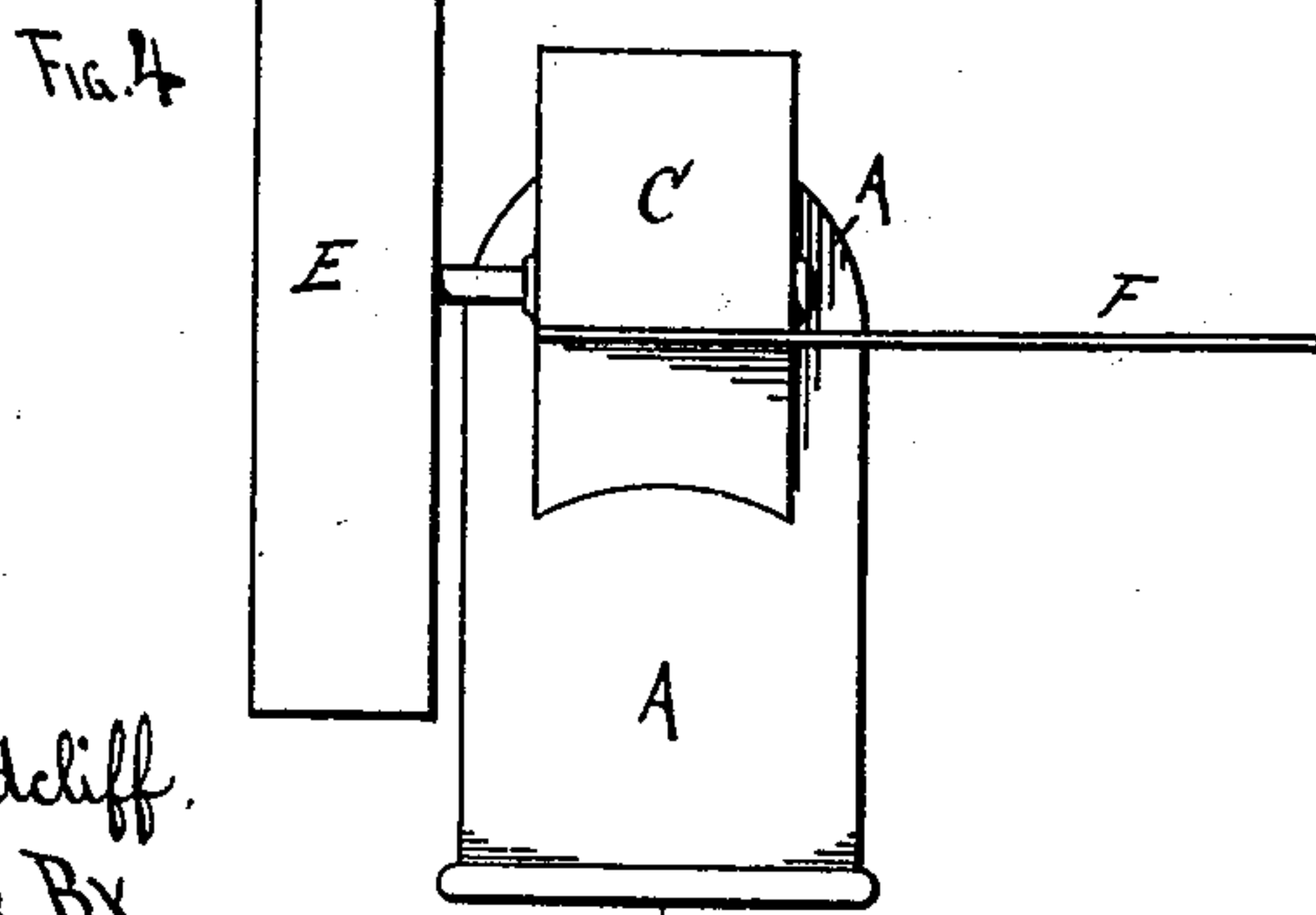
