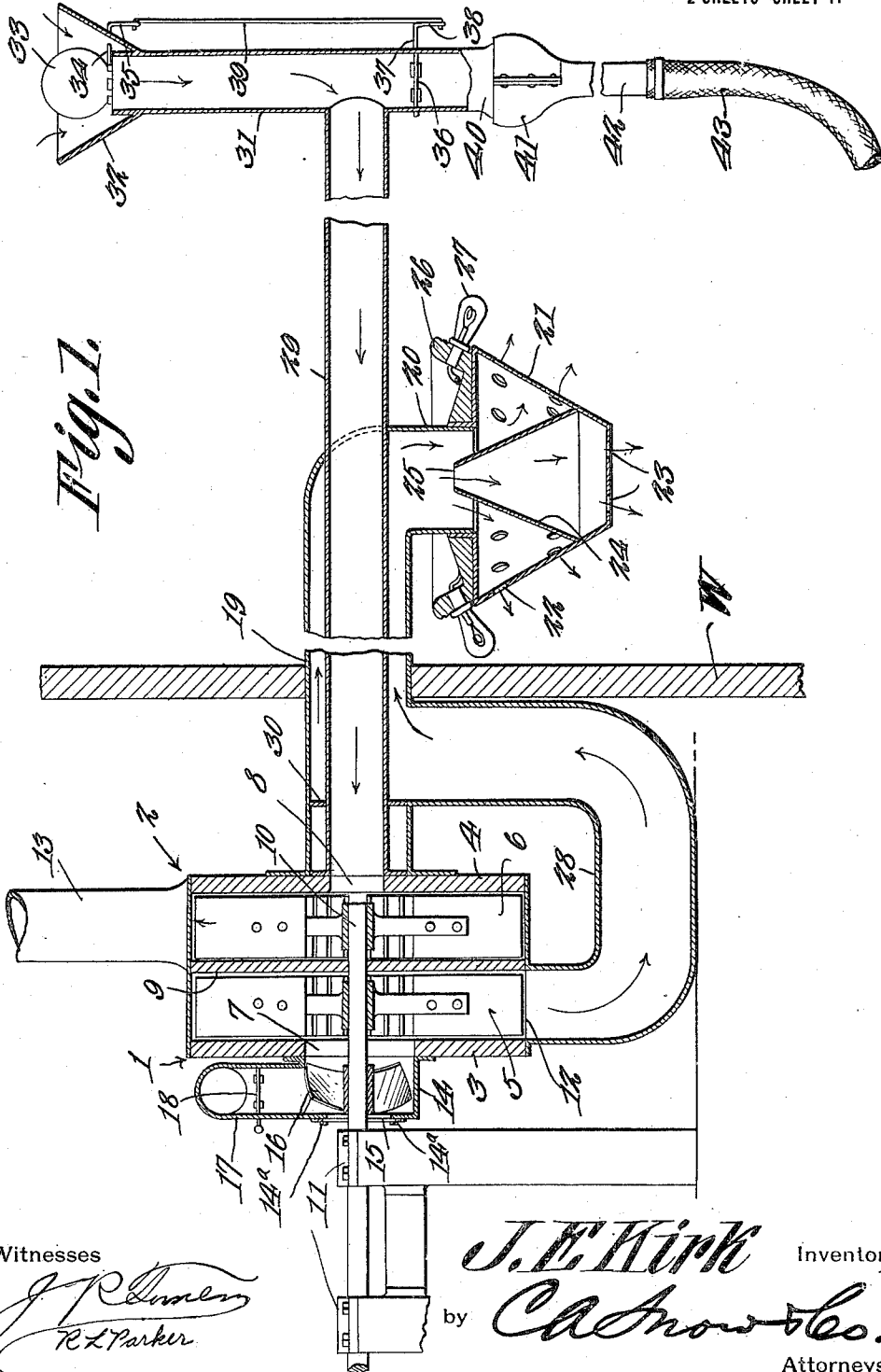


J. E. KIRK.
VENTILATING APPARATUS.
APPLICATION FILED DEC. 8, 1915.

1,228,931.

Patented June 5, 1917.

