(No Model.) 2 Sheets—Sheet 1.

L. J. & J. T. HOPE.

VENTILATING MOTOR.

No. 347,709. Patented Aug. 17, 1886.

Fig. 1.

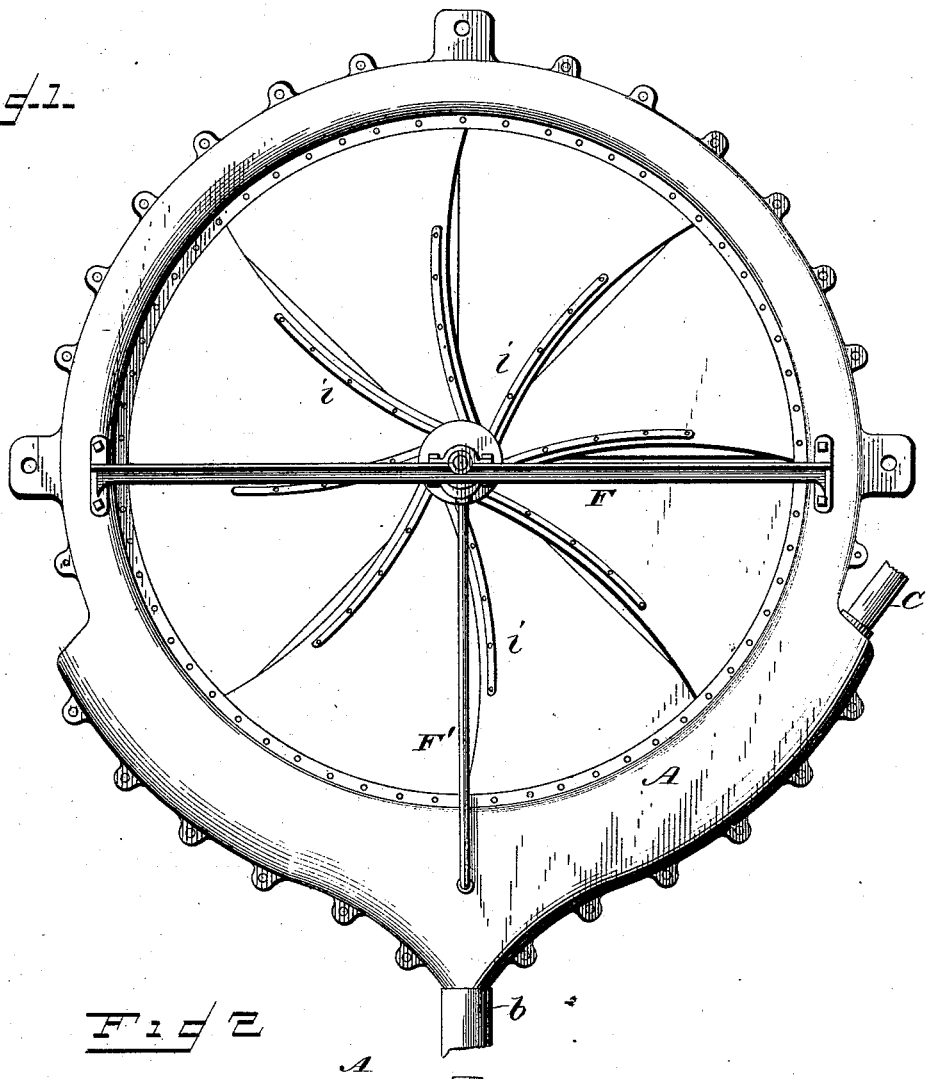
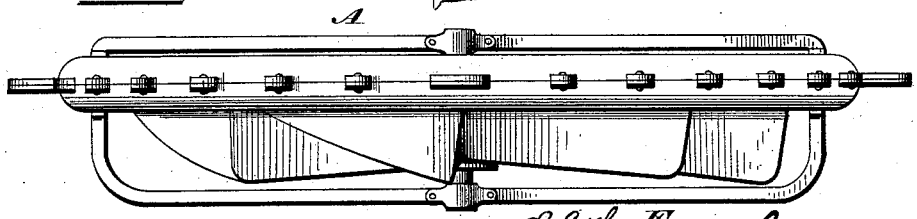


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

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VENTILATING MOTOR.

