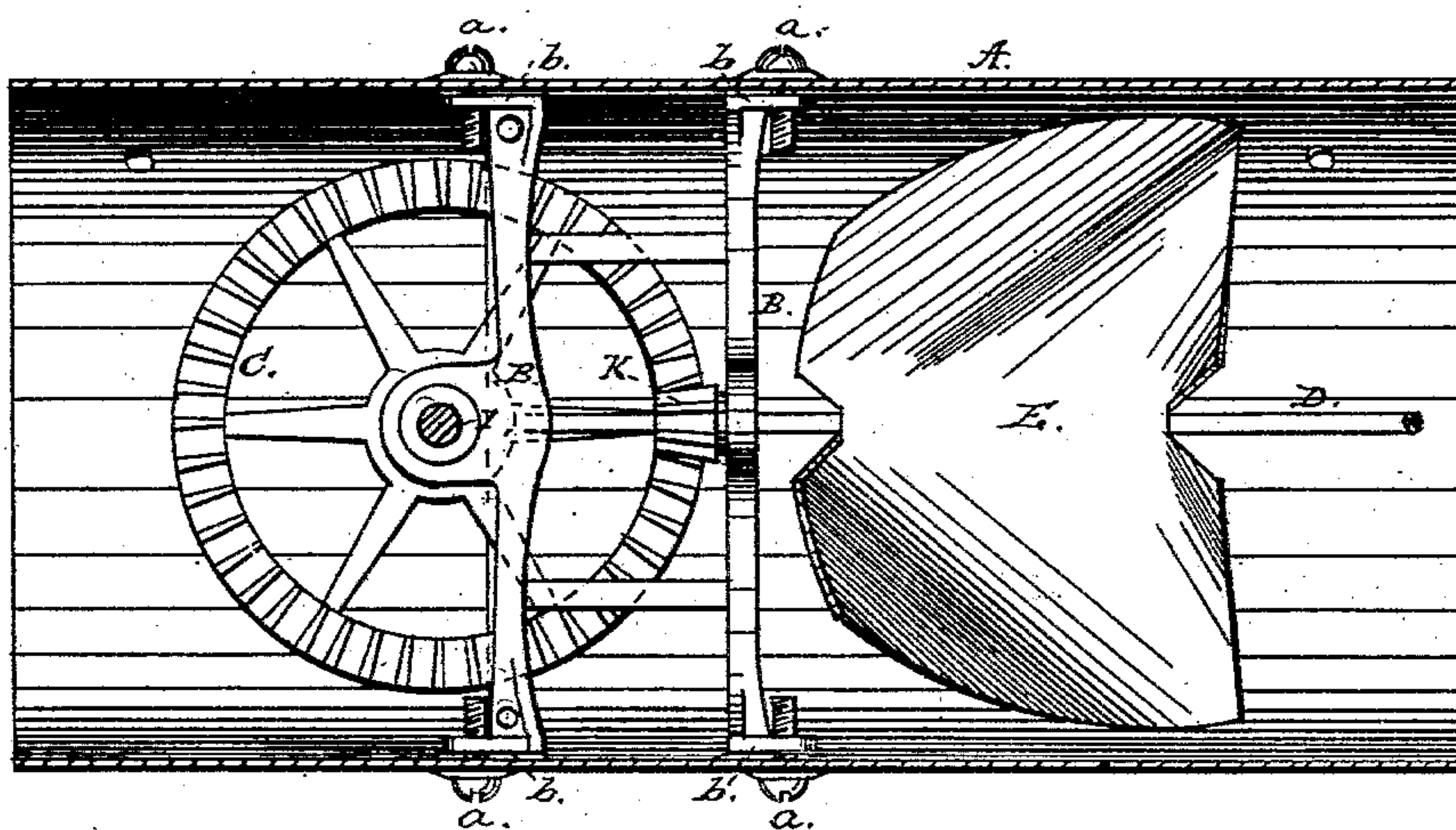


J. B. ANDREWS.  
Artificial Draft Apparatus.

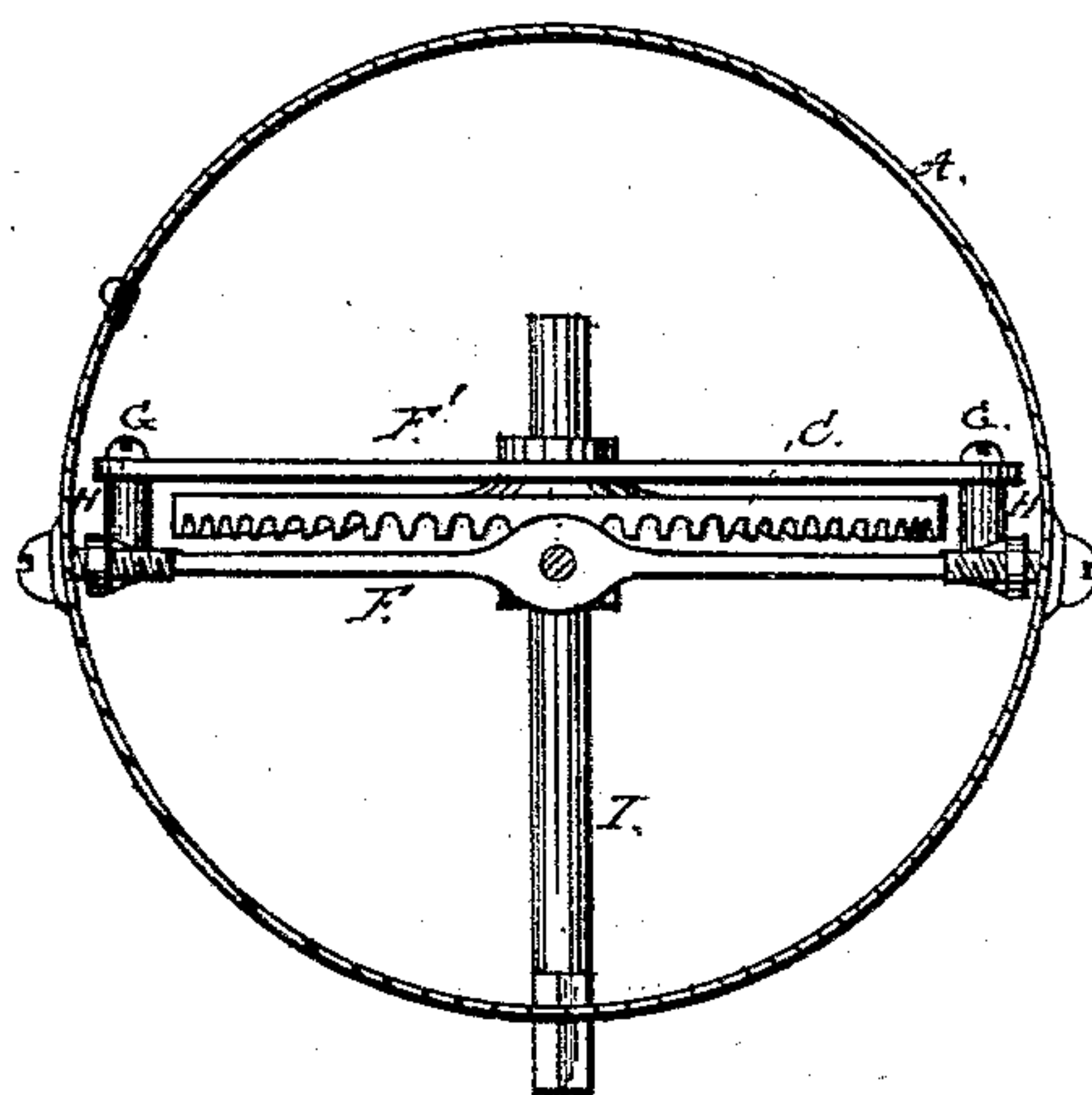
No. 210,740.

Patented Dec. 10, 1878.

*Fig. 1.*



*Fig. 2.*



Witnesses:

F. W. Burnham.  
F. W. Howard

*Inventor:*

J. B. Andrews  
By atty Wm. C. W. Lintire

# UNITED STATES PATENT OFFICE.

JAMES B. ANDREWS, OF NEW YORK, N. Y.

## IMPROVEMENT IN ARTIFICIAL-DRAFT APPARATUS.

Specification forming part of Letters Patent No. **210,740**, dated December 10, 1878; application filed November 18, 1878.

*To all whom it may concern:*

Be it known that I, JAMES B. ANDREWS, of the city of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Artificial-Draft Apparatus; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making a part of this specification.

My invention relates to certain new and useful improvements in artificial-draft apparatus for stoves, &c.; and it has for its object economy and simplicity of construction, and effectiveness in operation; and with these ends in view my invention consists of a suitable fan and rotating or driving device arranged upon and within a portable frame, adapted to be readily secured in position within a straight section of stove-pipe, as will be hereinafter more fully set forth.

In order that those skilled may understand my invention, I will proceed to describe the construction and operation of the same, referring by letters to the accompanying drawing, in which—

Figure 1 shows my improved fan and fan-driving apparatus, in elevation, within a stove-pipe, which is shown in section.

A represents a section of ordinary stove-pipe, within which is secured, by screws or rivets *a*, a light cast-iron frame, having lateral arms B, with cheek-pieces *b*, to receive the securing-screws *a*, and forming horizontal bearings for the shaft of a main driving-gear wheel, C, and vertical bearings for the shaft D of the fan E. That portion of the frame designed to support the shaft of the main driving-gear is made double, as clearly seen at F F', Fig. 2 of the drawings, the bar F' being formed independent of the main frame and bar F, and secured in position with the latter by means of screws G G and sleeves H H. The shaft I of the main driving-gear C ex-