2 SHEETS—SHEET 1.



Witnesses

J. E. Kirk
R. L. Parker

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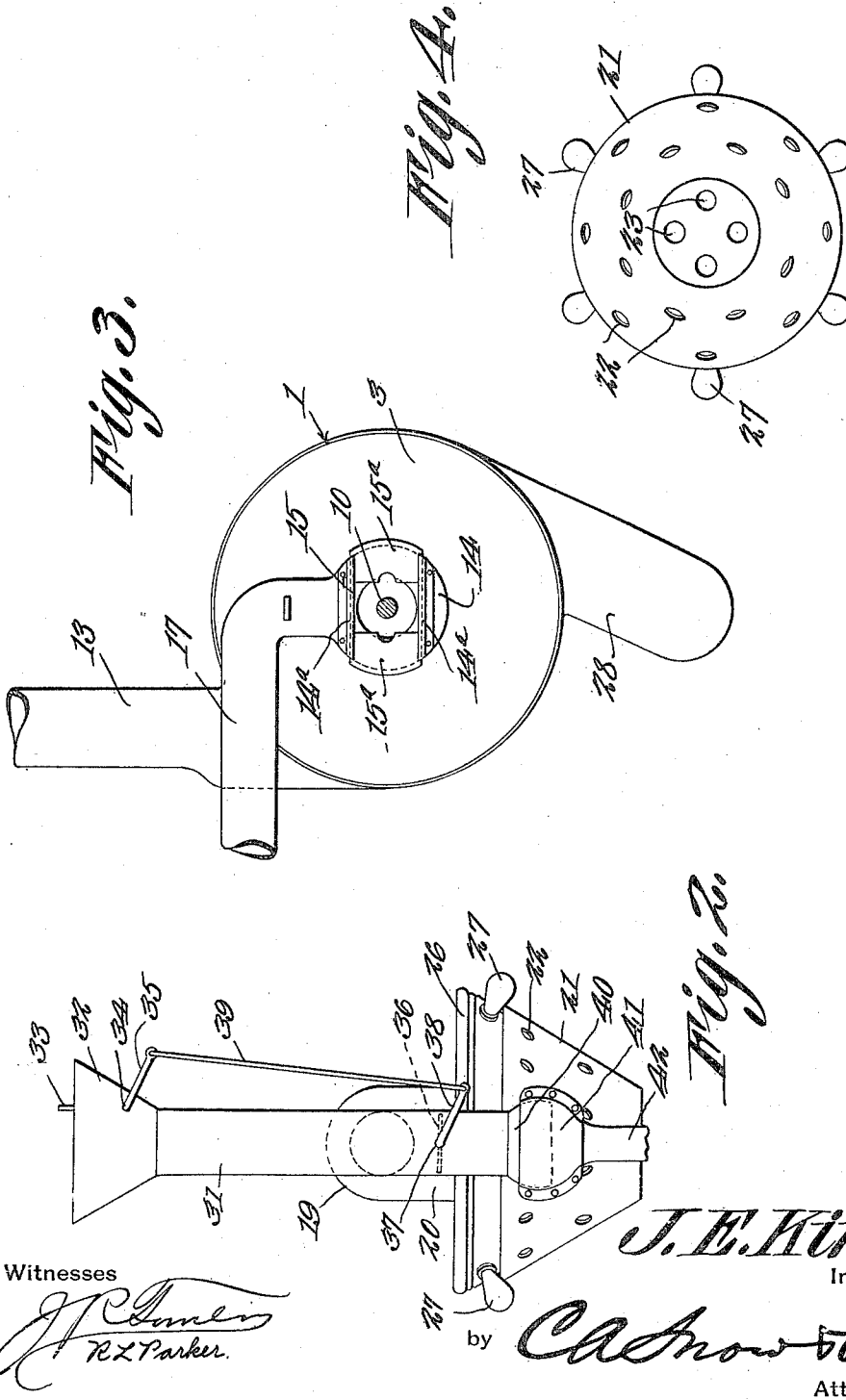
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Cashnow & Co.
Attorneys.

UNITED STATES PATENT OFFICE.

JASON E. KIRK, OF CHRISTIANSBURG, VIRGINIA, ASSIGNOR TO TRIANGLE VENTILATION CORPORATION, A CORPORATION OF NEW YORK.

VENTILATING APPARATUS.

1,228,931.

Specification of Letters Patent.