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Fig. 3.

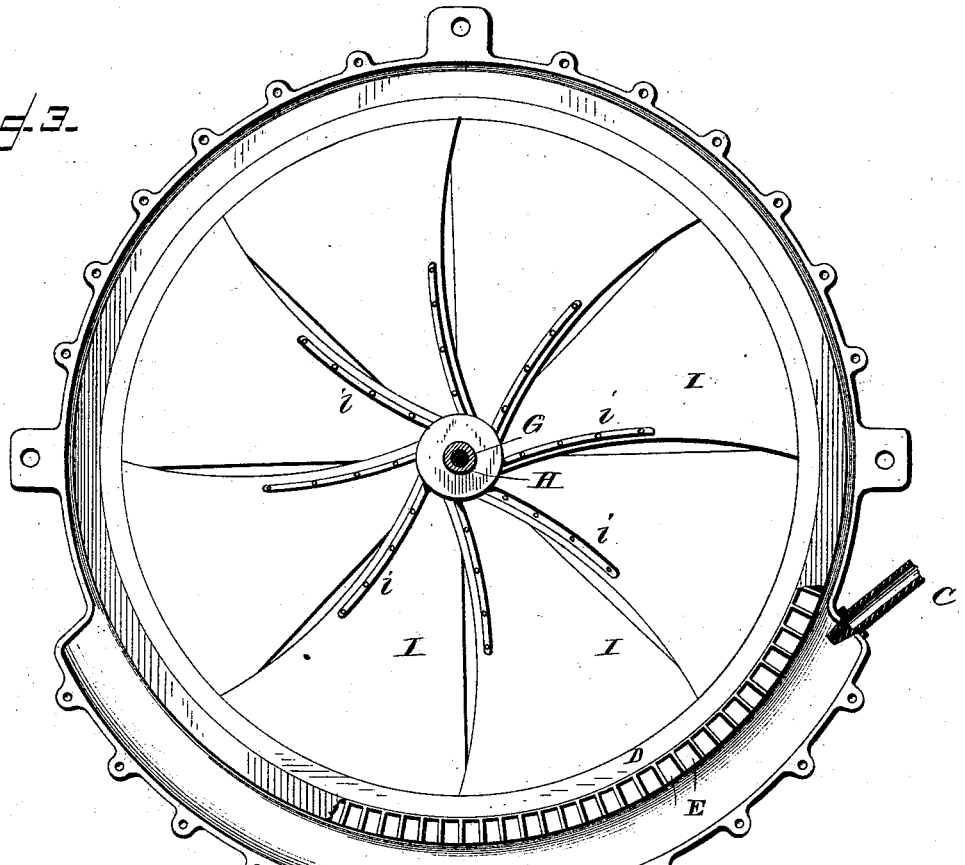
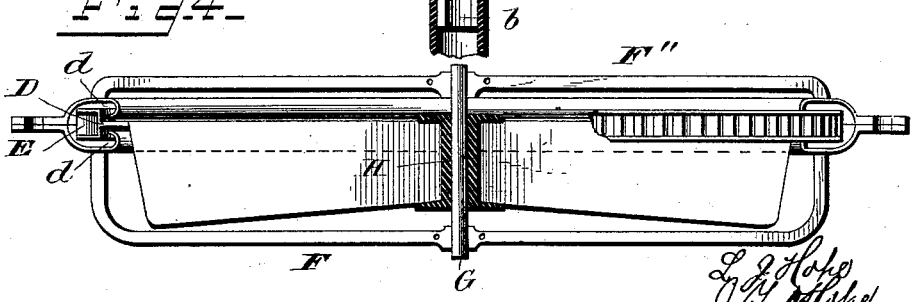


Fig. 4.



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UNITED STATES PATENT OFFICE.

LUKE J. HOPE AND JOHN T. HOPE, OF KANSAS CITY, MISSOURI.

VENTILATING-MOTOR.

SPECIFICATION forming part of Letters Patent No. 347,709, dated August 17, 1886.

Application filed February 19, 1886. Serial No. 192,507. (No model.)

