

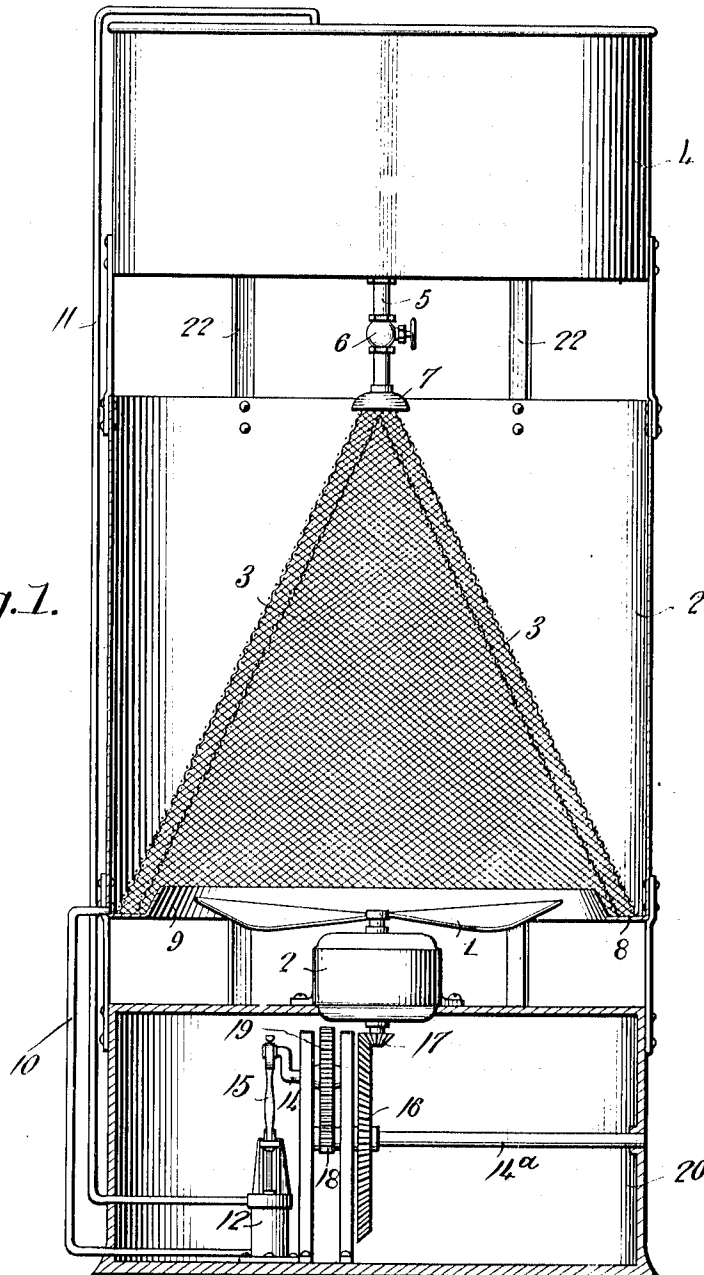
A. ANDERSON.
AIR COOLER.
APPLICATION FILED JULY 31, 1912.

1,051,661.

Patented Jan. 28, 1913.

2 SHEETS-SHEET 1.

Fig. 1.



