

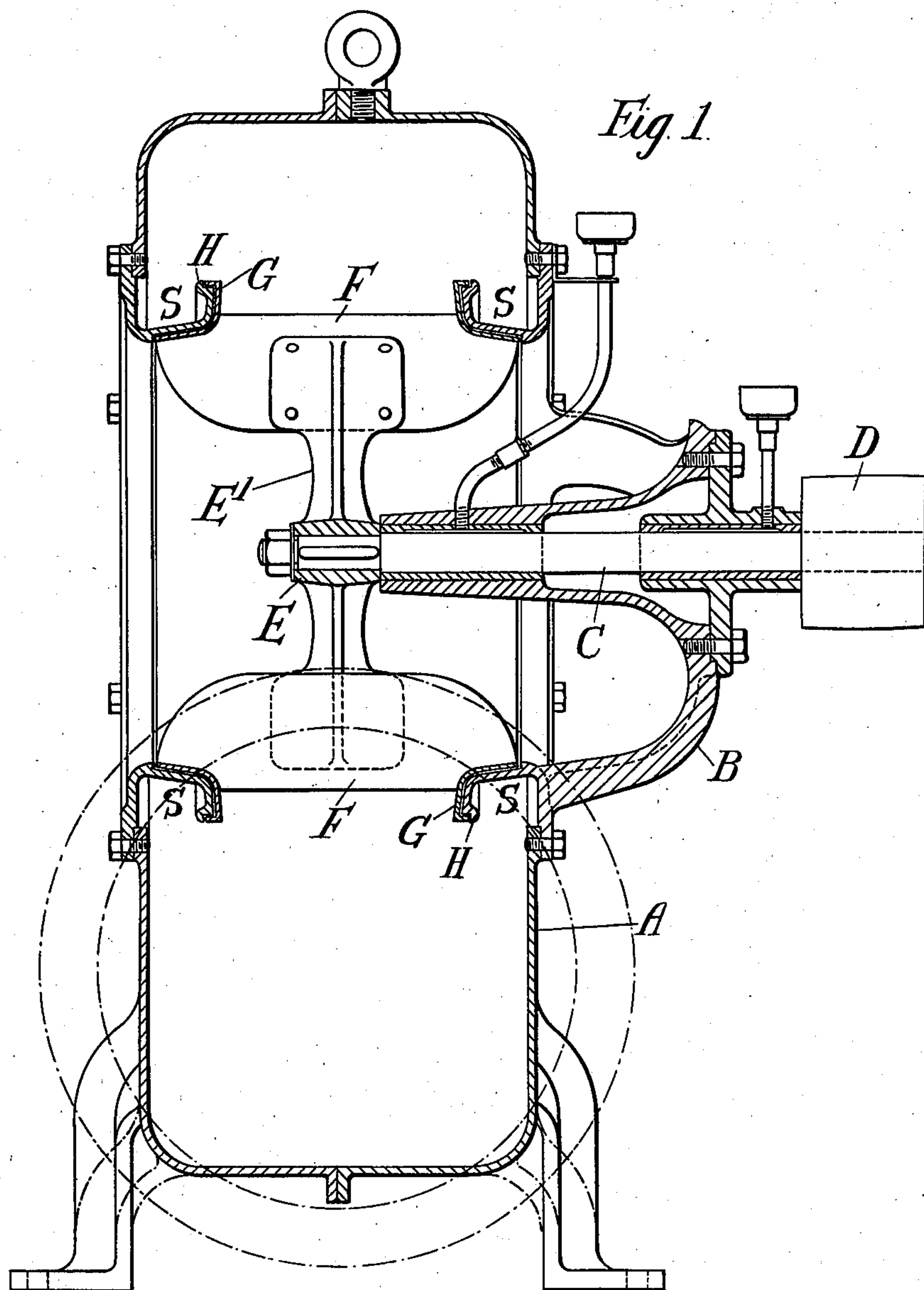
No. 847,585.

PATENTED MAR. 19, 1907.

J. KEITH.
PRESSURE FAN.

APPLICATION FILED JUNE 12, 1906.

3 SHEETS—SHEET 1.



WITNESSES:

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W. H. Berrigan.

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No. 847,585.

