W. Kendrick,

Fan Blower,

No. 51,321. Patented Dec. 5, 1865.

Fig. 1.

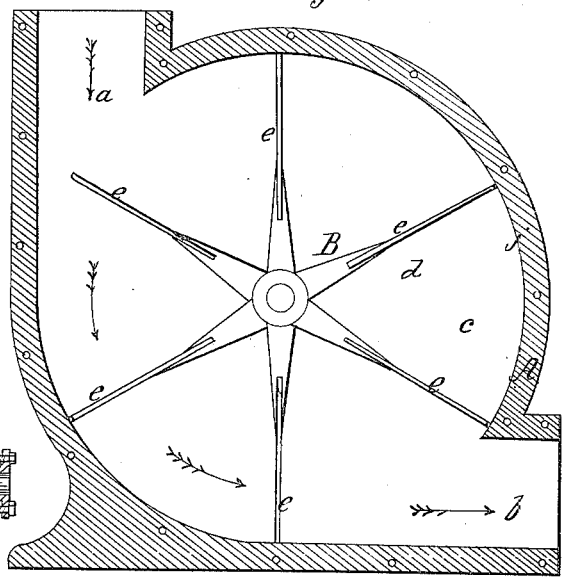


Fig. 2.

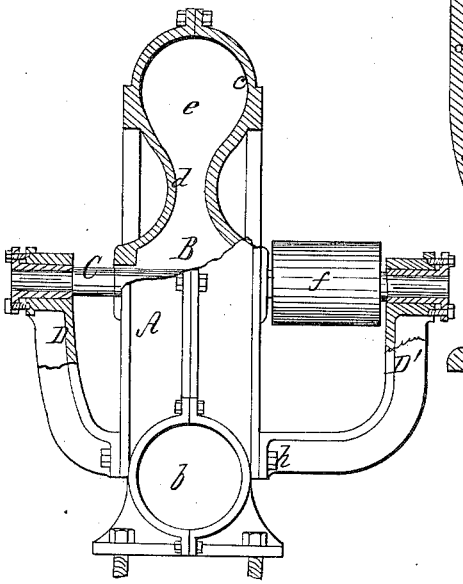
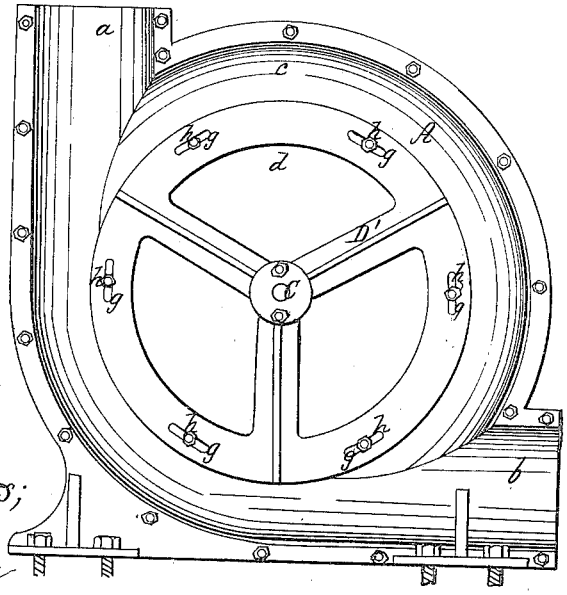


Fig. 3.



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UNITED STATES PATENT OFFICE.

W. KENDRICK, OF NEW YORK, N. Y.

IMPROVEMENT IN FAN-BLOWERS.

Specification forming part of Letters Patent No. 51,321, dated December 5, 1865.

To all whom it may concern:

Be it known that I, WASHINGTON KENDRICK, of the city, county, and State of New York, have invented a new and useful Improvement in Fan-Blowers; and I do hereby declare that the following is a full, clear, and exact description of the same, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a vertical section of a fan-blower constructed according to my invention, the plan of section being taken transversely to the blower-shaft. Fig. 2 is a sectional end view of the same. Fig. 3 is a side elevation.

Similar letters of reference in the three views indicate corresponding parts.

This invention relates to a fan-blower in which the air is taken on the periphery and discharged on the periphery, in contradistinction to the ordinary fan-blower, in which the air is taken in the center and discharged on the periphery.

The improvement relates, also, to the form and construction of the case and of the fans, the case being made with an annular cylindrical channel extending all round its periphery, and with a contraction which occupies the space between the annular channel and the central part of said case, and the wings being constructed in such a shape that they fit the annular cylindrical space and the contraction, and all the air admitted to the case is forced out. The supply and discharge openings are situated at right angles toward each other, and the spider, which forms the bearing for the outer end of the blower-shaft beyond the pulley, which serves to impart motion to the blower, is provided with slots, so that it is adjustable according to the direction in which the driving-belt runs.

A represents the case of my fan-blower, which is provided with a supply-opening, *a*, and a discharge-opening, *b*, both being tangential to said case, so that the air is taken on the periphery and discharged on the periphery. These openings communicate with an annular cylindrical channel, *c*, which extends all round the case, as shown in Figs. 1 and 3. The transverse section of this channel may be circular, as shown, or it may be made elliptical, or in any other desirable form or shape, although the circular form is the most convenient in practice. The space inside this annular channel is occupied by a contraction, *d*, giving the case a form, as shown particularly in Fig. 2, and the fans *e* of the blower B are made to fit the interior of the case, so that all the air, or nearly so, admitted thereto is also forced out, very little being allowed to leak past the fans. The blower is mounted on a shaft, C, which has its bearings in two spiders, D D′, secured to the outside of the case, and to which motion is imparted by a belt running over a pulley, *f*, which is keyed on the shaft between one of the spiders, D′, and the case, as shown in Fig. 2. In order to bring the arms in such a position that they do not interfere with the belt running over the pulley *f*, I have made said spider adjustable by means of slots *g*, through which the screws *h* pass, which secure the same to the side of the case; or, instead of these slots, any other suitable means might be employed to obtain the desired object. In some localities the driving-belt runs up in a perpendicular line, and in others out on one or on the other side of the case in different inclinations, and by making the spider adjustable I am able to accommodate its arms under all circumstances to the direction of the belt, so that they do not interfere with each other.

The great advantage of my fan-blower is derived from the manner in which it takes and discharges the air. The air on passing into the case at the periphery is propelled by each fan as the same passes the supply-opening, and, being prevented by the centrifugal force from passing toward the center of the case, it (the air) is driven out through the discharge-opening, and very little, if any, air beyond that due to the atmospheric pressure is carried round by the fans between the discharge and supply openings or through the arc *j*, Fig. 1. For these reasons my fan works by comparatively little power, and it gives a powerful suction, as well as a powerful blast. It must be remarked that the fans of my blower can be cast on or with or otherwise attached to the shaft or to their arms.

It will be perceived that this apparatus, as

herein presented, is not applicable to the flow of liquids, inasmuch as with them a current near the periphery cannot be maintained without the use of gates and guards not requisite in an apparatus adapted to the flow of air.

What I claim as new, and desire to secure by Letters Patent, is—

1. A fan-blower in which the air is taken on the periphery and discharged on the periphery, the two parts being at right angles to the periphery and to each other, substantially in the manner, and for the purposes set forth.

2. As combined and arranged therewith, the case A, with an annular cylindrical channel, *c*, and contraction *d*, in combination with fans *e*, which fit the shape of the case and fill the annular channel and the contraction, substantially as and for the purposes described.

3. Also, in combination therewith, the spider D, adjustable on the case A, substantially as and for the purpose set forth.

W. KENDRICK.

Witnesses:
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