Patented June 5, 1917.

Application filed December 8, 1915. Serial No. 65,717.

To all whom it may concern:

Be it known that I, JASON E. KIRK, a citizen of the United States, residing at Christiansburg, in the county of Montgomery and State of Virginia, have invented a new and useful Ventilating Apparatus, of which the following is a specification.

The present invention is a ventilating apparatus, designed for delivering either fresh or warm air into a room for the comfort of the occupants, and for withdrawing the foul air therefrom, the apparatus being also useful for creating an air suction for a vacuum cleaner.

It is the object of the invention to provide a novel and improved apparatus of the nature indicated, comprising novel means for delivering either fresh or warm air into the room, and novel means for withdrawing the foul air therefrom.

It is also within the scope of the invention to improve the apparatus generally in its construction and details, to enhance the utility and efficiency thereof, the apparatus being comparatively simple and inexpensive in construction, and being readily installed.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

The invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a vertical median section of the apparatus, portions being broken away, and portions being shown in elevation.

Fig. 2 is an end view of the apparatus looking from the right in Fig. 1.

Fig. 3 is an opposite end view of the apparatus.

Fig. 4 is a bottom plan view of the air discharge head.

In carrying out the invention, there is provided a pair of centrifugal blowers 1 and 2, embodying the united vertical casings 3—4, and the respective fans 5—6 rotatable

within the casings. The remote sides of the casings 3—4 are provided with central air inlets 7—8, and the casings have a common side wall or partition 9 therebetween separating the fans. A common horizontal shaft 10 for the two blowers is provided, the same being journaled in suitable bearings 11, and projecting axially into the casings 3—4. The shaft 10 projects through the partition 9 and the fans 5—6 are secured upon said shafts, the shafts being rotated by a motor, engine or other prime mover of any suitable sort for operating the blowers at the proper velocity. The casing 3 has a lower outlet 12, and an outlet pipe or conduit 13 is attached to the periphery of the casing 4 and leads to the atmosphere or other point of discharge.

An air inlet chamber 14 is secured to the outer side of the casing 3 around the air inlet 7 of said casing, and is provided at that side remote from the casing with a fresh air inlet 15 through which the shaft 10 projects. In order to control the inflow of fresh air through the inlet 15, valves 15^a are disposed slidably in guides 14^a carried by the chamber 14 above and below the inlet 15, said valves being disposed at opposite sides of the shaft 10 and when moved together surround said shaft and close the inlet 15. The valves 15^a can be adjusted for regulating the inlet of fresh air. A fan 16 is mounted upon the shaft 10 within the housing 14 and when said shaft is rotated, the fan 16 is rotated thereby for forcing the air from the housing 14 through inlet 7 into the casing 3. A similar fan can be used, if desired, for forcing air through the inlet 8 of the casing 4 into said casing.

A warm air pipe or conduit 17 is connected to the housing 14 at any suitable point for conveying warm air from a suitable source to the housing 14, whereby the warm air will be delivered into the blower 1. If the pipe 17 is independent of the inlet 15, as illustrated in Figs. 1 and 3, it is preferable to provide a damper or valve 18 within the pipe 17 for closing the pipe 17 when desired. Thus, when fresh air is to be admitted into the blower 1, the valve 18 is closed, and the valves 15^a are opened, and when warm air is to be used, the valves 15^a

are closed, while the valve 18 is opened. The pipe 17 can be arranged to admit the warm air in front of the fan 16, the same as the fresh air.

