(No Model.)

# T. W. GREEN.

## ROTARY BLOWER.

No. 559,703. Patented May 5, 1896.

*Fig. 1.*

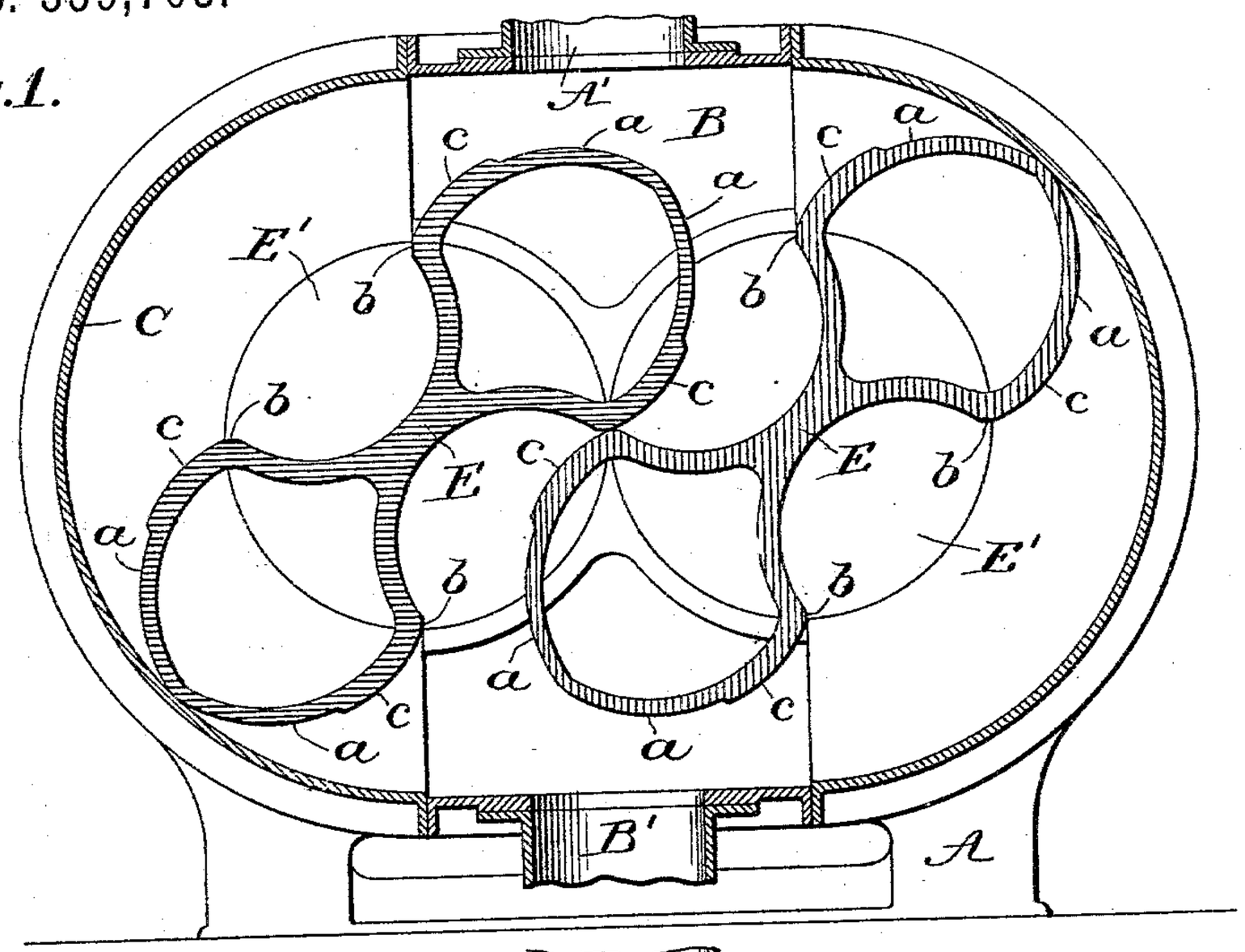
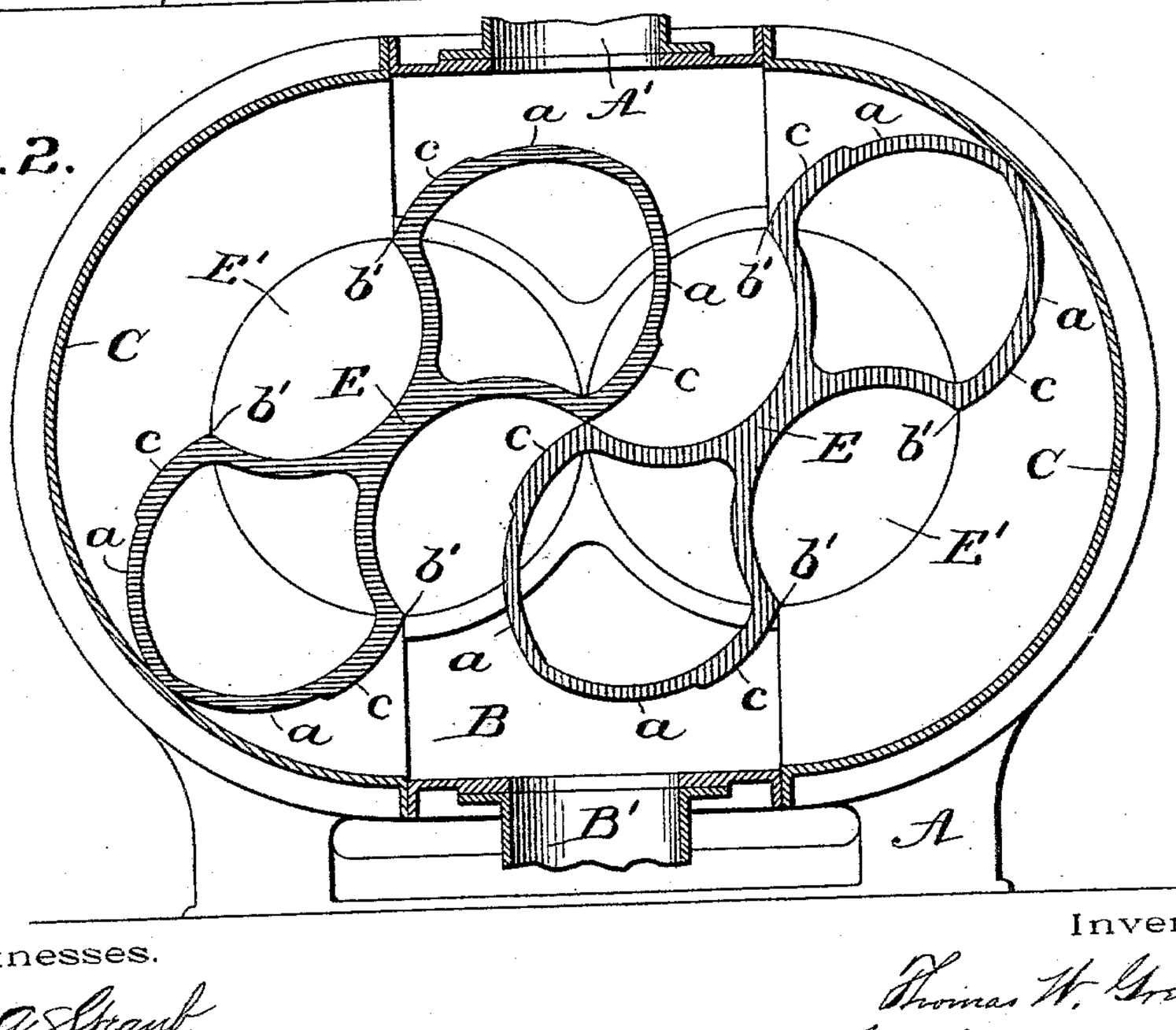