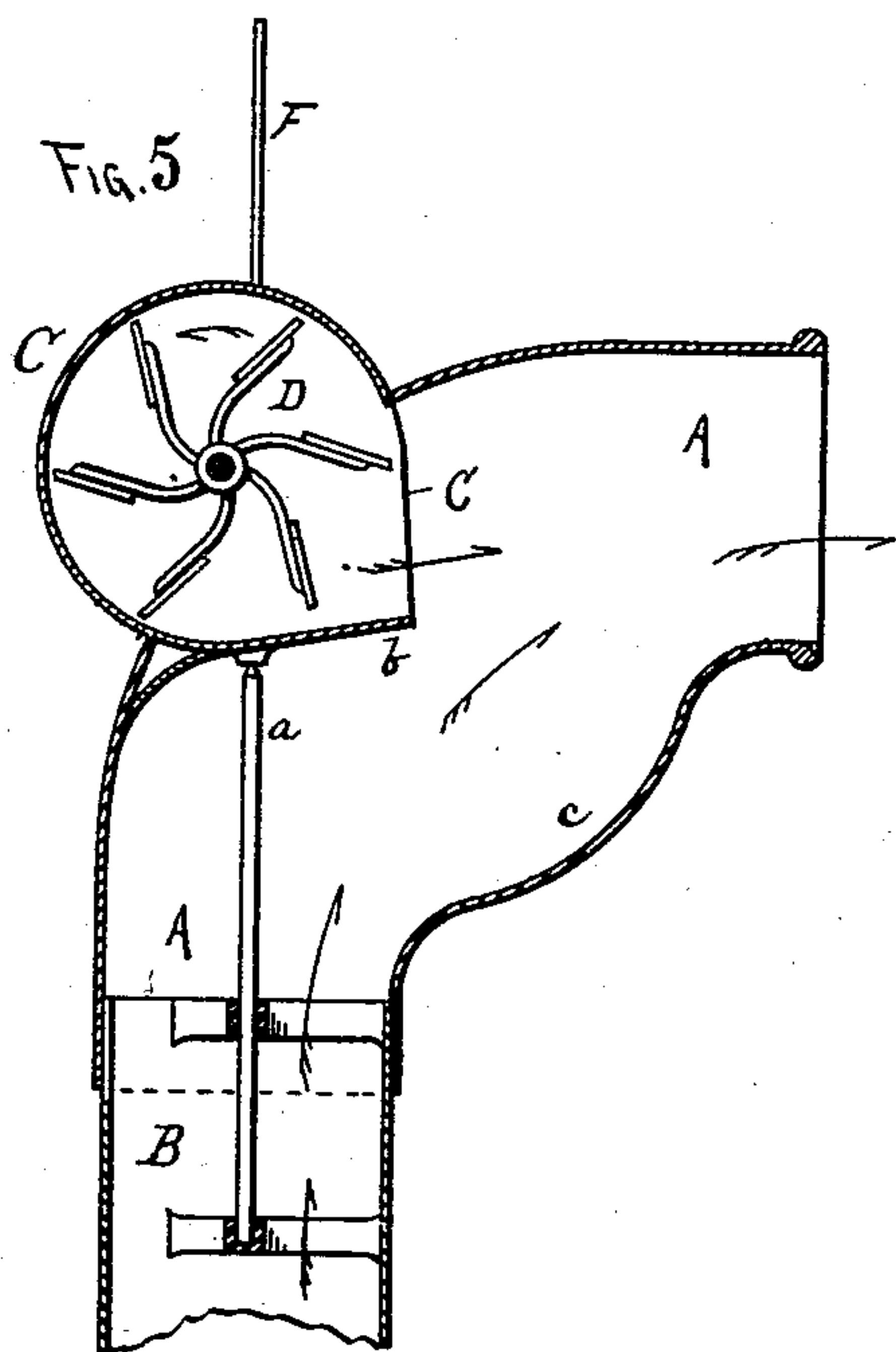