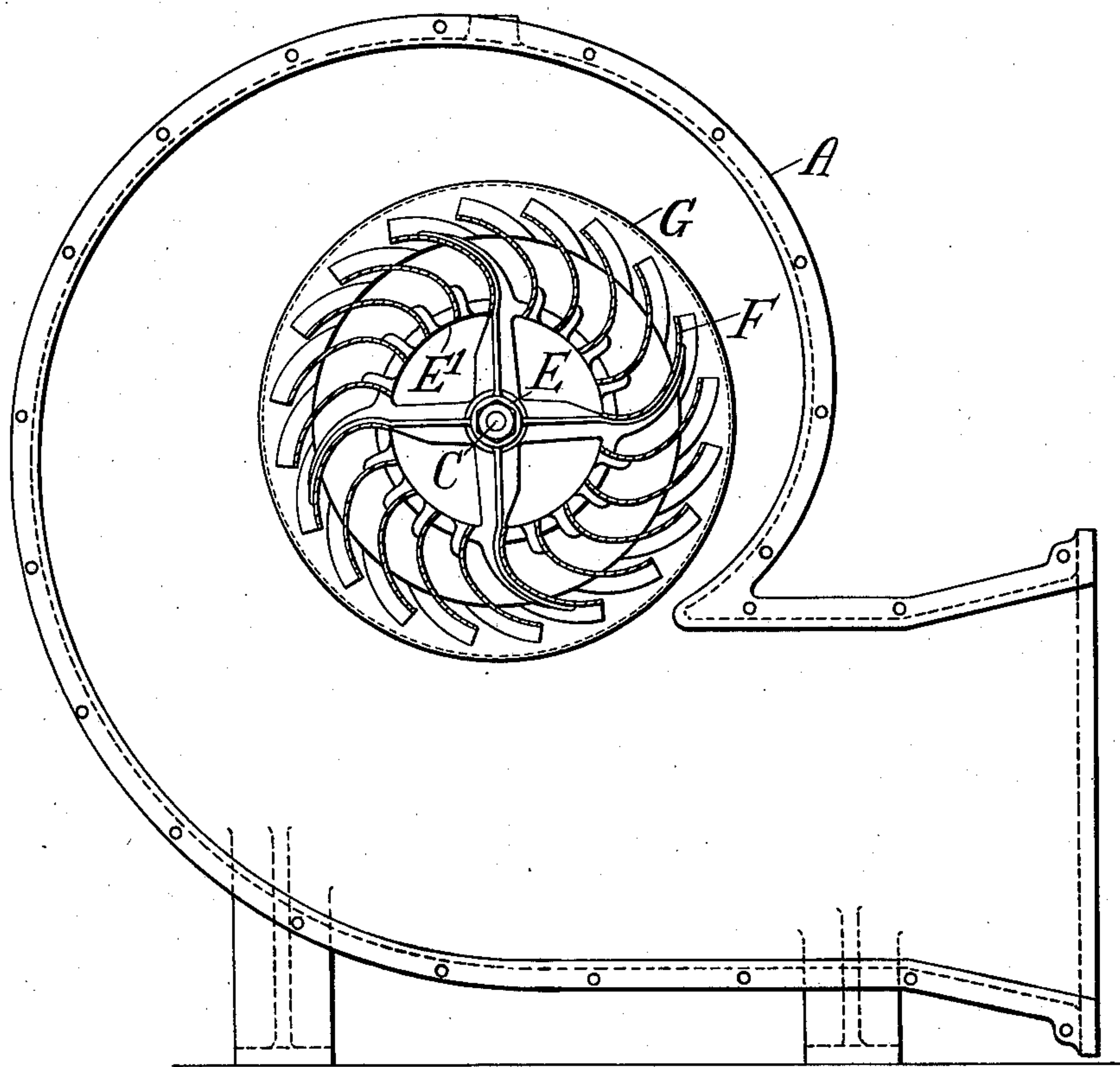
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3 SHEETS—SHEET 2.

Fig 2.



