

E. HAMILTON.

VENTILATOR.

APPLICATION FILED JUNE 30, 1911.

1,069,129.

Patented Aug. 5, 1913.

2 SHEETS—SHEET 1.

Fig. 1.

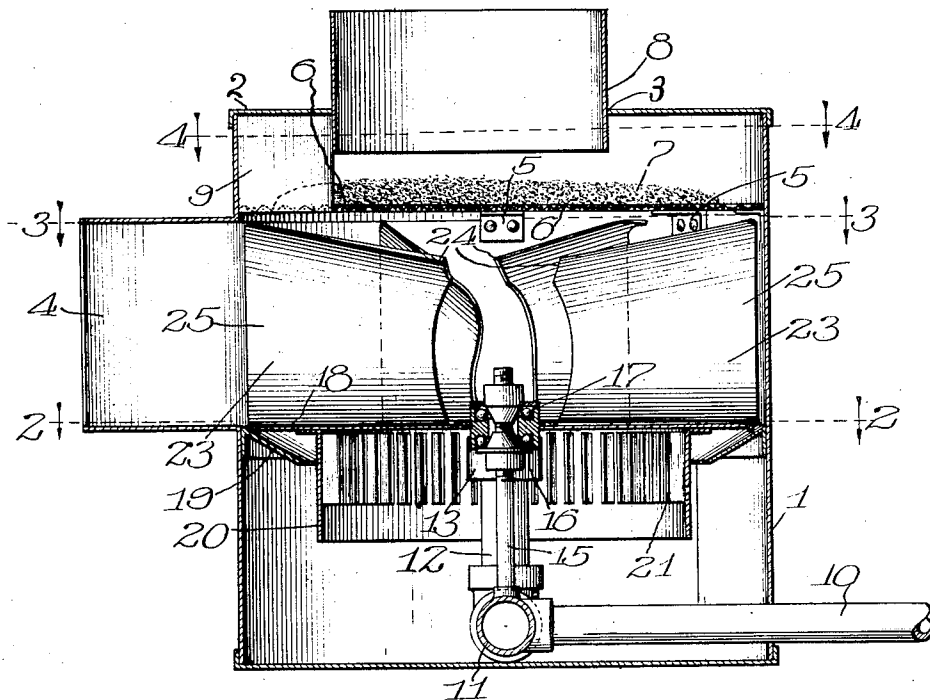
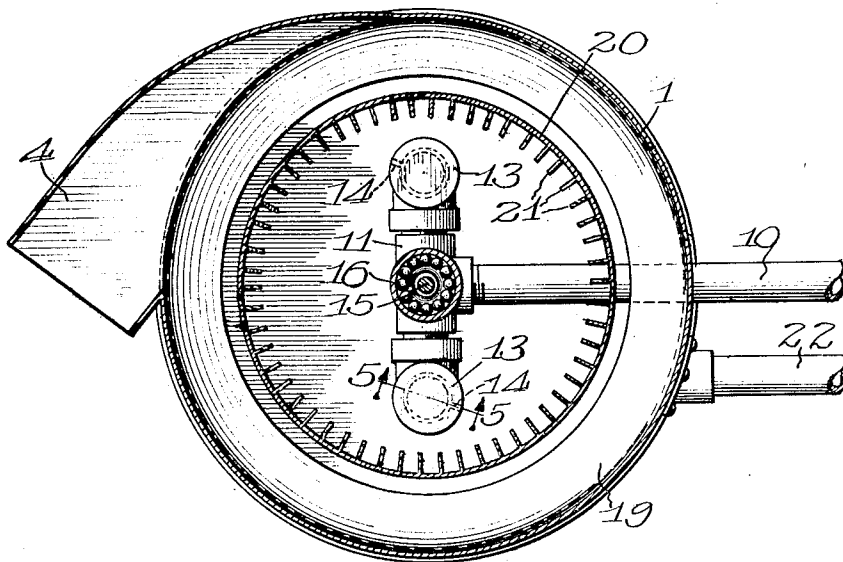


Fig. 2.



Witnesses:

G. W. Tomarus, Jr.,
Geo. D. Perry

Inventor:

Erastus Hamilton

By: W. W. Withensbury,

Att'y.

Fig. 3.