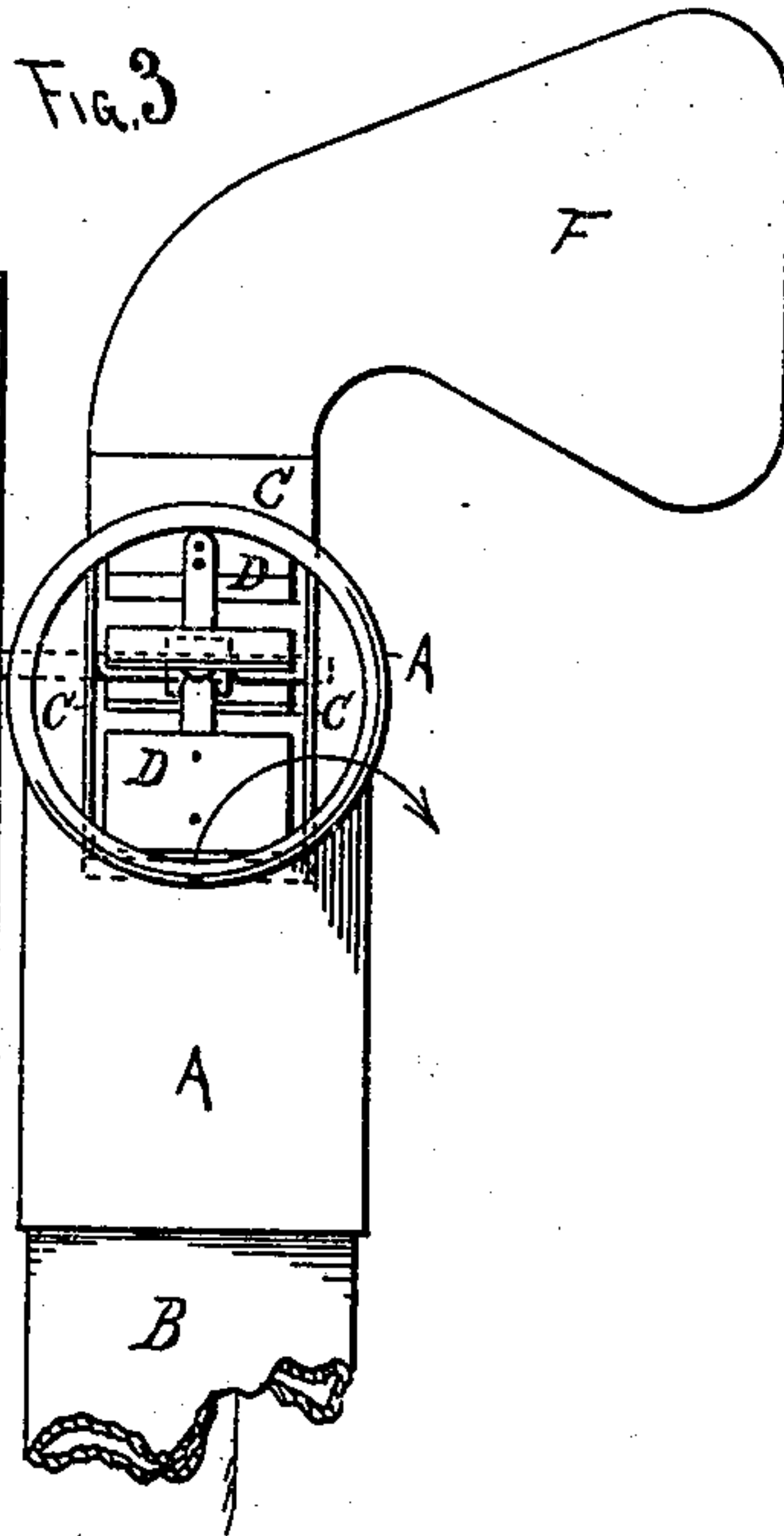