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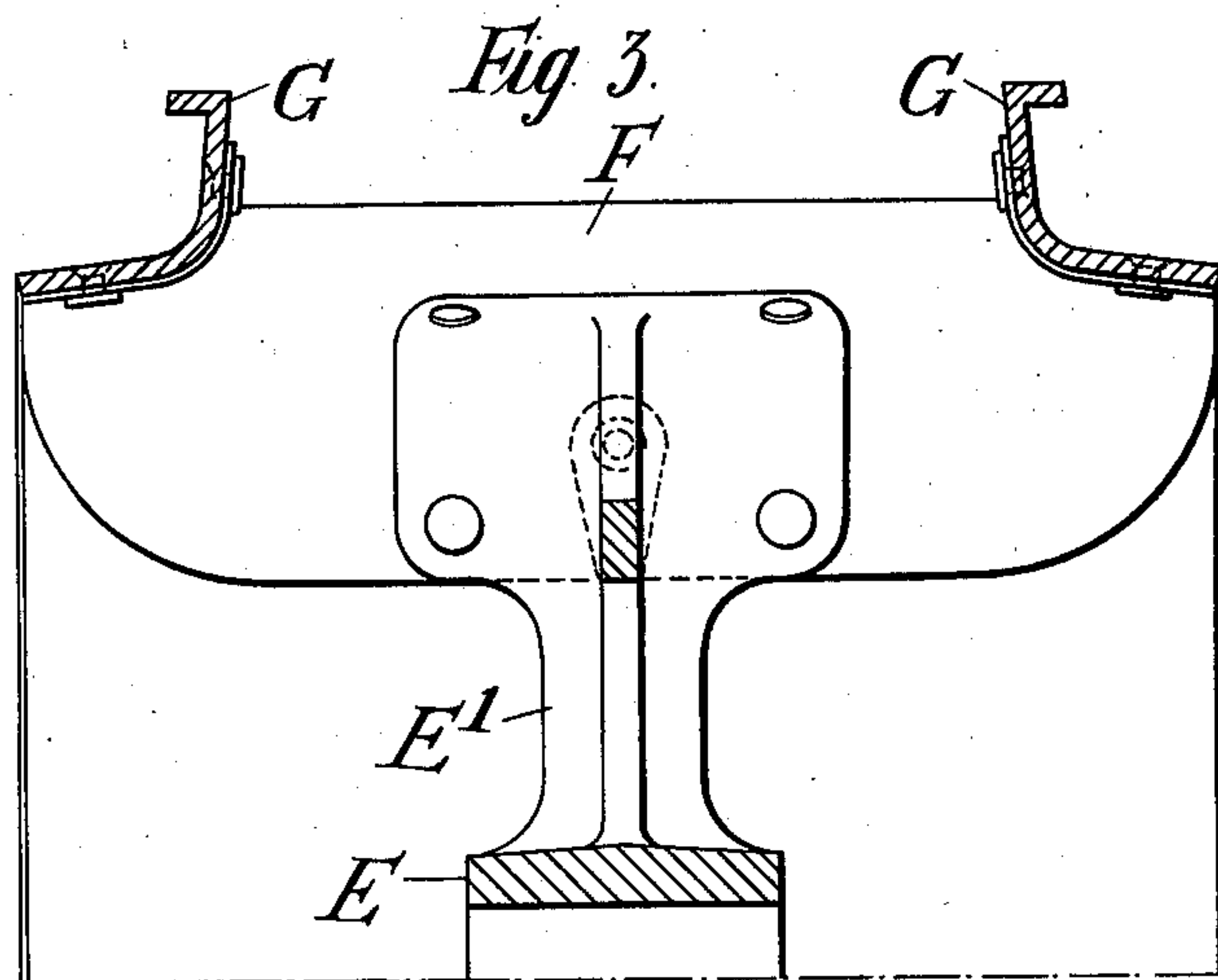
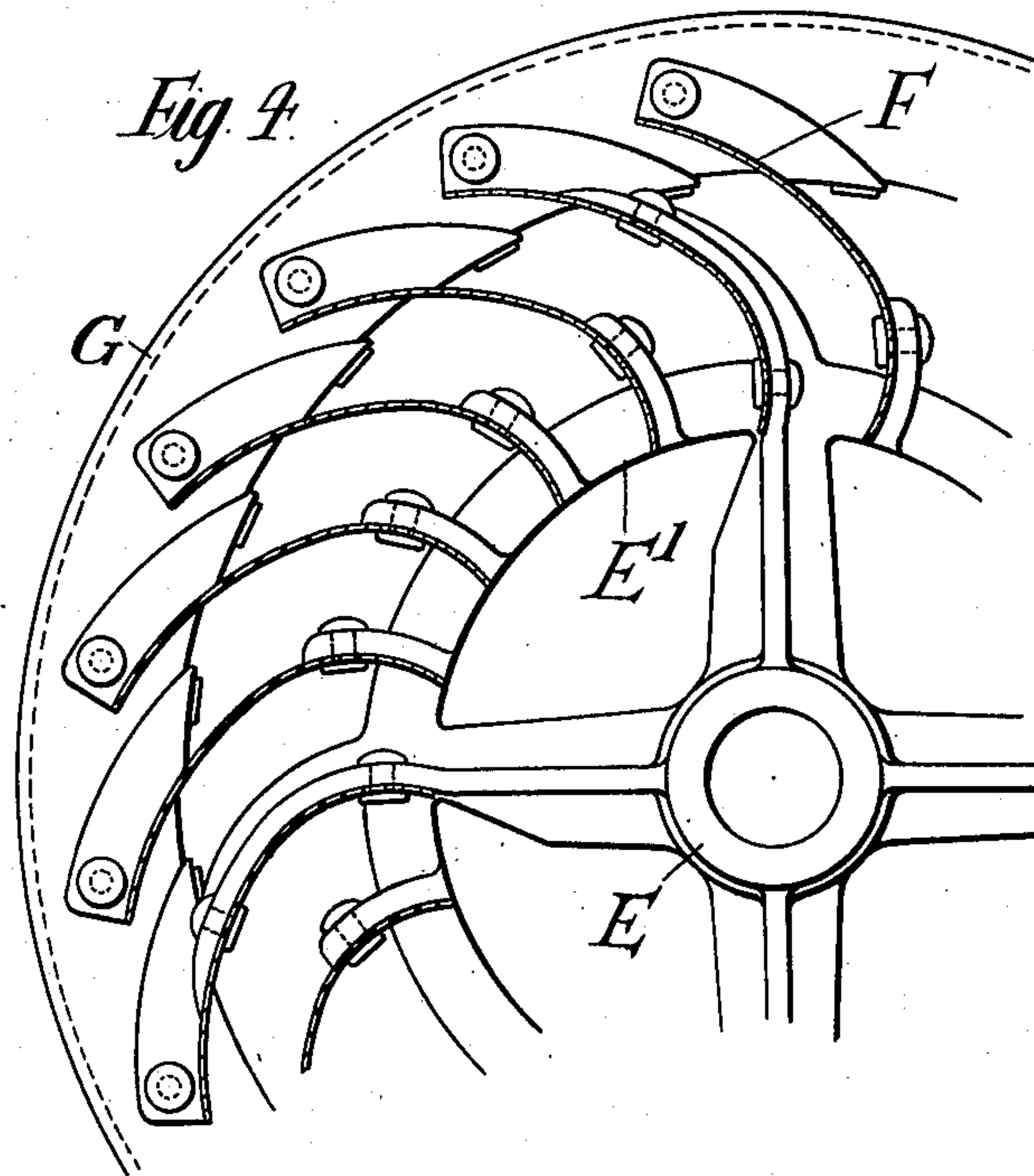
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

