

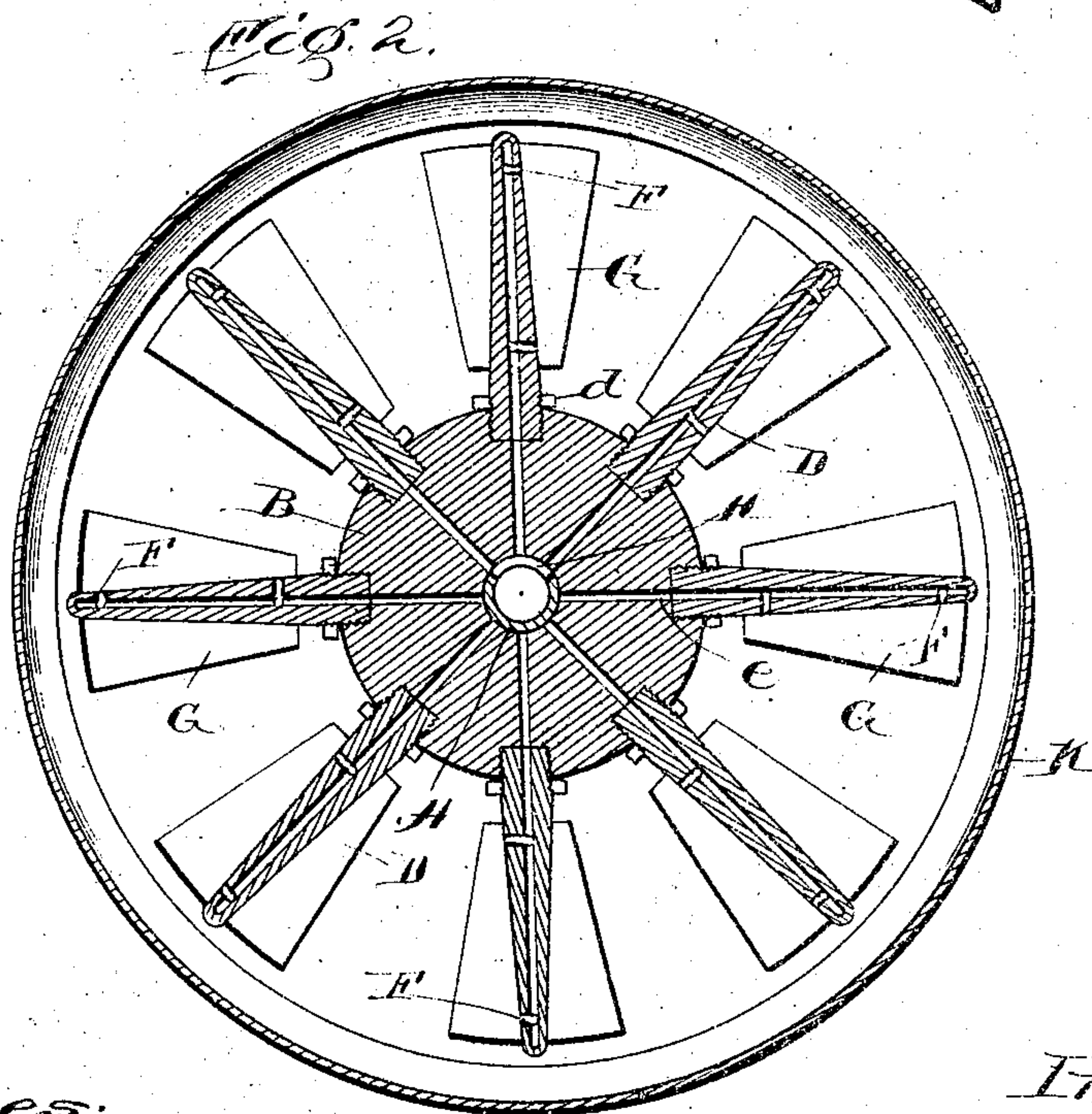