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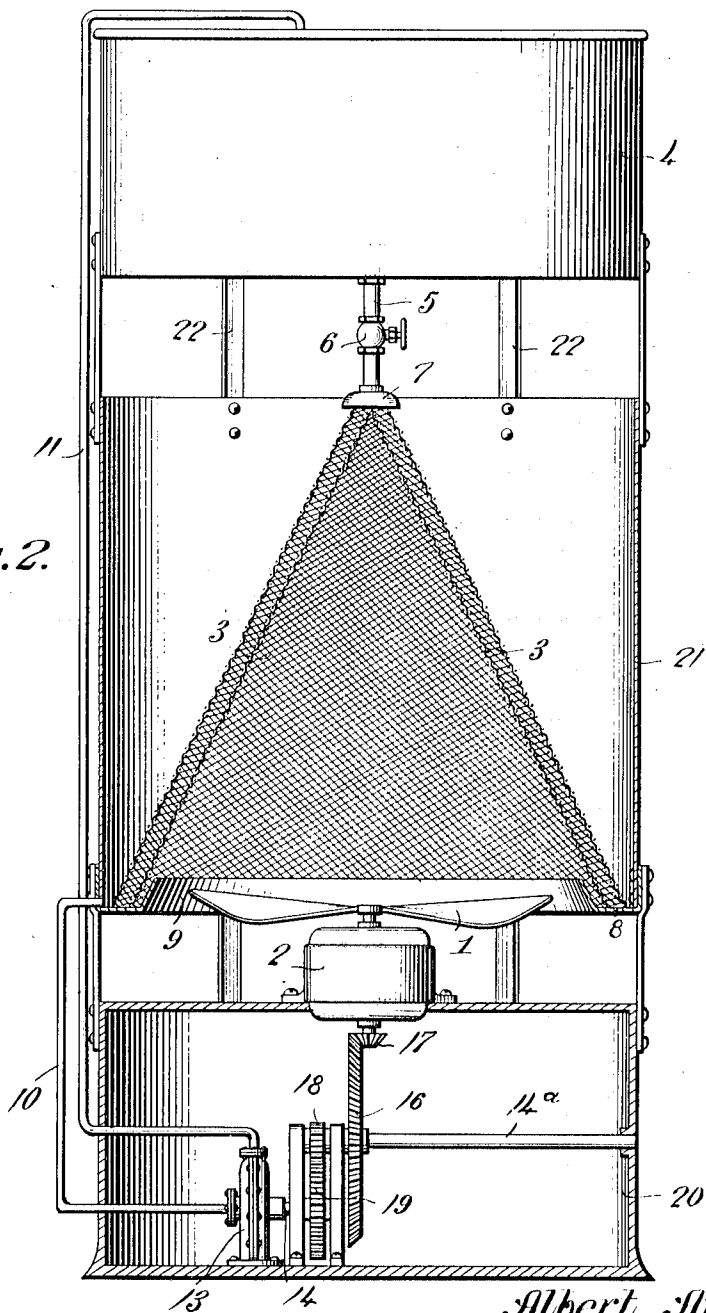
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2 SHEETS-SHEET 2.

Fig. 2.



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UNITED STATES PATENT OFFICE.

ALBERT ANDERSON, OF DEER WOOD, MINNESOTA, ASSIGNOR OF TWO-FIFTHS TO
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AIR-COOLER.

1,051,661.

Specification of Letters Patent.

Patented Jan. 28, 1913.

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To all whom it may concern:

Be it known that I, ALBERT ANDERSON, a citizen of the United States, residing at Deer Wood, in the county of Crow Wing and State of Minnesota, have invented new and useful Improvements in Air-Coolers, of which the following is a specification.

The invention has relation to an apparatus for cooling and purifying the air of dwellings and public places of assemblage, said apparatus also creating a circulation of the air and admitting of impregnating the same with a perfume, medicament or disinfectant.

The invention consists of the novel features, details of construction and combination of parts, which hereinafter will be more particularly set forth, illustrated in the accompanying drawings, and pointed out in the appended claims.

Referring to the drawings, forming a part of the specification, Figure 1 is a sectional view of an apparatus constructed in accordance with and embodying the essential features of the invention. Fig. 2 is a modification.

Corresponding and like parts are referred to in the following description, and indicated in all the views of the drawings, by the same reference characters.

The apparatus comprises a fan 1 which may be of any construction. A motor 2 of any type or variety is had for operating the fan, the motor best adapted for the purpose being of the electric type. A plurality of screens 3 are arranged in conjunction with the fan 1 to compel the air to pass therethrough, said screens being kept damp so as to cool the air and to remove all impurity therefrom. The screens may also be used as means for impregnating the air with a disinfectant, a medicament or a perfume, the same being added to the water which is distributed in a manner to keep the screens damp. The screens best adapted for the purpose are of conical form and are arranged with their apices extending upward and with their bases encircling the fan 1, thereby compelling the air in its circulation to pass through the meshes of the screens. The screens 3 have a concentric arrangement and are spaced apart a suitable distance and may be constructed of wire gauze, textile or other material. The water either with or without the addition

thereto of the medicament, disinfectant, perfume or the like is supplied to the upper ends of the screens and is distributed over the surface thereof in a film so that the air is compelled to traverse therethrough.

