No. 850,985. PATENTED APR. 23, 1907.

C. W. VOLLMANN.

AIR COOLER AND PURIFIER.

APPLICATION FILED JULY 17, 1902.

FIG. 1.

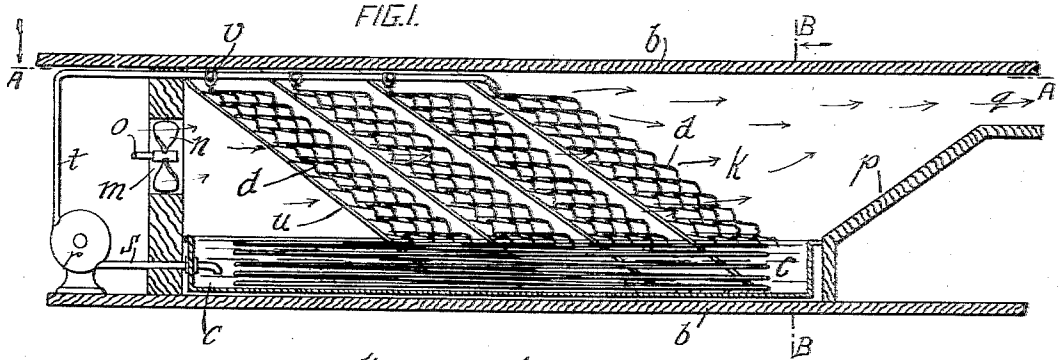


FIG. 2.

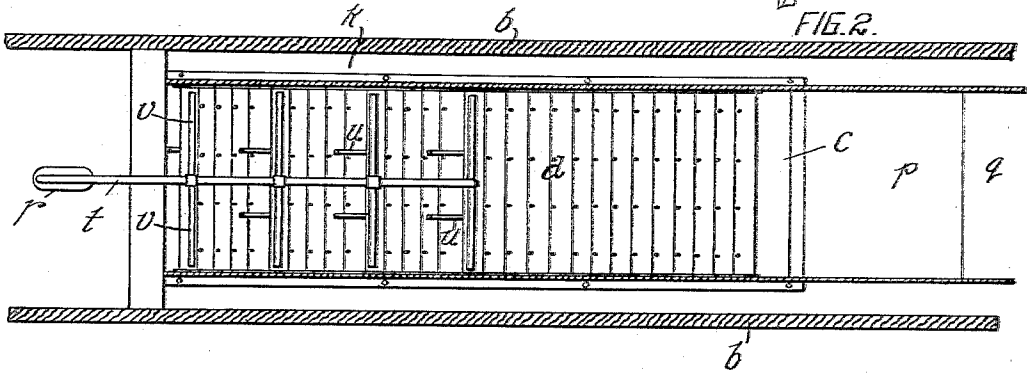


FIG. 3.

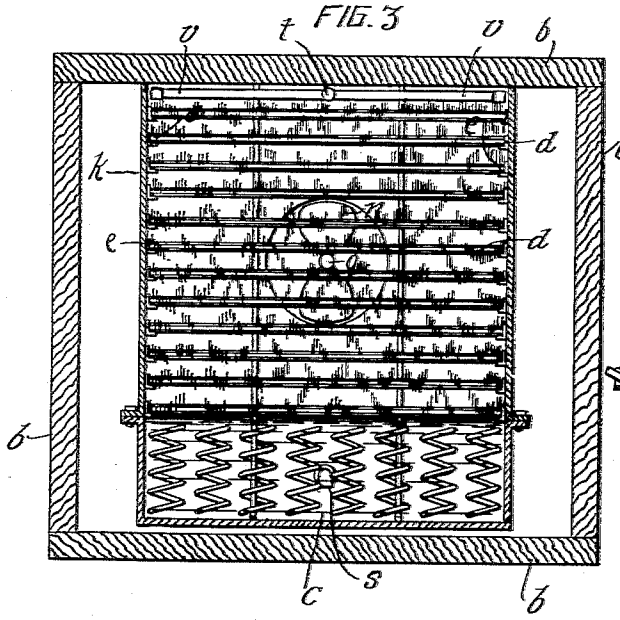


FIG. 4.

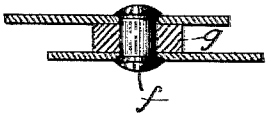
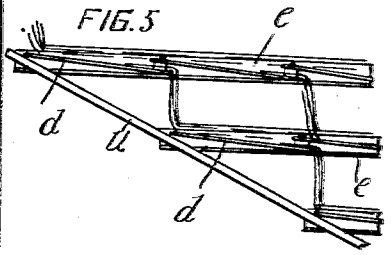


FIG. 5.



Witnesses

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AIR COOLER AND PURIFIER.

No. 850,985. Specification of Letters Patent. Patented April 23, 1907.

Application filed July 17, 1902. Serial No. 115,967.