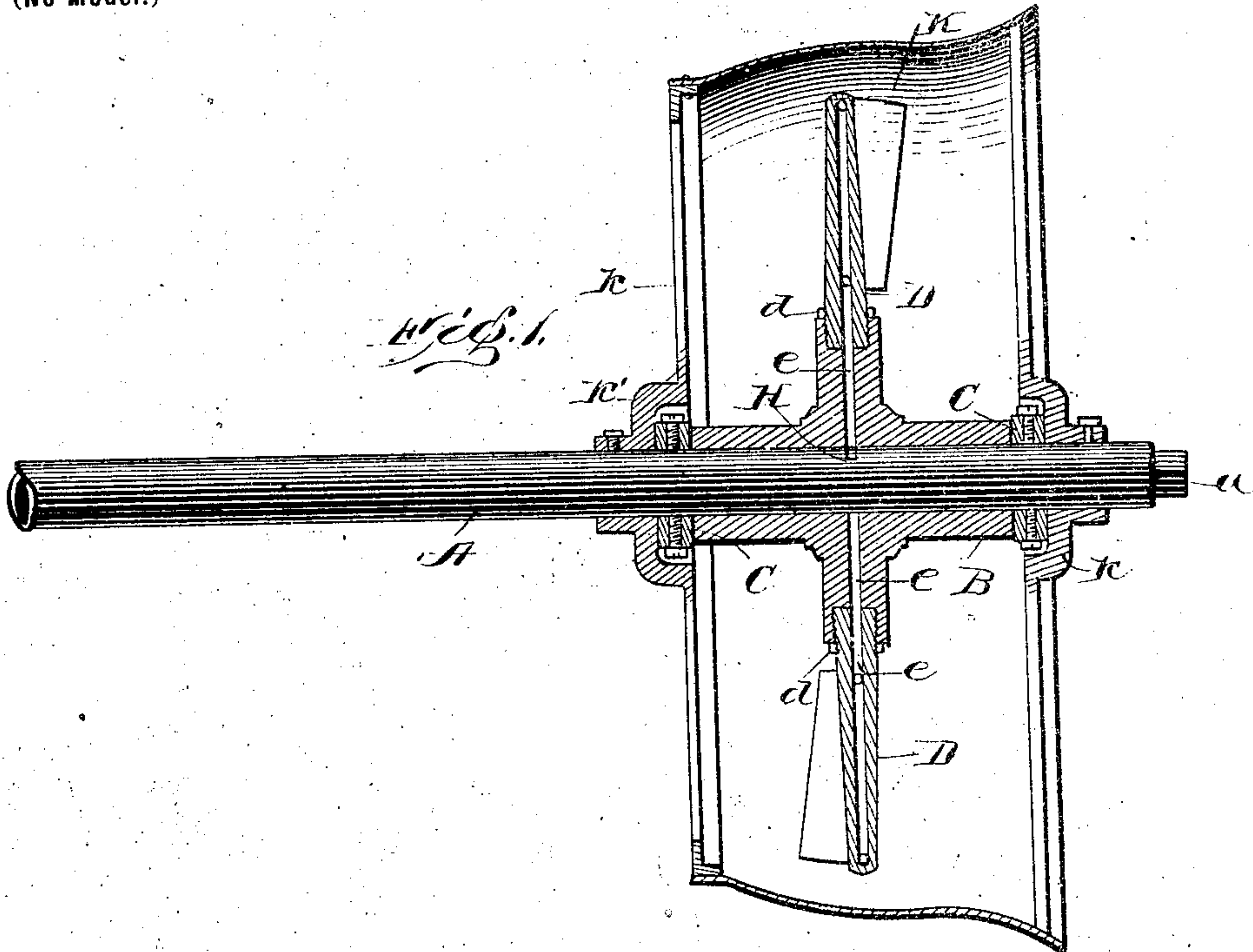
No. 608,377.