A tank 4 is located above the screens and pipe 5 leads therefrom and is provided in its length with a cock 6 and has a distributor 7 at its lower end for spreading the water or solution in such a manner as to dampen the screens. Any surplus water or solution escaping from the lower edges of the screens is received in an annular trough 8 in which the lower ends of the screens rest. The inner wall 9 of the trough inclines to correspond with the taper of the screens and serves as a deflector to direct the upwardly ascending current of air. A pipe 10 leads from the trough 8 and connects with a pump which may be of any type. A second pipe 11 leads from the pump and terminates above the tank 4 so as to return the surplus water thereto drawn from the trough 8 by means of the pump.

As shown in Fig. 1 the pump 12 is of the type embodying a cylinder and a piston arranged to reciprocate therein. As indicated in Fig. 2 the pump 13 is of the centrifugal variety. The pump of whatever variety employed is arranged to be driven by means of the motor 2 through suitable gearing. The gearing between the motor and pump is such as to admit of the pump being operated at a much lower speed than the fan. As shown in Fig. 1 a shaft 14 is provided at one end with a crank which is connected by means of a pitman 15 with the rod of the pump piston. A spur gear 19 secured to the opposite end of the shaft 14 is in mesh with a pinion 18 fixed to a shaft 14^a. A bevel gear 16 secured to the shaft 14^a is in mesh with a bevel pinion 17 fixed to the shaft of the motor. In the construction shown in Fig. 2 the crank of the shaft 14 is dispensed with and said shaft is coupled to or may constitute the shaft of the arbor of the centrifugal pump.

The pump and gearing are inclosed in a casing 20, which may be of any preferred construction. The casing 20 may form a support for the motor 2 and for the screens and tank. A shell 21 incloses the plurality of screens and the trough 8 is located at the lower end of the shell and preferably constitutes a recurved portion thereof. Strips

22 connect the shell 21 with the tank 4, the tank being spaced from the shell a distance to admit of the air having a free unobstructed passage.

5 In the operation of the apparatus the screens are kept damp by means of water or a solution containing the substance for impregnating the air. The cock 6 is opened to a greater or less degree to admit of the water
10 or solution passing from the tank 4 to the spreader 7 by means of which it is distributed to the screens 3. The fan 1 when set in motion causes the air to pass upwardly into and outwardly through the plurality of
15 screens, thereby cooling or causing such air to become laden with the substance added to the water to be distributed in the dwelling or other structure required to have the air cool or impregnated with a substance according to the effect to be produced. Any
20 surplus water dripping into the trough 8 is taken up by the pump and forced back into the tank 4 to be again used for dampening the screens.

25 The invention results in humidifying the air and particles floating therein, hence such particles becoming heavy settle and leave the air pure.

From the foregoing description, taken in
30 connection with the accompanying drawings, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention appertains, and while I have
35 described the principle of operation of the invention, together with the device which I now consider to be the best embodiment thereof, I desire to have it understood that the device shown is merely illustrative, and
40 that such changes may be made when desired as are within the scope of the claims appended hereto.

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

45 1. In an apparatus of the character de-

scribed, the combination of a conical screen, an annular trough at the lower end of the screen, means for supplying liquid to the upper end of the screen including a tank, a fan arranged substantially within the lower
50 end of the screen, and a pump for returning any excess of liquid from the trough back into the before mentioned tank.

2. In an apparatus of the character described, the combination of a conical screen, 55 a shell inclosing the screen, a trough at the lower end of the shell opposite the lower end of the screen, a tank above the screen, a spreader having connection with the tank and arranged to deliver liquid therefrom to
60 the upper end of the screen, a pump arranged to return any surplus liquid from the trough back into the tank, and a motor for operating the fan and pump.

3. An apparatus of the character described comprising a plurality of concentric screens of conical form having a concentric arrangement, a shell inclosing the screens, a trough at the lower end of the shell opposite
70 the lower ends of the screens and having its inner wall made tapering, a tank located above the screens, a spreader for delivering liquid from the tank to the upper ends of the screens, a valved pipe connecting the tank with the spreader, a fan located opposite the
75 lower ends of the screens, a pump arranged to return any excess liquid from the trough to the said tank, a motor for operating the fan and pump, a train of gearing between the motor and pump, and a casing inclosing
80 the pump and gearing and forming a support for the motor and upper parts of the apparatus.

In testimony whereof I affix my signature in presence of two witnesses.

ALBERT ANDERSON.

Witnesses:

H. E. PETERSON,
OSCAR ERIKSON.