*Fig. 2.*




Witnesses.

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# UNITED STATES PATENT OFFICE.

THOMAS W. GREEN, OF PHILADELPHIA, PENNSYLVANIA.

## ROTARY BLOWER.

SPECIFICATION forming part of Letters Patent No. 559,703, dated May 5, 1896.

Application filed March 4, 1895. Serial No. 540,430. (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 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 for forcing or exhausting air, water, or other fluids; and the improvement consists in the construction and arrangement of those parts of the revolvers that form the locks or cut-offs to prevent the backward flow of the fluid acted upon.

In the patent granted to me on February 20, 1894, and numbered 515,212, the construction and manner of operating blowers of this class were particularly described. My present invention differs from the blower described in that patent only in the shape and construction of those parts of the revolvers that form the locks or cut-offs.

In the patent granted to me on January 29, 1895, and numbered 533,292, a form of revolver is shown that is somewhat similar in construction to the revolver described in my present application, both of the revolvers shown in this patent of January 29, 1895, having formed thereon four short segmental extensions, (marked *b b b b.*) As the revolvers turn the outer surfaces of these short segmental extensions meet and roll around together, those on one revolver just touching the similar parts on the opposite revolver. This construction is all that can be desired when blowing or exhausting air or water; but when the blower is used on tar or other fluids of a like nature I have found that the tar or other material will adhere to the outer surfaces of these short segmental extensions *b* and in a short time form a hard and compact layer or coating thereon. Consequently when said extensions meet each other as the revolvers turn around the driving-shafts must bend to accommodate themselves to the extra thickness formed on the outer surfaces of these parts of the revolvers. My present invention is to overcome this difficulty and construct the revolvers in such a manner that, while the lock or cut-off is preserved, the locking-surface of one revolver will be scraped or cleaned off by the opposite revolver when the blower is in operation and there will be no circular sections or parts that meet each other and roll around together. I accomplish the desired result by leaving off the short extensions *b b b b* (shown in the patent on January 29, 1895) and constructing the locking or cut-off parts so that the ends of the locking parts on one revolver will pass over the outer surfaces of the similar parts on the opposite revolver, and thus free them from any material adhering thereon.

In the accompanying drawings, Figure 1 is a vertical cross-sectional view through a blower having my improved form of revolvers. Fig. 2 is a cross-sectional view of a blower similar to that shown in Fig. 1, but having the scraping edge of the revolvers formed to a sharp angle. The form of the revolvers shown in Fig. 1 is preferable when using the blower under high pressure, but the form shown in Fig. 2 is suitable for all ordinary purposes.

A represents the bed-plate of the machine.

B is the end casting forming the support for the driving-shafts.

C is the external casing.

A′ is the outlet or discharge; B′, the intake.

E E are the revolvers, each of which consists of two enlarged portions joined or connected together by a thin neck or strip and provided with suitable driving-shafts on the ends that project through the outer casing, upon which said driving-shafts are rigidly secured gears which mesh with each other to operate and maintain at all times the proper relative positions of the revolvers.

E′ E′ are solid heads, one at each end of each revolver and cast integral therewith and are equal in diameter to the pitch-line of the gears on the driving-shafts. The driving-shafts are also preferably cast on these parts and turned down to fit.

*a a* are the parts forming the wings or blades of the revolvers.

*c c c c* are four large segmental extensions formed on each of the revolvers.

*b b b b* are four flat surfaces formed on each revolver at the inner end of each of the extensions *c c c c*, the said surfaces *b b* being upon the pitch-line of the gear-wheels that operate the revolvers. These flat surfaces are for the purpose of making a long contact of the cut-off surfaces of the revolvers when working under high pressure. When the blower is not desired to work under a heavy pressure, the inner ends of the segmental extensions *c c c c* instead of being flat, as shown in Fig. 1, are formed to a sharp angle or corner, as shown at *b' b' b' b'* in Fig. 2, which said angles or corners *b' b' b' b'* are also upon the pitch-line of the said gear-wheels.

If desired, the revolvers may be constructed with flat wings or blades in place of the curved form made by the parts *a a* joining two of the segmental extensions *c* together.

When the revolvers are constructed as shown and the segmental extensions *c* are formed to the proper curve, the rear or inner end of one segmental extension *c* will follow along on the outer surface of one of the segmental extensions *c* on the opposite revolver until the next following similar parts of each revolver come into play, thus at all times preserving a lock or cut-off on the pitch-line of one or the other of the gear-wheels of the revolvers, as shown, and cleaning off any of the material that may adhere. In the construction of these revolvers I have made the strip or neck joining the two enlarged portions of each revolver as thin as possible for the purpose of permitting the greatest length of blade, whereby the capacity of the machine is increased to its greatest possible extent. It will be observed that as the heads E' E' are cast integral with the revolvers the enlarged portions of the said revolvers do not depend in any way upon the thin strip or neck for support, so that the thickness of the strip or neck need be no greater than necessary to withstand the pressure of the driven air or fluid.

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

In a rotary blower the combination of the two revolvers E, E, the two parts of each of said revolvers being joined together by a thin strip or neck that forms no part of the locking device, and provided with segmental extensions *c*, *c*, converging toward the parts forming the wings, the outer finished surfaces of the said extensions *c*, *c*, on each revolver being adapted to engage with the inner or rear ends of the said extensions on the opposite revolvers and being of sufficient length to enable a lock or cut-off to be continuously maintained by the coöperation of these parts as the revolvers turn around, substantially as described.

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

THOMAS W. GREEN.

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