To all whom it may concern:

Be it known that I, CARL WILHELM VOLLMANN, of the city of Montreal, District of Montreal, Province of Quebec, Canada, have invented certain new and useful Improvements in Air Coolers and Purifiers; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention may be said briefly to consist of an air cooling and purifying apparatus consisting of a casing containing a series of brine-conductors located one above the other and each comprising a series of inclined members arranged with the upper edge of each above and overlapping the lower edge of the member next it, means for supporting the members with spaces between them, means for supplying a cooling and purifying fluid to the uppermost of such conductors, and means for causing air to flow through such casing.

For full comprehension, however, of my invention reference must be had to the accompanying drawings, forming a part of this specification, in which like symbols indicate the same parts, and wherein—

Figure 1 is a longitudinal vertical sectional view of an air cooler and purifier constructed according to my invention. Fig. 2 is a horizontal sectional view taken on line A A, Fig. 1. Fig. 3 is an enlarged transverse vertical sectional view thereof, taken on line B B, Fig. 1. Fig. 4 is an enlarged sectional view of the means for connecting the overlapping edges of the conductor members together. Fig. 5 is an enlarged elevation of several of my preferred form of conductors with the members thereof arranged in the proper positions relatively to one another.

Brine is preferably utilized as a cooling and purifying medium.

The casing *b* and the refrigerator-tank *c* are and may be of usual construction, and a pair of usual side wall-plates *k* within the casing constitute, with the top and bottom of the casing, the usual cooling and purifying chamber, which may be of any preferred type.

My improved device comprises a series of conductors each made up of preferably four independent oblong inclined plates or members *d*, arranged in sequence and extending the full width of the space between the wall-plates *k*. They are supported by angle-irons *e*, secured to the said wall-plates, and the conductors made up of such plates are braced between their side edges by flat bars *u*, secured at their ends to the top and bottom of the casing. Each of such plates has its forward edge a short distance beneath the rear edge of the plate in advance of it, and the upper and lower edges of such plates are secured to the edges overlapped by or overlapping them by rivets *f*, and they are kept apart by washers *g*.

The chamber in which my improved conductors are located has at one end an intake-opening *m* with a fan *n* therein, (such fan being mounted upon and driven by a suitably-driven shaft *o*,) and the opposite end *p* thereof is preferably inclined and has an exhaust-port *q* therein. A pump *r* has a pipe *s* leading thereto from the refrigerator-tank *c*, and a second pipe *t* leads therefrom to the uppermost conductor, and branches *v* are adapted to distribute the brine drawn from such refrigerator-tank by the pump over the said uppermost conductors.

The brine is caused by the incline of the plates *d* to flow along the said uppermost conductors, and portions thereof fall between the members of each conductor in sheets the full width of the chamber to the conductor next below it, the plates of which and the plates of each succeeding conductor beneath it divide the stream in a like manner, while the portion of such stream not finding its way through the spaces between the plates flows over the opposite end of each conductor to that beneath it also in sheets the full width of the chamber, and so on until finally the refrigerator-tank *c* is reached. The falling sheets of brine establish a series of chilling and purifying walls extending collectively completely across the interior of the casing from top to bottom and side to side and necessitate the passage of the air through the same when forced by the fan, the result being that the air and brine are effectively brought into contact and the air is thoroughly cooled and purified.

What I claim is as follows:

1. In an air cooling and purifying apparatus, a series of brine-conductors located one above the other and each comprising a series of inclined members arranged with the upper edge of each above and overlapping the lower edge of the member next it, means for supporting the members with spaces between them, and means for supplying a cool-

ing and purifying fluid to the uppermost of such conductors substantially as described and for the purpose set forth.

2. In an air cooling and purifying apparatus, a series of horizontal brine-conductors located one above the other and each comprising a series of inclined members arranged with the upper edge of each above and overlapping the lower edge of the member next it, means for supporting the members with spaces between them, and means for supplying a cooling and purifying fluid to the uppermost of such conductors substantially as described and for the purpose set forth.

3. In an air cooling and purifying apparatus, the combination with an inclosing casing, of a series of brine-conductors within said casing and located one above the other and each comprising a series of inclined plate members extending from side to side of the casing and arranged with the upper edge of each overlapping the lower edge of the plate member next to it, means for supporting said members with spaces between them, and means for supplying a cooling and purifying fluid to the uppermost of such conductors substantially as described and for the purpose set forth.

4. In an air cooling and purifying apparatus, the combination with an inclosing casing, of a series of horizontal brine-conductors within said casing and located one above the other and each comprising a series of inclined plate members extending from side to side of the casing and arranged with the upper edge of each overlapping the lower edge of the plate member next to it, means for supporting said members with spaces between them, and means for supplying a cooling and purifying fluid to the uppermost of such conductors substantially as described and for the purpose set forth.

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

CARL WILHELM VOLLMANN.

Witnesses:

WILLIAM P. MCFEAT,

ARTHUR H. EVANS.