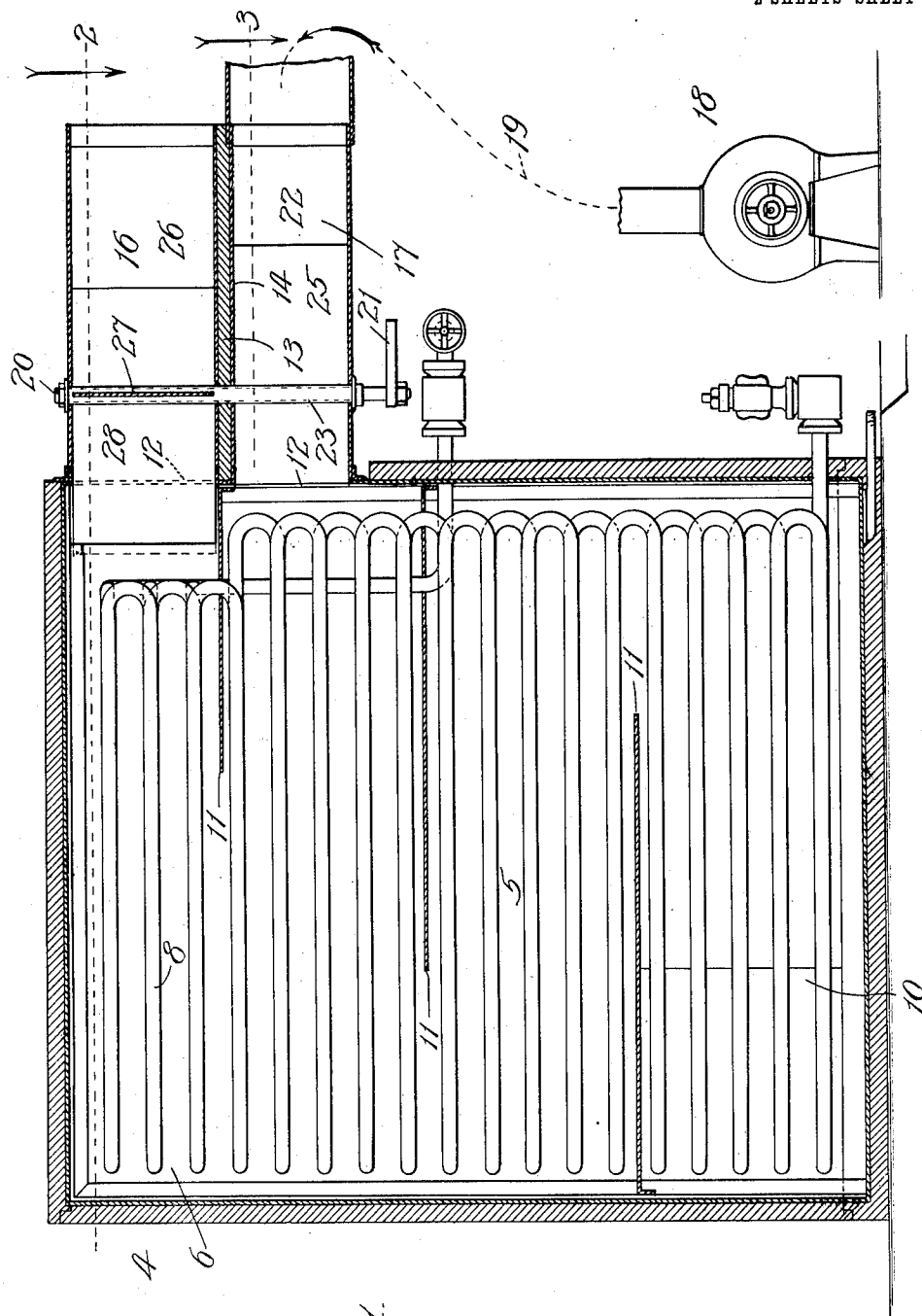


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AIR COOLING APPARATUS.
APPLICATION FILED MAY 18, 1911.

1,003,129.

Patented Sept. 12, 1911.

2 SHEETS—SHEET 1.



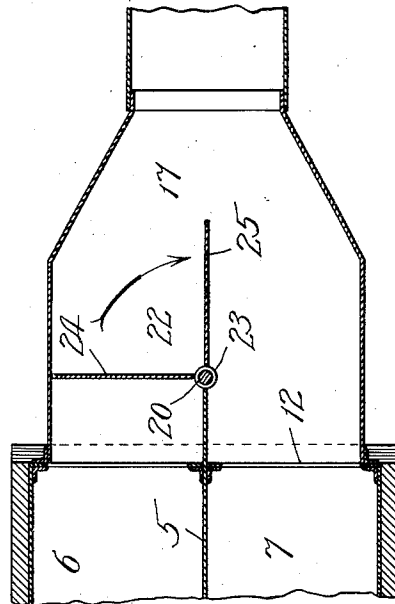
Witnesses:
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Fig. 1.

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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

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AIR-COOLING APPARATUS.

1,003,129.

Specification of Letters Patent.

Patented Sept. 12, 1911.

Application filed May 18, 1911. Serial No. 628,027.

To all whom it may concern:

Be it known that I, FREDERICK WITTENMEIER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Air-Cooling Apparatus, of which the following is a specification.