5 In order to convey the air from the blower 1 into the room, a horizontal pipe 19 has one end attached to the outer side of the casing 4 and projects through the wall W of the room to the desired point within the
10 room, the other end of the pipe 19 being downturned, as at 20, and having attached thereto, an inverted frusto-conical head 21, constructed of sheet metal or other suitable material, and which is hollow to communi-
15 cate with the pipe 19. The side walls of the head 21 are provided with outlet apertures 22, and the bottom of the head 21 has outlet apertures 23, said side walls being inclined whereby the air flowing through the
20 apertures 22 will be directed in various directions downwardly at an angle, while the air flowing through the apertures 23 will be directed downwardly. A frusto-conical or tapered deflector 24 has its lower larger end
25 secured to the side walls of the head 21 above the bottom of said head, and the smaller end of the deflector 24 projects through the upper inlet opening of the head 21 into the end 20 of the pipe 19, the smaller
30 end of said deflector being open, as at 25, to receive a portion of the air from the pipe 19. The deflector 24 serves to deflect the greater portion of the air from the end 20 of the pipe 19 to all sides toward the aper-
35 tures 22, a portion of the air flowing through the opening 25 into the deflector and thence passing through the apertures 23 downwardly. The head 21 can be used in lieu of a chandelier, and can carry the lights
40 which illuminate the room. Thus, an annular support 26 can be seated upon the head 21 around the end 20 of the pipe 19, and the electric or other lamps 27 can be attached to the support 26, in order that the lamps when
45 lighted will effectively illuminate the room. By assembling the lamps with the head 21, the head is rendered less conspicuous, and the air inlet means and illuminating means are assembled in a compact and desirable
50 manner. It is to be understood that the air discharge head 21 can be located at the center of the room or at any other point thereof where it is desired to discharge the air into the room.
55 The pipe 19 is connected with the blower 1 by means of a pipe 28 having its ends, projecting upwardly, one end being connected to the periphery of the casing 3 to communicate with the outlet 12 of the blower
60 1, and the other end being connected to the bottom of the pipe 19 behind the wall W. The air delivered from the blower 1 by the fan 5 will thus be forced through the pipe 28 into the pipe 19, and from thence into
65 the head 21 to be blown out of the apertures

22 and 23, to thus deliver either the fresh or warm air into the room in all directions below the head 21.

In order to conduct the foul air from the room, a horizontal pipe 29 projects into the room through the wall W, and extends
70 concentrically within the pipe 19, the pipe 29 being of smaller diameter, and one end of the pipe 29 is attached to the outer side of the casing 4 to communicate with the air
75 inlet 8 thereof. A vertical pipe 31 is attached to the other end of the pipe 29, and an annular partition 30 is secured between the pipes 19 and 29 behind the pipe 28. The upper end of the pipe 31 carries a funnel
80 32, the pipe 31 projecting within the funnel, and said funnel is preferably arranged adjacent the ceiling at a suitable point in the room to receive the foul air when the air is sucked from the pipe 29 by the blower 2.
85 The blower 1 is operable for forcing air into the room, while the blower 2 is operable for exhausting the foul air from the room, to thus establish a circulation of air within the room for purpose of ventilation.
90

A valve 33 carried by a rock shaft 34 journaled through one side of the funnel 32 is seatable upon the upper end of the pipe 31 for closing the same, the outer end of the shaft 34 having an arm 35.
95

A valve 36 is disposed within the pipe 31 below the pipe 29, and is mounted upon a rock shaft 37 journaled through the pipe 31 and having at its outer end an arm 38 connected by a link or rod 39 with the arm 35.
100 The parts are so arranged, that when the valve 33 is opened, the valve 36 is closed, and when the valve 36 is opened, the valve 33 is closed. The valve 36 is normally closed, so that the foul air is drawn into the
105 upper end of the pipe 31.

The lower end of the pipe 31 has a spherical portion 40 upon which is mounted for oscillation in various directions the spherical enlargement 41 of a depending pipe 42 to
110 which is connected one end of a vacuum cleaner hose 43. The hose 43 can be readily attached to and detached from the pipe 42, and said pipe can swing in various directions when the vacuum cleaner (not shown)
115 is used, in which case, the valve 33 is closed and the valve 36 is opened, so that the air suction will extend through the pipe 42 and hose 43 to remove the dirt and dust by air suction.
120

The apparatus can be constructed, as illustrated, for individual use with a room, or in apartments, a plurality of pipes 19 and 29 can be connected to a single pair of blowers for ventilating a plurality of rooms.
125

Having thus described the invention, what is claimed as new is:

A ventilating apparatus embodying an air supply pipe having a depending end, a discharge head attached to said depending end,
130

and a frusto-conical deflector secured within the head to direct air toward the side walls of said head and having an opening in its smaller end to receive air from said
5 pipe, said head having apertures in its side walls surrounding said deflector and apertures in its bottom below said deflector.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JASON E. KIRK.

Witnesses:

IVY E. SIMPSON,
R. L. PARKER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."