

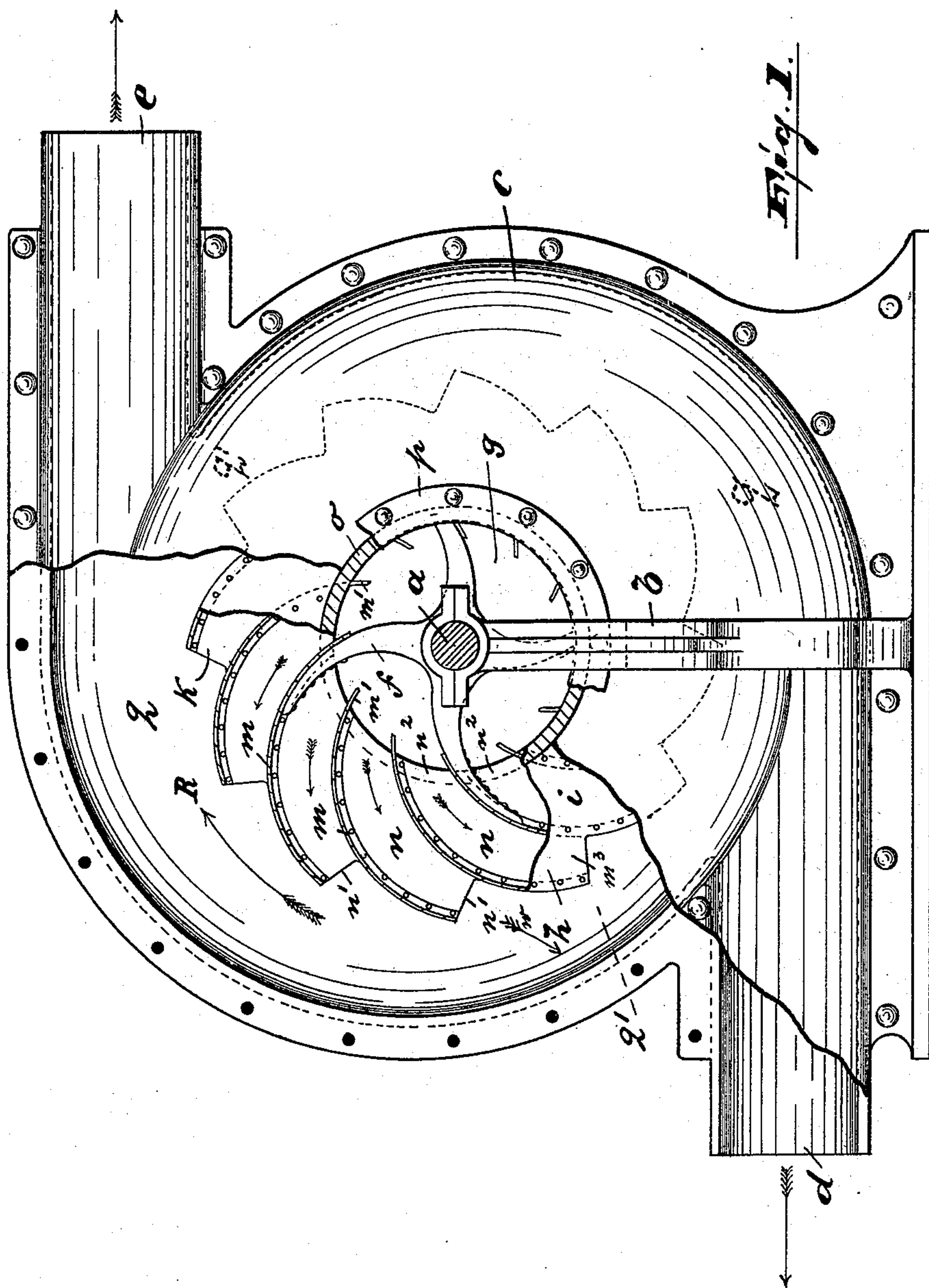
(No Model.)

2 Sheets—Sheet 1.

G. W. POOLE.  
CENTRIFUGAL BLOWER.

No. 513,057.

Patented Jan. 16, 1894.