My invention relates to an improvement in the class of apparatus for cooling and drying fresh air in conducting it through its course to an inclosure to be supplied therewith, and comprising a box or housing divided into intercommunicating compartments each containing a refrigerating coil in the path through the box of the air to be treated. In the use of apparatus of the kind referred to, it is the practice to direct the air to be cooled downwardly through one compartment, in contact with the refrigerating coil therein to preliminarily cool the air and dry it by congealing moisture out of it, and thence upwardly and out of the apparatus through the other compartment to complete cooling the air by its contact with the refrigerator in such other compartment; and the operation is reversed periodically, always in time to prevent choking the course of the air by the congealed accumulation on the first coil therein and thereby also melting the accumulated frost on that coil by the influence thereon of the relatively-warmer air.

My improvement pertains to a valve-device for reversing the course through the apparatus of the air to be treated; and it consists in a novel construction of valve-device which I have provided for the purpose.

In the accompanying drawing, Figure 1 is a view in vertical longitudinal section, partly broken, of an air-cooling and drying apparatus equipped with my improvement, and showing connected therewith, in the nature of a diagrammatic representation, an air-blower; Fig. 2 is a section on line 2, Fig. 1, and Fig. 3 is a section on line 3, Fig. 1.

A suitable box or housing 4 is divided centrally by a vertical partition 5 into two compartments 6 and 7 containing, respectively, refrigerating-coils 8 and 9 and intercommunicating through an opening, indicated at 10, in the lower part of the partition. The coils are provided, as indicated, with usual valved connections for controlling the

circulation through them of a suitable refrigerant; and in each compartment is arranged a set of horizontal baffle-plates 11 for prolonging the course of the air through the compartments and its subjection to the influence of the coils.

In the upper end of one side of the box 4 is an opening 12 from between the upper and lower ends of which extends horizontally outward a partition 14, shown hollow and filled with heat insulating material 13, this partition forming the bottom of an upper air-outlet conduit 16 and the top of a lower air-inlet conduit 17, both shown of rectangular cross-section. A suitable air-blower, represented at 18 in Fig. 1, communicates, as indicated by the dotted line at 19, with the conduit 17 at its outer end.

A rotatable shaft 20 extends vertically through the conduits 16 and 17 near the opening 12 and carries on its lower end an operating handle 21. In the conduit 17 the partition 5 is extended, as represented in Fig. 3, to the shaft 20, which carries in that conduit a valve 22 comprising a sleeve 23 secured about the shaft and having two wings 24 and 25 extending from it at right-angles to each other; and a similar valve 26, with the wings 27 and 28 extending from the sleeve on the shaft is provided in the conduit 16. The two valves are relatively so disposed on their shaft, that they may be set by rotating the shaft through a quarter turn. As the valves are shown to be set, the one in the lower conduit has its wing 24 extended across the passage to the compartment 6, while that in the upper conduit has its wing 27 extended across the passage to the compartment 7. Thus air from the blower 18 entering the conduit 17 will enter and pass downwardly in the compartment 7 and traverse the coil 9 therein to be cooled and dried thereby, thence pass through the partition-opening 10 into the base of the compartment 6, rising therein to be further cooled by the coil 8, and passing out through the conduit 16 to an inclosure (not shown) to be supplied with the treated air. To reverse the operation of the apparatus, the shaft is given a quarter turn in the direction indicated by arrows in Figs. 2 and 3, thereby setting the valve 22 to close the passage through the supply-conduit 17 to the compartment 7 and open it to the compartment 6, and at the same time setting

the valve 26 to open to the discharge-conduit 16 the compartment 7 and close thereto the compartment 6. As will be noted, the valve-wings 27 and 28 carry on their edges which meet the adjacent edge of the partition 5, strips 30 forming stops to lap that edge of the partition and there complete the closure past it between the compartments; and the extension of the partition 5 in the conduit 17 likewise completes the closure. Thus, by providing the wing-valves 22, 26, on the one shaft 20 to extend at right-angles to each other, by a mere quarter-turn of the shaft the valves are set to reverse the operation of the air-treating apparatus.

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

1. In combination with an air-cooling apparatus comprising a box having an opening in one side and intercommunicating compartments containing refrigerating-coils, inlet and outlet conduits for the air supplied to said box, communicating with the compartments at said opening, a shaft rotatably supported in the conduits, and wing-valves on said shaft and set thereon at right-angles to each other, each valve having a pair of wings extending at right-angles to each other from the shaft to close the passage through the conduit containing it to one compartment while opening said conduit to the other compartment, for the purpose set forth.

2. In combination with an air-cooling apparatus comprising a box having intercommunicating compartments and an opening in one side and containing refrigerating-coils, inlet and outlet conduits, extending

one over the other from said opening, for the air-supply to and from said compartments, a rotary shaft extending vertically through the conduits near their inner ends, and wing-valves in the conduits on said shaft and set thereon at right-angles to each other, each valve having a pair of wings extending at right-angles to each other from the shaft to close the passage through the conduit containing it to one compartment while opening said conduit to the other compartment, for the purpose set forth.

3. In combination with an air-cooling apparatus comprising a box having an opening in one side, a vertical partition dividing the box into two compartments intercommunicating at their base-ports, and a refrigerating-coil in each compartment, inlet and outlet conduits, extending one over the other from the box at and covering said opening, for the air-supply to and from said compartments, a rotary shaft extending vertically through the conduits near said opening and provided with an operating handle, and wing-valves in the conduits on the shaft and set thereon at right-angles to each other, each valve having a pair of wings extending at right-angles to each other from the shaft and cooperating with the conduit-walls and adjacent end of said partition to close the passage through the conduit containing it to one compartment while opening said conduit to the other compartment, for the purpose set forth.

FREDERICK WITTENMEIER.

In presence of—

A. U. THORIEN,

WILLIAM T. JONES.