Patented Aug. 2, 1898.

N. W. MCINTOSH.
ROTARY BLOWER.

(Application filed Aug. 21, 1897.)

(No Model.)



Witnesses:
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UNITED STATES PATENT OFFICE.

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ROTARY BLOWER.

SPECIFICATION forming part of Letters Patent No. 608,377, dated August 2, 1898..

Application filed August 21, 1897. Serial No. 649,058. (No model.)

To all whom it may concern:

Be it known that I, NEIL W. MCINTOSH, of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Rotary Blowers; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon.

This invention relates to improvements in apparatus for creating a draft of air, and more especially such as are designed for supplying air and moisture to steam-boiler furnaces or furnaces of a like nature; and the invention consists in certain novel features of construction and combinations and arrangements of parts, all as will be now pointed out, and described particularly in the appended claims.

Referring to the accompanying drawings, Figure 1 is a section taken longitudinally through a shaft and blower embodying my present invention. Fig. 2 is a section, taken at right angles to Fig. 1, through the radial arms and vanes of the blower.

Like letters of reference in both figures indicate the same parts.

In carrying my invention into practice I make use of a motor constructed on the principle of what is known as a "reaction-engine," or, in other words, an engine in which the propelling power is obtained by discharging jets of steam or other fluid from radial arms through apertures pointed in the direction contrary to the direction of rotation of the motor. Upon this reactionary motor I mount a series of inclined vanes or paddles of any approved form, which by their rotation drive the air in one direction or the other in accordance with well-known principles, and in order that the action of the motive fluid may not counteract the effect of the vanes in propelling air forwardly the passage of the motive fluid through the discharge-apertures is interrupted or arrested save throughout a small proportion of the circumference of the device.

In said drawings the letter A indicates a tubular shaft or pipe, preferably mounted in fixed supports, so as to be incapable of rotation and connected at one end with a source of pressure-supply, such as a steam-boiler,

and having its opposite end closed by a plug *a* or otherwise. Upon this shaft I journal a relatively long hub B, having radial arms, to be presently described, and preferably held in place by fixed collars C on the shaft. The radial arms are lettered D, each being preferably made tubular and screwing into the hub B in such position that its central aperture will register with corresponding apertures *c* in the hub. The arms D may be held or locked rigidly in position by set-nuts *d*, and each is provided with an aperture or any desired number of apertures F, opening in a backward direction or in a direction contrary to the direction in which it is desired the blower shall rotate. Upon these radial arms D, I also mount inclined vanes or propeller-blades G, the said blades being preferably located on the front side of the arms or in such position that the discharge of the steam or motive fluid shall take place behind them.

In the upper side of the shaft A and in position to register with the passages *e* I form a port or slot H, the length of which determines the number of radial arms which shall take steam or into which the motive fluid shall flow at any one time. Thus in the structure shown, as the hub rotates, the passages *e* are successively brought into registry with the port, and the port is of such length that but three arms are in registry at any one time, the remaining arms during the balance of their rotation being allowed to exhaust or discharge their confined steam without opposing the passage of the air through the propeller or blower.

Obviously the length of the port H may be varied without departing from the spirit of my invention; but I prefer that it should be of sufficient length only to supply the radial arms with motive fluid throughout a small proportion of their revolution, say one-quarter.

If desired, a hood or annular guard, such as K, may be employed to inclose the blower and direct the blast to any desired point, and where the shaft A is a fixed shaft this hood may be supported by radial arms, such as *k*, secured to the shaft by a hub *k'* or other well-known structure.

Where the blower is used for the purpose of supplying air to a furnace, it will be seen that the steam, which in this instance should

form the motive fluid, at once supplies moisture and obviates the necessity of employing a special means to moisten the air, more especially as the steam discharged through the radial arms after having lost its force is caught by the vanes and carried on with the air and thoroughly commingled therewith.

Having thus described my invention, what I claim as new is—

1. In a blower, the combination with the tubular shaft held against rotation and having an exit-port at one side thereof, of a hub journaled on said shaft and inclosing the exit-port, a series of radial propelling-vanes mounted on said hub and passages having rearward discharges arranged longitudinally of said arms and passing through the hub into position to register with the port in the tubular shaft when brought into line therewith by the rotation of the hub, whereby the

discharge through each of the radial passages in the vanes is limited to a portion of the revolution of the hub; substantially as described.

2. In a blower the combination with the fixed shaft, hub mounted thereon, motive-fluid passages through said shaft and hub with means for cutting off the supply of motive fluid on one side of the shaft, of radial arms mounted in said hub and having passages registering with the passages in the hub and backwardly direct the discharge-openings and propeller vanes or blades mounted on said radial arms in front of the discharge-openings; substantially as described.

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