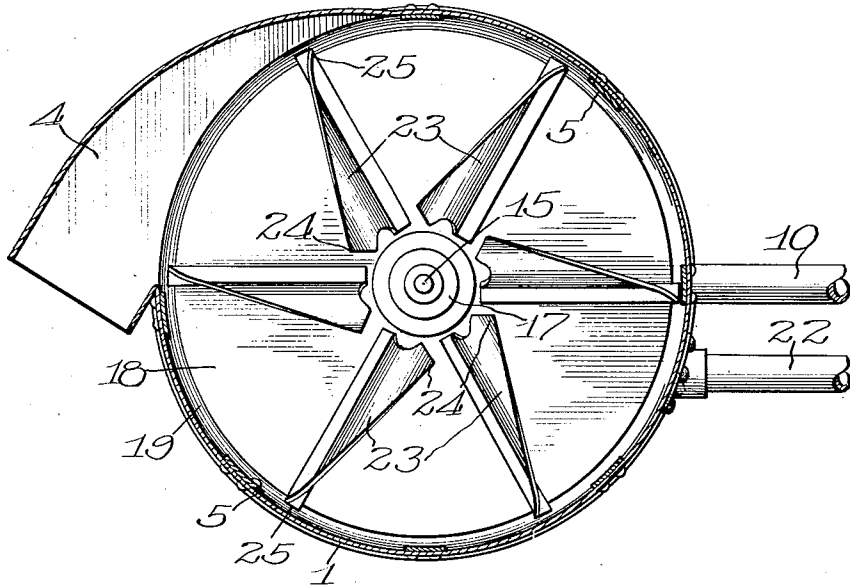


Fig. 4.

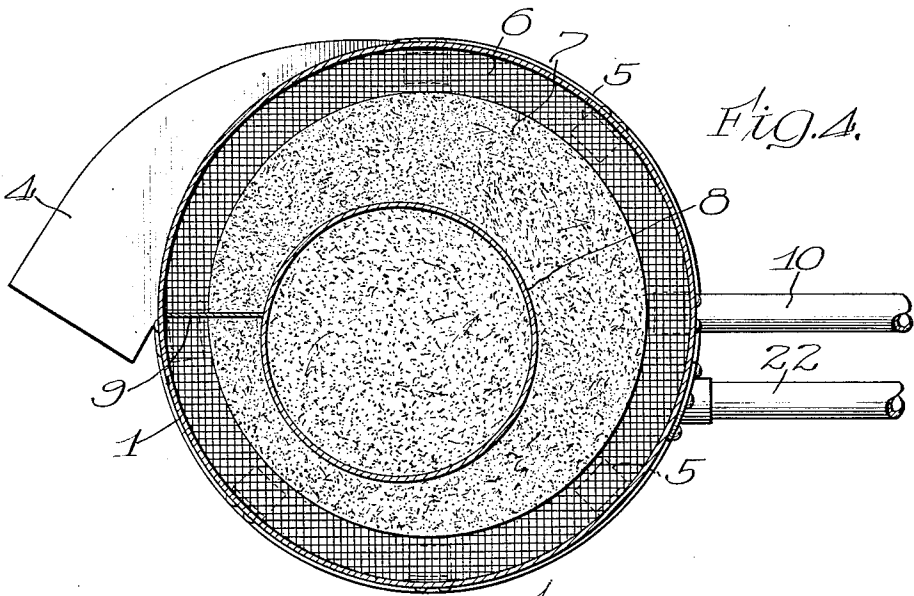
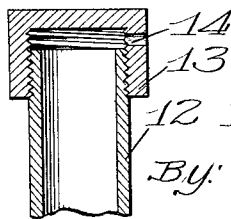


Fig. 5.



Witnesses:
 G. W. DeMarus Jr.
 J. A. P. Perry

Inventor:
 Erastus Hamilton
 By: W. W. Withenbury
 Atty

UNITED STATES PATENT OFFICE.

ERASTUS HAMILTON, OF CHICAGO, ILLINOIS.

VENTILATOR.

1,069,129.

Specification of Letters Patent.

Patented Aug. 5, 1913.

Application filed June 30, 1911. Serial No. 636,200.

To all whom it may concern:

Be it known that I, ERASTUS HAMILTON, a citizen of the United States, and residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Ventilators, of which the following is a complete specification.

The main objects of this invention are to provide an improved ventilator adapted for use in rooms in private dwellings, hotels, public halls, public conveyances, etc., where the air is liable to become fouled by the presence of large numbers of people; to provide a ventilator adapted to keep the air in good circulation; to provide a ventilator adapted to perfume or disinfect the air of the room or compartment being ventilated; to provide a ventilator adapted to be operated by water power, and in which the water comes in contact with the air or fan chamber and acts to cool the air; and to provide a very strong and durable ventilator of light weight adapted to be noiseless in its operation.