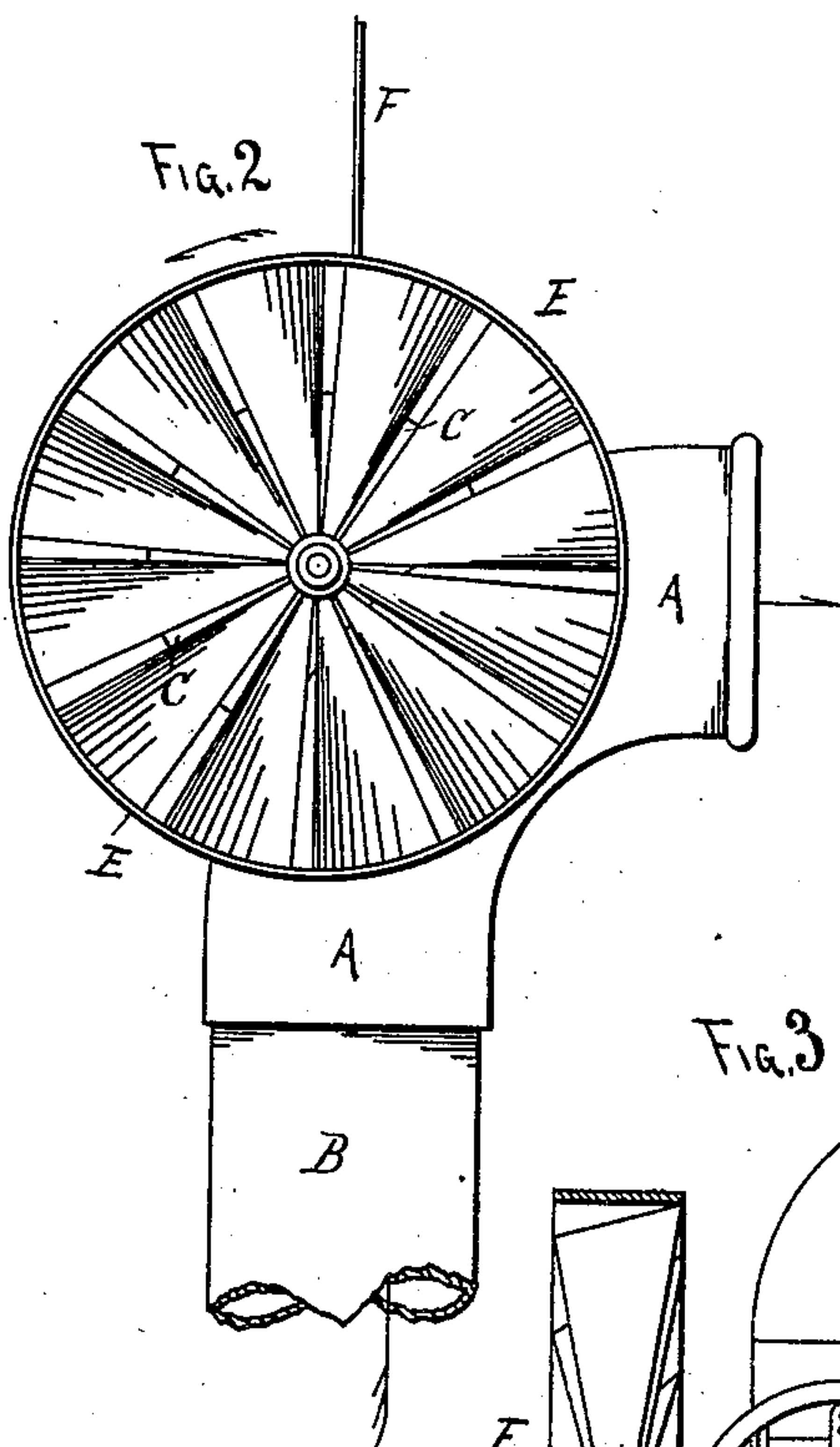