JAMES KEITH, OF LONDON, ENGLAND.

PRESSURE-FAN.

No. 847,585.

Specification of Letters Patent.

Patented March 19, 1907.

Application filed June 12, 1906. Serial No. 321,324.

To all whom it may concern:

Be it known that I, JAMES KEITH, a subject of the King of the United Kingdom of Great Britain and Ireland, residing at London, England, have invented certain new and useful Improvements in Pressure-Fans, of which the following is a specification.

This invention relates to pressure-fans of the type in which a large number of small curved blades are secured in paddle-wheel fashion on a rotating shaft and fitted in a casing having a central eye or eyes for the air-inlet and a tangential outlet.

The present improvement consists, primarily, in providing the blades with guard-cheeks or rings at each end and furnishing the fan-casing with corresponding guard-cheeks closely fitting those of the fan to prevent backflow of the air drawn in at the central eyes by the action of the blades which direct the air through the outlet and also in providing means for perfectly balancing the wheel while driving it from one side at high speed.

In the accompanying drawings, which illustrate the invention, Figures 1 and 2 are vertical sections of the improved fan, taken at right angles to each other, Fig. 2 being drawn to a smaller scale, while Figs. 3 and 4 are similar views to Figs. 1 and 2, showing (to a larger scale) the attachment of the blades to the fan-wheel and the guard-cheeks employed.

As therein shown, the fan-casing A is of the usual external contour and has bolted to it a three-armed or other open bracket B, carrying the bearings for a rotating shaft C, which may be driven by a belt-pulley D or by an electromotor or like means. On the end of the shaft is secured centrally of the width of the casing the boss E of a fan-wheel E', to which are secured in a manner shown, particularly at Figs. 3 and 4, a number of curved blades F, extending laterally to an equal distance on each side of the center of the wheel and terminating on each side in

guard-cheeks G, made in the form of rings, binding together the blades and closely fitting into correspondingly-shaped guard-cheeks H, bolted to and extending within and around the fan-casing A, the construction being such as to leave on each side a recess S between the said guard-cheeks H and the internal walls of the case A.

The wheel being run from its center on a long bearing protruding into the fan-casing, it is not liable to oscillate or go off the truth when driven at high speeds, and the guard-cheeks G and H may closely fit into each other, so as to preclude back escape of the air drawn into the central eyes by the action of the blades, which latter are slightly curved inward at the running edges, so as to cut or scoop up the incoming air on each side.

The fan-blades are preferably made of the form illustrated, being suitably proportioned as regards depth and length relative to the inlet-opening to obtain the maximum efficiency. Generally twenty blades should be fitted in the wheel, though the invention is not limited to that number.

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

The improved pressure-fan, comprising, in combination, a fan-casing having central intake-eyes, and a tangential-outlet, and formed with annular guard-cheeks around said eyes, recesses being left between said cheeks and the internal walls of the casing, a blade-wheel formed with cheeks fitting said first-mentioned cheeks, a bracket bolted to the casing, and a shaft having a bearing in said bracket and protruding into said casing and carrying the blade-wheel.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES KEITH.

Witnesses:

WALLACE FAIRWEATHER,
JNO. ARMSTRONG, Junr.