

(No Model.)

J. HAMILTON.
ROTARY BLOWER.

No. 479,642.

Patented July 26, 1892.

Fig. 2.

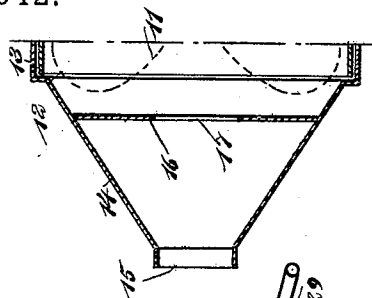


Fig. 1.

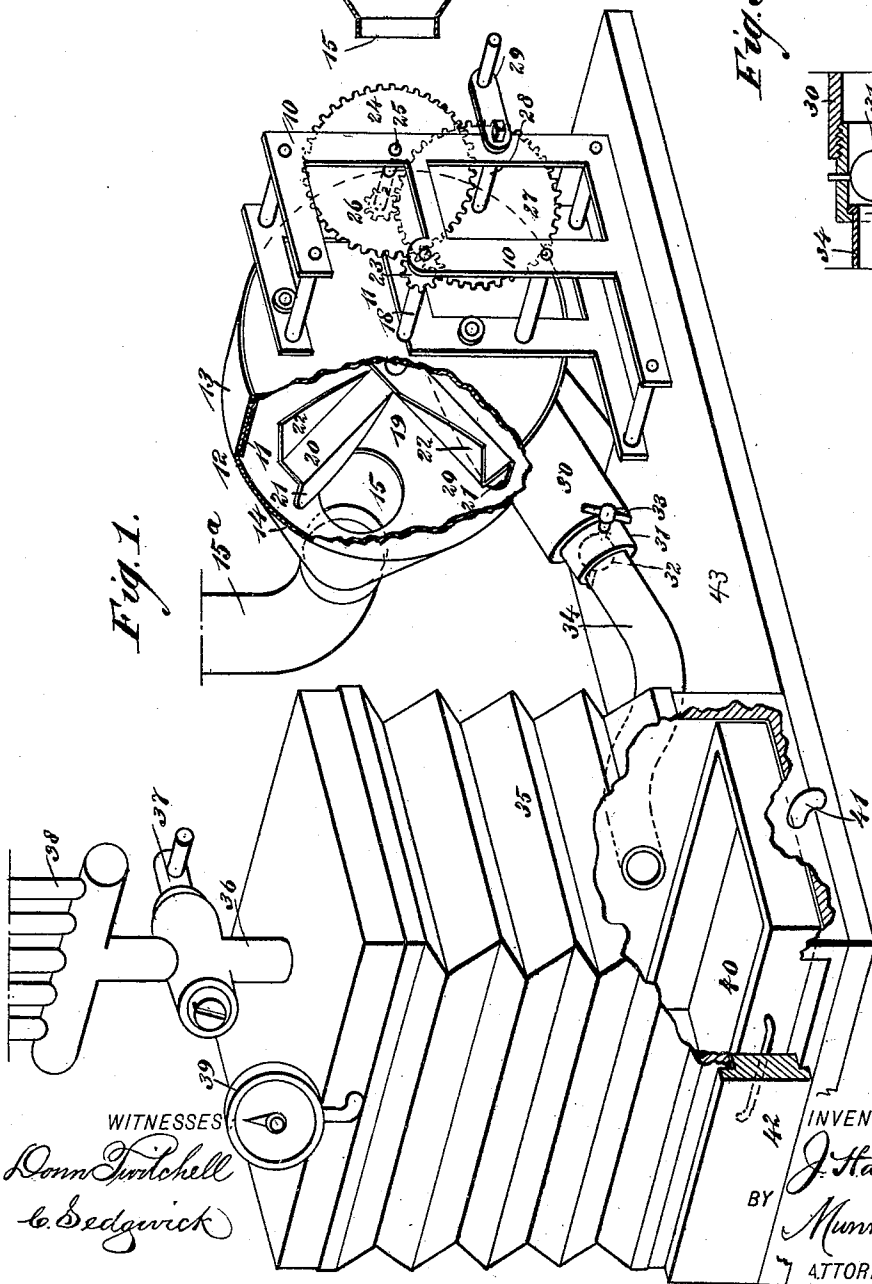
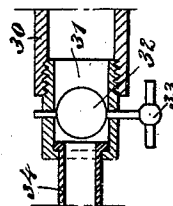


Fig. 3.



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ROTARY BLOWER.

SPECIFICATION forming part of Letters Patent No. 479,642, dated July 26, 1892.

Application filed December 21, 1891. Serial No. 415,758. (No model.)

To all whom it may concern:

Be it known that I, JOHN HAMILTON, of St. John, in the Province of New Brunswick and Dominion of Canada, have invented a new and Improved Ventilating and Cooling Apparatus, of which the following is a full, clear, and exact description.

