ends of the impellers, thus securely fastening these parts together in the manner shown.

*d d d* are the accurately-finished segmental extensions formed on the wings of the impeller, that operate together to form locks or cut-offs for the air when the blower is in operation.

The middle or waist portion D of the impeller is ordinarily not finished to any special form, as this part is often not used to make any part of the lock or cut-off; but when the impellers are cast separately from the head portions B' this waist portion can be easily finished to any desired shape before the head B' is attached and, if desired, made to form part of the cut-offs. The depressions *b b* in the impellers are turned to a circle corre-

sponding exactly to the circles on the projections *b' b'* on the end headpiece *B'*, and consequently these parts will fit together accurately. The inner portions of the end headpieces *B'* are turned down to the pitch-line *b<sup>2</sup>* of the cogs thereon, and the end casing *A* is made to fit snugly around it in the manner shown in Fig. 2.

Instead of having the projecting part *b' b'* on the end headpieces *B'* and the depressions *b b* in the wing portions of the impeller the positions of these parts may be reversed, as shown in Fig. 6, and under some circumstances the surfaces of the headpieces *B'* and the ends of the impeller may be planed off perfectly smooth, so as to fit snugly together. The best results, however, are obtained when the parts are made to the shapes shown in Figs. 4 and 5.

All four of the solid end headpieces *B'* need not necessarily be provided with cogs. Two of them working together may under some circumstances be all that is needed, and the heads on the opposite ends of the impellers can have a plain circumference.

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

1. A rotary blower or exhauster having the wing portion of the impellers cast separately and the ends thereof secured to separately-

cast circular end or head pieces having driving-shafts cast integral therewith, two of said circular headpieces being provided with a series of cogs adapted to mesh into each other, substantially as shown and for the purpose described.

2. In a rotary blower or exhauster, the wing portion *B*, of the impeller cast separately, in combination with the two of the circular end or head pieces *B'*, adapted to be secured to the wing portions and provided with suitable driving-shafts and having upon their outer periphery a series of cogs adapted to mesh into each other, substantially as shown.

3. In a rotary blower or exhauster the separately-cast wing portion *B*, in combination with circular end or head pieces *B'*, each of said headpieces having on its outer periphery a series of cogs and provided with two of the projecting parts *b' b'*, turned to the arc of a circle that corresponds to the arc of the circle to which the depressions *b b*, in the wing portion of the impeller are turned, substantially as shown and for the purpose described.

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

THOMAS W. GREEN.

Witnesses:

THOS. D. MOWLDS,  
SAML. H. KIRKPATRICK.