To all whom it may concern:

Be it known that we, LUKE J. HOPE and JOHN T. HOPE, citizens of the United States of America, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Ventilating-Motors; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Our invention relates to certain new and useful improvements in ventilating-motors or rotary fans; and it consists more especially in the construction and combination of the parts as will be hereinafter fully set forth, and specifically pointed out in the claims, whereby a jet either of compressed air, steam, or water will be caused to impinge upon the buckets of a wheel so as to rotate the same, the inner side of said wheel having attached thereto blades, so that when the wheel is rotated a draft or current from one side of the wheel will be induced.

In the accompanying drawings, which illustrate our invention, Figure 1 is a side view of a ventilating-motor constructed in accordance with our invention. Fig. 2 is a plan view. Fig. 3 is a side view partly in section, and Fig. 4 is a transverse sectional view.

A and A′ refer to the casings, which are provided at their upper sides with radiating lugs, which are perforated for the reception of bolts for holding the same to each other. These casings A and A′ are enlarged near their base, so as to form a pocket, B, the lower portions of said sections depending so as to form an exit spout, *b*. At one side of the pocket B is attached a spout, C, through which the water or other propelling medium will flow and impinge upon the buckets of the wheel. It will be here noted that the casings A and A′ are identical in construction, so that but a single pattern will be needed for casting both sides, and the perforation in which the nozzle C is located may be made after the parts are fitted to each other.

Above the pocket B the casings A and A′ are provided with inwardly-turned edges, as shown at *d*, which lie adjacent to the inner periphery and sides of the flange or rim D, to which the buckets E are attached, thus providing at the upper sides of the casing troughs, which will convey any liquid which may be carried upward by the buckets to the pocket B. The outwardly-bent portions will also prevent any water escaping from the space in which the wheel rotates.

The casing A has attached thereto, at about its central portion, a transverse flanged bar, F, which is further supported by a hollow bar, F′, which extends from the central portion thereof to the inner side of the pocket B, said bar serving not only as a brace, but also serves to carry any surplus oil from the bearings to the pocket. The end of the bars F and F′ are bent at their ends, so as to stand a considerable distance away from the casing, as shown in Figs. 2 and 4, and to the central part thereof one end of the shaft G is journaled. The opposite end of the shaft bears in a similar journal, which is supported by a transverse bar, F″. To the shaft G is rigidly attached a hub, H, which carries a series of fan-blades, I I, which are placed at similar angles to each other, the edge of said fans being secured to the flange D, to which the buckets E are secured. The fans or vanes I are suitably braced to the hub by a bar, *i*, and they set at equal angles with each other, the outer edges projecting, as shown in the accompanying drawings.

The device hereinbefore described may be attached to a suitable support, and pressure from a boiler may be conveyed by suitable connection to the nozzle C, so as to impinge upon the buckets and cause the rotation of the vanes, so as to create a current of air through the opening between the vanes, thus adapting the device to be used as a ventilator. This device may be applied with advantage to an opening near the upper part of a room or compartment, and when propelled at a high rate of speed will cause a draft, so as to convey the impure air out of said compartment.

The device hereinbefore described is simple in construction and is not liable to get out of order, as all the parts are securely attached to each other, and by the construction of the casings there can be no leakage; and after the water impinges upon the buckets of the wheels

it is carried off through the opening *b* in the lower end of the pocket.

We are aware that prior to our invention it has been proposed to provide a rotary fan with a wheel against which a jet of steam or water will impinge for rotating said fan, and that it has also been proposed to drive rotary blowers in a similar manner, and therefore we make no broad claim to such invention; but

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

1. In a ventilating-motor for the purpose set forth, the casings A and A′, provided at their lower portions with a pocket having an exit-opening and at their upper portions with inwardly-turned edges, in combination with a flanged wheel carrying buckets, said wheel being attached to the vanes, substantially as shown, and for the purpose set forth.

2. In a ventilating-motor, a frame or casting, A and A′, provided at their upper portions with inwardly-bent edges *d*, transverse bars attached to said castings and provided with journals for a shaft, G, said shaft carrying vanes I, said vanes being attached to a flange, D, carrying buckets E, the parts being organized substantially as shown.

In testimony whereof we affix our signatures in presence of two witnesses.

LUKE J. HOPE.
JOHN T. HOPE.

Witnesses:
GEO. W. HOLLINGER,
A. R. LYON.