WITNESSES:

*Jacob O Poole*  
*D. M. Robertson*

*Garrett Wallace Poole*

BY

*Gartner & Co*

ATTORNEYS

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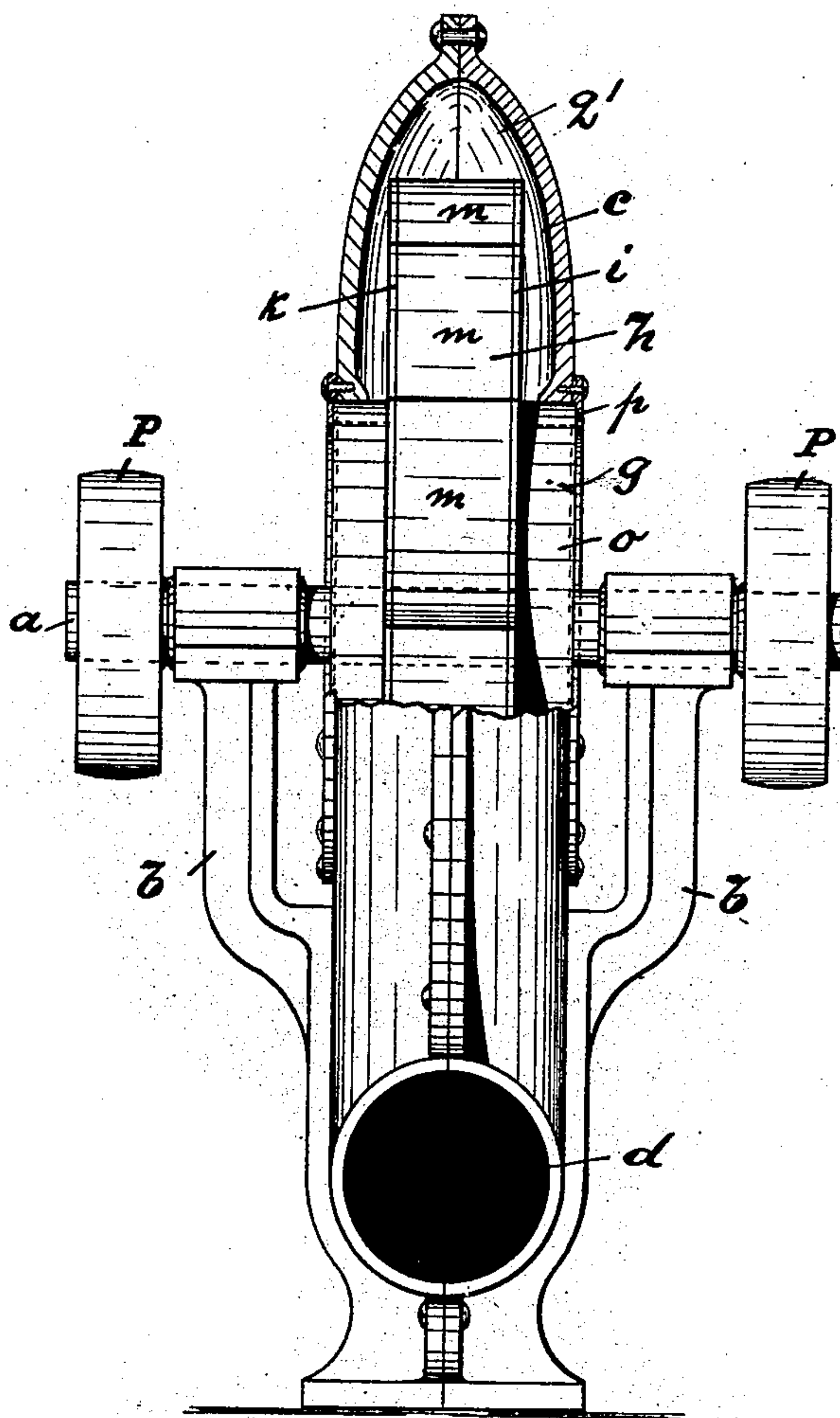


Fig. 2.

WITNESSES:

*Jacob D Poole*  
*A. M. Robertson*

INVENTOR:

*Garrett Wallace Poole*

BY

*Gartner & Co*

ATTORNEYS



# UNITED STATES PATENT OFFICE.

GARRETT WALLACE POOLE, OF NEWARK, NEW JERSEY, ASSIGNOR, BY  
MESNE ASSIGNMENTS, TO THE NEW JERSEY BLOWER COMPANY, OF  
SAME PLACE.

## CENTRIFUGAL BLOWER.

SPECIFICATION forming part of Letters Patent No. 513,057, dated January 16, 1894.

Application filed April 15, 1893. Serial No. 470,473. (No model.)