My invention relates to improvements in an apparatus for ventilating and cooling buildings; and the objects of my invention are to produce a simple apparatus which may be made to thoroughly ventilate and cool any number of rooms in a building, which may also be used advantageously for ventilating and cooling rooms either close at hand or at some little distance from the apparatus, and which may also be used for dusting or cleaning cars or other rooms, as the air may be delivered to any required place under pressure. To these ends the invention consists in certain features of construction and combinations of parts, which will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a broken perspective view, partly in section, of the apparatus embodying my invention. Fig. 2 is a broken detail cross-section of the fan-casing; and Fig. 3 is a detail sectional view of the connection between the fan and the air-receiver, showing also the cut-off valve for regulating the flow of air to the receiver.

To a suitable framework 10 is fixed one part 11 of the fan-casing 12, the fixed part being essentially cylindrical in shape and having an open inner end, and the outer portion of the casing has a cylindrical part 13, which overlaps the part 11, and has a tapering outer portion 14, which terminates in an inlet-pipe 15, to which a hose 15^a may be attached and extended upward, so that air may be taken from an elevation to insure its purity. This construction of the fan-casing makes it telescopic and adapts it to be enlarged or diminished in cubical capacity, as required, to enlarge or diminish the air-space around the fan. By such adjustment of one part of the casing relative to the other the quantity, or volume of air

upon which the fan acts may be regulated at will and the force of the blast will correspond. Extending transversely within the tapering portion of the casing is a partition 16, which serves as a brace and which has an air-opening 17 produced centrally therein.

A driving-shaft 18 is mounted in the frame 10 and projects into the casing 12, the shaft being provided with a fan 19, comprising a series of blades, each of which has a middle portion 20, which is on nearly the same plane as the axis of rotation and which is provided at one edge with an outwardly-extending rounding flange 21 and at the other edge with an inwardly-extending flange 22. In other words, each fan-blade is composed of three parts or sections, two of which are in different but parallel radial planes, the other being at right angles to them and arranged intermediately. I have demonstrated by practical experiment that fan-blades thus constructed are much stronger and more rigid than those of the usual flat form and that the fan is more steady and effective. The shaft 18 is provided with a pinion 23, which meshes with a gear-wheel 24 on the shaft 25, mounted on the frame 10, parallel with the shaft 18, and the shaft 25 has a pinion 26, meshing with a gear-wheel 27 on the shaft 28, which latter shaft is revolved by a crank 29, but may be revolved by a pulley and a suitable driving-belt.

The gear mechanism described is adapted to transmit a rapid rotary movement to the shaft 18 and fan 19; but it will be understood that any suitable form of driving-gear may be substituted for that shown.

The casing 12 has on one side, near the bottom, an outlet 30, in the free end of which is screwed a nipple 31, and in this nipple is a cut-off valve 32, which is provided with a suitable handle 33, and by means of which the flow of air from the casing may be regulated. A pipe 34 leads from the nipple 31 into a receiver or reservoir 35, which receiver is preferably built after the manner of a bellows, so that it may expand as air is forced into it. The receiver 35 has an outlet-pipe 36 opening from the upper part thereof, and this pipe is controlled by a common form of valve 37 and connects with ventilating-pipes 38, which may lead off to any desired room or rooms, and the

air forced from the receiver may thus be liberated wherever desired, so as to provide for good ventilation and for cooling the room or rooms in which it is liberated, the cooling effect being produced as described below.

The receiver 35 is provided with a pressure-gage 39, substantially like the ordinary steam-gage, the object of the gage being to indicate the pressure in the receiver, and when there is sufficient pressure the fan may be stopped for awhile or the cut-off valve 32 may be shut off.

In the bottom of the receiver 35 is an ice-box 40, which is adapted to carry quantities of ice, and this box is arranged adjacent to the pipe 34, so that the air which enters the receiver will pass over the ice and be cooled. This ice-box is provided with a suitable outlet drain-pipe 41, leading through the wall of the receiver, and in the front of the receiver, near the bottom, is a removable slide 42, which provides for the insertion and removal of the ice-box.

The operation of the apparatus is as follows: The rapid rotation of the fan 19 causes air to be forced into the receiver 35, and it also causes the air to be compressed, and the air is cooled by passing over the ice, as described. By means of the valve 37 and the pipes 38 the desired quantities of air may be carried to any locality, and the air will produce a cool temperature by reason of its passing over the ice, and the cooling effect will also be increased by the expansion of air after it is liberated from the receiver. The air may also be conducted from the receiver

through flexible pipes, so as to be used for dusting purposes.

A further use of the apparatus is that the pipes 38, instead of connecting with rooms to be cooled and ventilated, may be connected with ordinary ice-boxes or refrigerators and the cold air used as a substitute for ice to keep said receptacles cold.

By reference to the drawings it will be seen that the entire apparatus is mounted on a common base 43, and it is consequently portable and may be easily set up wherever it is to be used.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a ventilating apparatus, the combination, with the fan adapted to rotate, of a casing having an air inlet and outlet and composed of two separable and adjustable parts, one being adapted to slide within the other, as shown and described, whereby the casing is adapted to be enlarged or contracted in size, as specified.

2. In a ventilating apparatus, the rotary fan having blades constructed of three parts or sections, two being in different radial planes and the intermediate one being parallel to the plane of rotation and permanently attached to the others at its opposite edges, as shown and described.

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Witnesses:

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