A specific embodiment of the invention is illustrated in the accompanying drawings, in which:

Figure 1 is a vertical, central section of a ventilator embodied in this invention. Fig. 2 is a section taken on line 2—2 of Fig. 1. Fig. 3 is a section taken on line 3—3 of Fig. 1. Fig. 4 is a section taken on line 4—4 of Fig. 1. Fig. 5 is a section taken on line 5—5 of Fig. 2.

In the construction shown, the receptacle 1, which may be constructed of sheet metal or of any other desired material, is preferably cylindrical in form, and the top or cover 2, which is rigidly secured thereon, is provided with an aperture 3 which is out of axial alinement with the body of the receptacle.

At one side of the receptacle, and opening tangentially therefrom, is the air outlet spout 4 from which the air is delivered from the ventilator to the room being ventilated. Said spout is preferably nearer to the top of the receptacle than to the bottom thereof, and opens from the side of the receptacle near to the aperture 3.

Supported on brackets 5 on the inner side of the receptacle, and just above the spout 4, is a screen 6 adapted to support a receptacle 7 containing a disinfectant or perfume. The receptacle 7 as herein shown is an absorbent material saturated with the disinfectant or

perfume, though a dish may be employed if desired.

An adjustable inlet sleeve or pipe section 8 fits tightly but removably in the aperture 3 and projects downwardly into close proximity to the receptacle 7. A deflector 9 is rigidly secured to the inner side and top of the receptacle at a point immediately above the outer end of the opening into the pipe 4 and acts to deflect the air from the upper part of the receptacle down into the fan chamber beneath the screen.

An inlet pipe 10 for the water or other motive fluid extends through the side of the receptacle, near the bottom thereof, to the center of the receptacle, and is provided on its inner end with a T 11, from the ends of which pipe sections 12 extend outwardly and upwardly. On the upper ends of the sections 12 are caps 13, each having an aperture 14 in one side thereof for the escape of the motive fluid. Extending upwardly from the T 11 in axial alinement with the receptacle is a standard 15 having anti-friction thrust bearings 16 and 17 on its upper end, between which bearings is mounted the fan plate 18. Said fan plate is of a diameter to extend to near the walls of the receptacle in a plane immediately below the outlet 4, and a downwardly and inwardly directed ledge 19 is secured to the walls of the receptacle and projects inwardly and downwardly beneath the plate 18. Extending downwardly from the plate 18 is an annular flange 20, concentric with the standard 15, and on the inner side thereof is a plurality of vertically disposed motor vanes or blades 21 which extend radially of the flange. The apertures 14 in the caps 13 are so positioned that the water or other motive fluid escaping therefrom will strike said vanes at nearly right angles and cause the plate 18 to rotate on the standard.

An outlet pipe 22 for the water leads from the bottom of the receptacle.

Rigidly secured on the plate 18 and extending upwardly therefrom are the fan blades 23 which radiate from near the axis of the receptacle into close proximity to the walls of the receptacle. Each of said blades has its upper inner corner 24 curved over in the direction of rotation of the blade, thereby making the inner end of the blade concave longitudinally of the blade on its forward side, so that the blade will act to draw the air through the sleeve 8

into the receptacle. The outer ends 25 of said blades are curved rearwardly to make them convex on their forward sides to permit the air to easily roll off the same into the outlet 4.

The operation of the construction shown is as follows: When the water or other motive fluid is admitted through the pipe 10 it escapes from the apertures 14 and strikes the vanes 21 and causes the fan to rotate on the standard 15. As the fan rotates the curved portions 24 of the blades 23 draw air into the receptacle through the sleeve 8, and inasmuch as the sleeve is nearer to the side of the receptacle just beyond or forwardly of the outlet 4, with respect to the travel of the fan, the blades will take in the greatest amount of air while passing that point, and as the air is carried around the receptacle by said blades it becomes more or less compressed as it reaches said outlet 4, and escapes from the outlet with considerable force. As the air enters the receptacle it passes over the disinfectant or perfume and absorbs a sufficient quantity of the same to keep the room sweet and pure. The water striking against the plate 18 tends to cool the air in the fan chamber so that when the air leaves said chamber it is several degrees cooler than when it enters. The flange 20 and the ledge 19 prevent any of the water from being thrown into the fan chamber. The air above the screen 6 is caused to rotate in unison with the air in the fan chamber, and when it reaches the deflector 9 it is deflected down into the chamber.