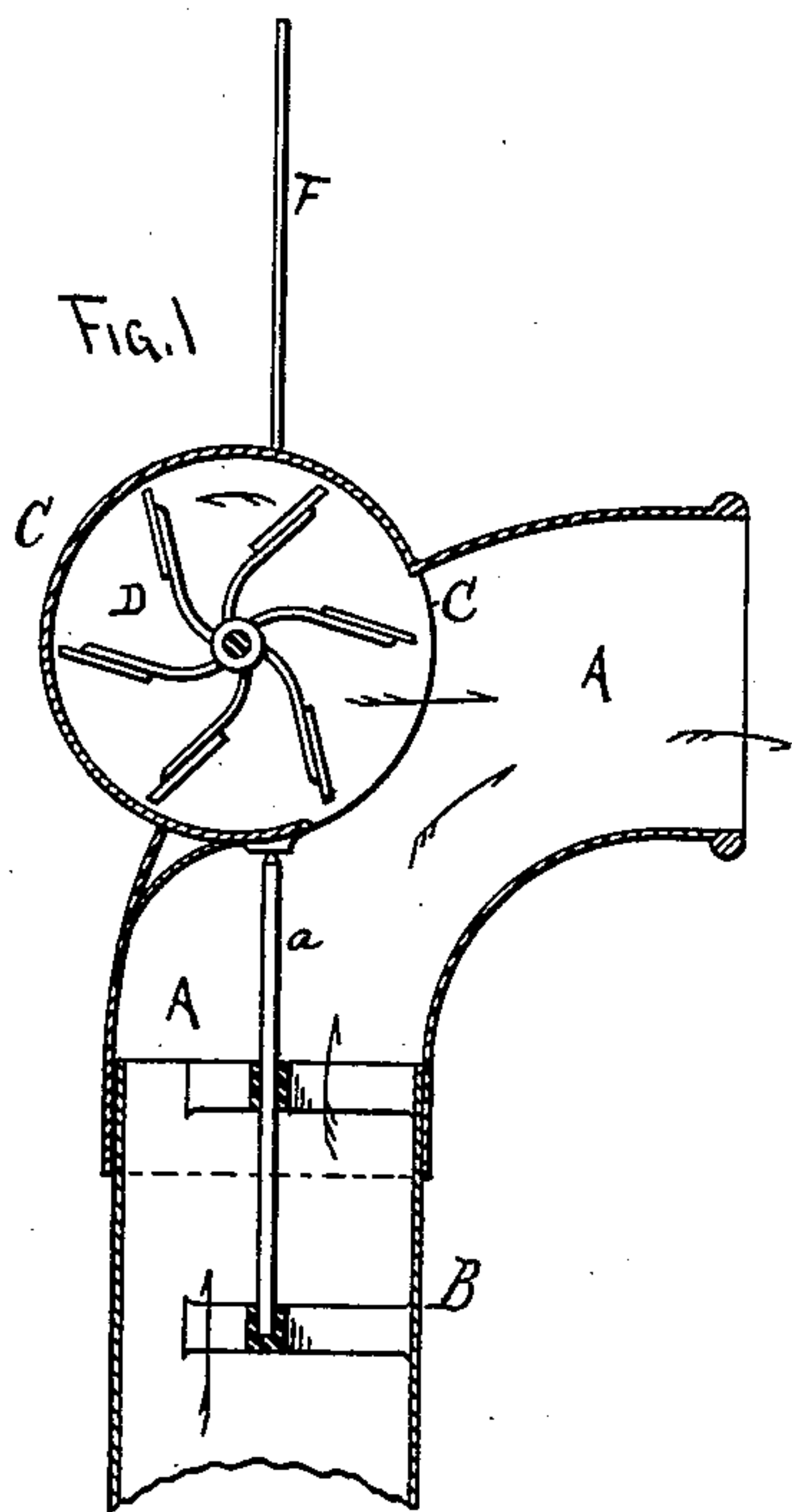


