(No Model.)

T. W. GREEN.

ROTARY BLOWER.

No. 601,136. Patented Mar. 22, 1898.

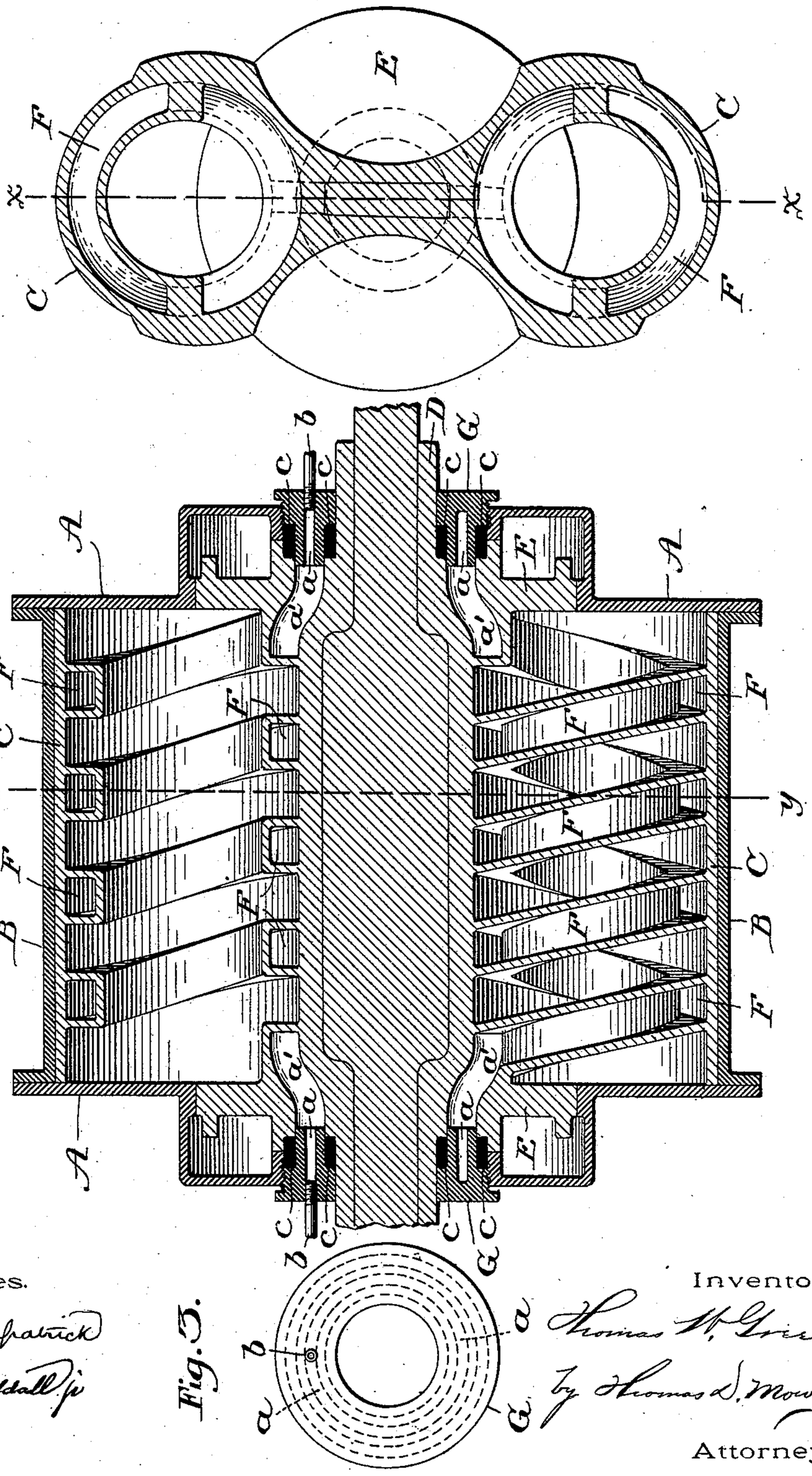

Fig. 2.

Fig. 1.

Fig. 3.

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. 601,136, dated March 22, 1898.

Application filed September 2, 1897. Serial No. 650,336. (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 that are used for pumping inflammable materials, such as gas and the light products of petroleum; and the object of my improvement is to pass a current of water through each of the wings of the impellers in such a way that it will absolutely prevent the heating of the material passing through the blower. Heretofore blowers of this class have been made with straight water-chambers extending from one end of the impeller to the other. When constructed in this way, the centrifugal force generated by the circular motion of the impeller interferes with the proper circulation of the water on the inside of the impellers. To overcome this trouble, I cast a spiral tubular chamber on the inside of each of the wings of the impellers and connect the ends of these tubes with suitable inlet and discharge openings in the manner hereinafter described. The general construction and operation of this class of blowers is particularly described in the patents granted to me on February 20, 1894, numbered 515,212, and May 5, 1896, numbered 559,703.

In the accompanying drawings, Figure 1 is a vertical sectional view, as on line *x x* of Fig. 2, through the outer casing and one of the impellers of a rotary blower. Fig. 2 is a vertical section through one of the impellers, as on line *y y* of Fig. 1. Fig. 3 is a plan view of one of the stuffing-boxes surrounding the driving-shaft.

A represents the two end castings of the blower; B, the external casing surrounding the impellers.

C C are the wings of the impeller, cast around the driving-shaft D.

E E are the solid heads of the impellers, cast integral therewith.

F is a spiral tubular chamber cast on the inside of each of the wings of the impellers and extending from end to end thereof.

G G are stuffing-boxes surrounding the driving-shaft D.

a a are annular grooves on the inside of the stuffing-boxes G.

a' a' are water-channels or passage-ways, connected at their inner ends to the tubular water-chambers F, the outer ends extending to and communicating with the annular grooves *a* in the stuffing-boxes.

b b are respectively the water inlet and outlet tubes fitting into the stuffing-boxes G and extending into the annular grooves *a*.

c c is the packing surrounding the driving-shaft D and the stuffing-boxes G to prevent leakage.

When the impellers are constructed as shown and the inlet-pipe *b* connected with a suitable water-supply, the water therefrom will enter one of the annular grooves *a*, passing through one of the channels *a'* into the spiral water-chambers F and out at the discharge-pipe *b*. The whole of the water entering the spiral water-chambers F must necessarily pass along in a continuous stream through said chamber and out at the discharge-pipe *b*. The rapid circular motion of the impellers, instead of retarding the flow and proper circulation of the water, will have a tendency to force the water forward with a regular and continuous flow.

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

1. An impeller for rotary blowers having on the inside of the wings or blades thereof, a spiral tubular chamber extending from one end to the other and connected with suitable means for continuously admitting and discharging a supply of water, substantially as shown.

2. An impeller for rotary blowers having on the inside of wings or blades thereof, a spiral tubular water-chamber extending from one

end to the other of said impeller and provided with the inlet and outlet channels a', said channels a', being connected with means for continuously admitting and discharging a stream of water, substantially as shown.

3. An impeller for rotary blowers having on the inside of the wings or blades thereof, the spiral tubular water-chambers F, extending from end to end of said impeller and provided with the end water-channels a', in combination with the stuffing-boxes G, having therein the annular grooves a and provided with suitable inlet and discharge pipe, substantially as shown.

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

THOMAS W. GREEN.

Witnesses:

SAML. H. KIRKPATRICK,

THOS. D. MOWLDS.