While but one specific embodiment of the invention has been herein shown and described it will be understood that many of the details shown may be varied or omitted without departing from the scope of the claims.

I claim:

1. A ventilator, comprising a receptacle, a forked pipe leading into the receptacle, a fan plate rotatively mounted above said pipe, fan blades on the upper side of said plate, an annular flange on the bottom of the plate, radially disposed motor vanes in said flange in position to receive motive fluid from said pipe forks, and a downwardly and inwardly inclined ledge in the receptacle extending beneath said plate.

2. A ventilator, comprising a receptacle, a combined motor and fan rotatively mounted in said receptacle, said motor having an annular flange thereon, a pipe projecting into the flange and adapted to deliver motive fluid to the motor, and a ledge on the walls of the receptacle extending inwardly toward said flange.

3. A ventilator, comprising a cylindrical receptacle, an axially offset inlet sleeve in the top of the receptacle, and an outlet on the side of the receptacle, a plate rotatively

mounted in said receptacle, an annular flange extending downwardly from said plate, motor vanes on the inner side of said flange, a pipe extending into the flange and adapted to direct motive fluid against said vanes, a ledge on the receptacle projecting beneath the edge of said plate, and a plurality of fan blades on said plate.

4. In a ventilator, a receptacle, a pipe leading into said receptacle, a fan-plate mounted for rotation in juxtaposition to said pipe, fan-blades upon one side of said plate, and motor-vanes upon the other side of the said plate arranged to receive motive fluid from the pipe.

5. In a ventilator, a receptacle, a pipe leading into said receptacle, a fan-plate mounted for rotation in juxtaposition to said pipe, fan-blades upon one side of said plate, motor-vanes upon the other side of the said plate arranged to receive motive fluid from the pipe, and a ledge within the receptacle extending beside the peripheral portion of that side of the plate at which the motor-vanes are located.

6. A ventilator, comprising a receptacle having an air inlet in the top thereof and an air outlet in one side thereof, a plate rotatively mounted in the receptacle, fan blades on the plate adapted to draw air into the inlet, and expel it from the outlet, an annular flange on the under side of the plate, radial vanes in the flange, and means adapted to conduct motive fluid against the vanes to rotate the fan.

7. A ventilator, comprising a receptacle, an adjustable air inlet in the top of the receptacle, an air outlet from the side of the receptacle, a rotative fan below the inlet, a downwardly and inwardly directed ledge in the receptacle below the outlet, an annular flange connected with said fan and extending below the ledge, a plurality of vertically extending, radially disposed blades in the flange, means rotatively supporting said blades and fan, and means adapted to conduct motive fluid to the motor.

8. A ventilator, comprising a receptacle, a removable inlet sleeve in the receptacle, an air outlet tangent to the receptacle, a radially disposed deflector in the receptacle above the outlet, fan blades adapted to draw air into the receptacle through the inlet and expel it through the outlet, vanes connected with the fan blades, an annular flange surrounding said vanes and extending below the same, and means adapted to direct motive fluid against said vanes.

9. In a ventilator, a receptacle, a fluid conducting pipe leading into said receptacle, a fan-plate mounted for rotation in juxtaposition to said pipe, fan-blades arranged upon one side of the said plate, motor-vanes upon the other side of the said plate arranged to receive motive fluid from the pipe, that

wall of the receptacle opposite the fan-blade carrying side of the plate being provided with an opening, and an intake sleeve slidably fitted in the opening and adjustable toward and from the said side of the plate.

5
10
10 In a ventilator, a receptacle, a fluid conducting pipe leading into said receptacle, a fan-plate mounted for rotation in juxtaposition to said pipe, fan-blades arranged upon one side of the said plate, motor-vanes upon the other side of the said plate arranged to receive motive fluid from the pipe, that wall of the receptacle opposite the fan-blade carrying side of the plate being pro-

vided with an opening, an intake sleeve slidably fitted in the opening and adjustable toward and from the said side of the plate, the receptacle having an outlet in one side, and a deflector plate extending from the outlet to the said intake sleeve.

In witness whereof I have hereunto subscribed my name in the presence of two witnesses.

ERASTUS HAMILTON.

Witnesses:

W. W. WITHEBURY,
E. R. WALKER.