(No Model.)

E. S. RADCLIFF.
SUCTION VENTILATOR.

No. 272,583.

Patented Feb. 20, 1883.



WITNESSES

A. S. Thompson
Louis Fessenden

Edwin Samuel Radcliff.

INVENTOR, BY
Louis Fessenden & Co., Attys.

UNITED STATES PATENT OFFICE.

EDWIN S. RADCLIFF, OF ST. PAUL, MINNESOTA.

SUCTION-VENTILATOR.

SPECIFICATION forming part of Letters Patent No. 272,583, dated February 20, 1883.

Application filed November 13, 1882. (No model.)

To all whom it may concern:

Be it known that I, EDWIN SAMUEL RADCLIFF, a citizen of the United States, and a resident of St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Suction-Ventilators, of which the following specification is a full, clear, and exact description, reference being had to the accompanying drawings, in which—

Figure 1 is a sectional side elevation; Fig. 2, an outside side elevation. Fig. 3 is a front elevation, partially in section; Fig. 4 is a plan view, showing the construction when the ventilator is used to carry off foul gases from sewer-pipes, &c.; and Fig. 5 is a sectional side elevation, showing the construction when the ventilator is applied to an ordinary smoke stack or chimney.

This invention relates to suction-ventilators; and it consists in the construction and the combination of parts hereinafter particularly described, and then sought to be specifically defined by the claims.

The device is intended to be applied to the upper ends of the ventilating-pipes from water-closets and similar places from which foul gases are to be removed, chimneys, and other smoke-flues, &c.; and it consists in an elbow, A, swiveled by a spindle, *a*, upon the pipe or flue B leading from the water-closet or other place from which it is desired to remove the foul gases. Within this elbow A is a circular casing, C, in which a fan-wheel, D, is pivoted, and upon the shaft of the fan, outside the casing C and elbow A, is secured a wind-wheel, E, large enough to rapidly revolve the fan within the casing by the force of the wind outside. A large wing or vane, F, will be attached to the elbow A and casing C on a line at right angles to the wind-wheel E to hold the latter into the wind and insure the operation of the fan. By this means a strong current of air will be drawn up through the flue B, and form a vacuum or suction to remove all the foul gases and force them out through the elbow A, and, when the flue communicates with the room, keep a current of fresh air flowing through the room occupied by the closet or other source of the gases, thereby entirely

preventing the impregnation of the atmosphere with the deleterious gases. The effect when the suction-fan is applied to smoke-flues is the same, causing an increased draft to the fire, and improving the action of the flues and the combustion of the fuel. When gases alone are to be drawn off, the form shown in Figs. 1, 2, 3, and 4 will be used; but where smoke or gases, in which soot or other similar matter is present, are to be drawn off, it will be necessary to form a shield, *b*, beneath the fan D, and enlarge the throat of the elbow A at *c*, as shown in Fig. 5, to prevent the soot and other matter from coming in contact with the fan and clogging it up, the throat *c* affording room for the passage of the smoke.

The form of the elbow A and the manner of applying it to the flues B may be varied to suit different kinds of flues or chimneys, and the relative sizes and forms of the fan D and wind-wheel E may be also altered to any extent to increase or decrease the force of the suction, as desired. If the elbow were made large enough to contain the fan independent of the casing without interfering with the operation of the parts, it would be within the scope of my invention.

Having described my invention and set forth its merits, what I claim is—

1. In a ventilator, the combination of the elbow, the fan inclosed within the elbow back from the mouth thereof, the wind-wheel for operating the fan, and the vane connected with the elbow at an angle to the wind-wheel, substantially as and for the purpose set forth.

2. The combination of the elbow having throat *c* and shield *b*, with the fan for creating a draft through the elbow, the wind-wheel connected to the shaft of the fan, and the vane connected with the elbow at an angle to the wheel, substantially as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

EDWIN SAMUEL RADCLIFF.

Witnesses:

C. N. WOODWARD,
LOUIS FEESER, Sr.