tends horizontally through the pipe A, and is suitably formed at its outer end to receive a crank or other device for turning the same. The vertical fan-shaft D rests at its lower end in a suitable step bearing on the frame, and is provided with a pinion-gear, K, meshing with the gear C. The blades of the fan E are so curved and arranged that the rotation of the same will cause a draft toward the chimney.

It will be observed that the turning of the shaft I will cause a very rapid rotation of the shaft D and fan E; and it will also be seen that the several parts of the fan and fan-driving apparatus are very readily made and put together, and that the whole device may be very quickly and substantially secured in position within any ordinary stove-pipe.

I am aware that it is not new, broadly, to provide stove-pipes with artificial-draft apparatus, and do not wish to be understood as laying any claim thereto; but

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

1. A cast-iron frame adapted to be secured in position within a stove-pipe, and provided with horizontal and vertical bearings for the shaft of a driving-wheel and the shaft of a fan, substantially as hereinbefore set forth.

2. The frame cast separate from and adapted to receive the independent bar F', to form a double bearing for the driving-shaft, substantially as shown and described.

3. The combination and arrangement, with the pipe A, of the frame, driving-shaft, and gear C, fan E, shaft D, and pinion-gear K, substantially as and for the purposes hereinbefore set forth.

In testimony whereof I have hereunto set my hand this 31st day of October, 1878.

JAMES B. ANDREWS.

In presence of—

THEODORE RITTER,  
GEO. H. RAYMOND.