*To all whom it may concern:*

Be it known that I, GARRETT WALLACE POOLE, a citizen of the United States, residing in Newark, county of Essex, and State of New Jersey, have invented certain new and useful Improvements in Centrifugal Blowers; and I do hereby 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 letters of reference marked thereon, which form a part of this specification.

The object of this invention is to provide a blower, simple, strong and durable in construction, great in efficiency and of such character, that centrifugal force, suction force and (what I term) scooping force are combined or united in their actions, and thus give the best possible results.

The invention consists in the improved blower, its revolving drum, the arrangement and construction of a series of passages in said drum, in combination with their inlets and outlets.

It further consists in the peculiarly constructed shell and its outlets, and in the arrangement and combination of the various parts, substantially as will be hereinafter more fully described and finally embodied in the clauses of the claim.

Referring to the accompanying drawings in which like letters of reference indicate corresponding parts in both the views: Figure 1 is a side elevation of my improved blower, with certain portions broken away, and Fig. 2 is a front elevation of Fig. 1.

In said drawings *a* represents a shaft, adapted to be revolved—by means of pulleys *P*—in bearings *b*, arranged on the sides of the shell *c*, either integral therewith or secured thereto by screws, bolts or in any desired manner. To the shaft *a* is secured a spider *f*, supporting the revolving drum *h* constructed in a manner hereinafter more fully described. The relative position of said drum *h* and the stationary shell or chamber *c*, is such, that tapering channels *q q'* conical in cross section are formed between said drum and the

inner surface of the chamber. The wider parts of said channels terminate in the outlets *d* and *e*, as clearly shown in Fig. 1.

The drum *h* consists of the side plates *i* and *k*, between which is arranged a series of metal strips or partitions *m* (by preference riveted to said side plates), forming channels or passages *n*, and are curved in such a manner, that the outlet openings *n'* of said channels are smaller than or about equal to, the inlet openings *n<sup>2</sup>*, as clearly shown. The outlet or discharge opening *n'* of each channel is normal to the periphery of the preceding channel.

The side plates *i* and *k* are at each of the openings or outlets *n'* notched as clearly shown at *m<sup>3</sup>* in Fig. 1 by which construction the suction force is allowed to act directly upon the outlets *n'*, as will be hereinafter more fully described.

The partition plates *m* are by preference provided with inner extensions *m'*, projecting a short distance within the inlet openings *g* of the shell *c*, and assist, when the drum is in rotation, in scooping the air into the channels or passages *n*.

To the outside of the side plates *i* and *k* are secured in any desired manner, metallic rings *o*, projecting through the inlet openings *g* and bearing against a flange of the ring *p* on said shell *c*, whereby a substantially air tight joint between the outside plates of the drum *h* and the shell *c* is obtained.

The drum *h* may be placed on the shaft *a* in such manner, that the outlet openings *n'* of the passages *n* face in the opposite direction to the discharge opening *d* of the blower, as shown, or they may face in the direction of said discharge openings, as will be manifest.

The bearings *b* are by preference continued downward, thus forming strengthening ribs for the shell *c*.

The operation is as follows: When the drum *h* is revolved in the direction of the arrow *R*, air is scooped into the inlets *n<sup>2</sup>* of the passages *n* by the extensions *m'* from the openings *g*, and is thrown by centrifugal force through the outlets *n'* of said passages into the stationary chamber or shell *c*. Simultaneously the vacuum formed at the said out-



lets ( $n'$ ) of the drum, produces a suction in the passages and thus assists the centrifugal force in conducting the air from said passages into the said chamber  $c$ . From the foregoing description it can be seen, that three forces are acting at one and the same time upon the air in the openings  $g$  and passages  $n$ —scooping, centrifugal and suction force. The air by being discharged in the direction of the arrow  $w$ , impinges upon the inner side of the shell  $c$ , and owing to the peculiar relative position of the periphery of the drum to the inner surface of said shell, practically assists the rotation of the drum and thus reduces the power necessary to rotate the same.

I do not intend to limit myself to the precise construction shown and described as various alterations can be made without changing the scope of my invention.

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

The combination in a blower, of a stationary casing provided with approximately central openings, with a drum adapted to be revolved in said casing and consisting of side plates provided with central openings, registering with the central openings of the casing, and a series of curved uniform shaped channels formed between said plates by curved partition plates, and extending from the central opening of the drum to the periphery thereof the outlet end of each curved channel being approximately normal to the periphery of the next preceding curved channel, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand this 8th day of April, 1893.

GARRETT WALLACE POOLE.

Witnesses:

ALFRED GARTNER,  
HENRY E. EVERDING.