T. D. KINGAN.

Apparatus for Cooling Rooms and Buildings.

No. 138,411. Patented April 29, 1873.

Fig. 1.

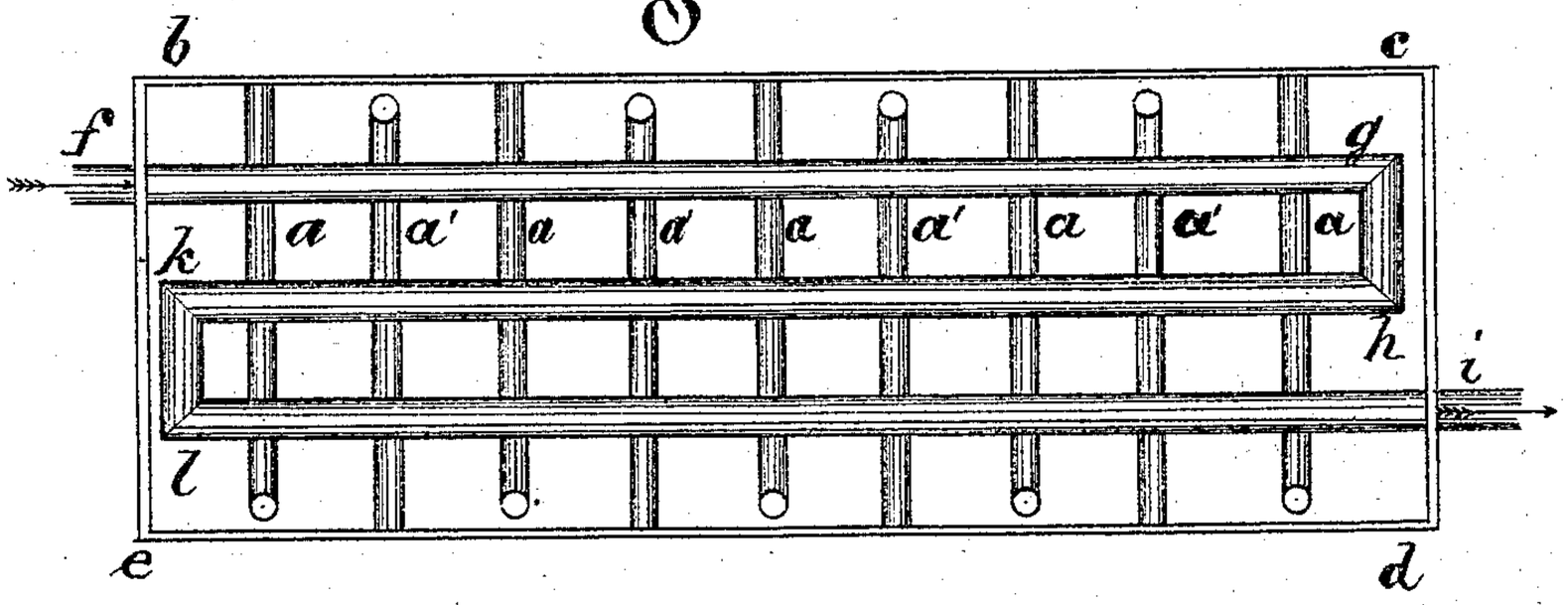


Fig. 2.

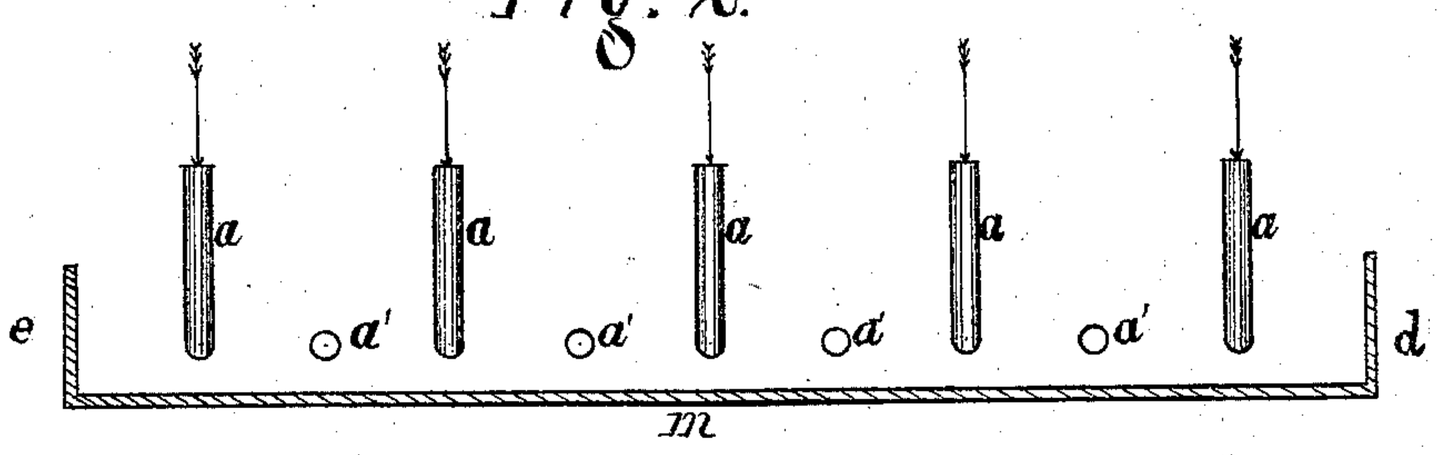
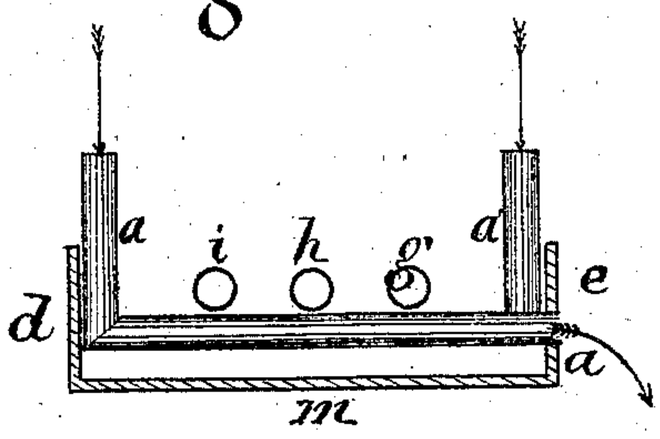


Fig. 3.



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UNITED STATES PATENT OFFICE.

THOMAS D. KINGAN, OF INDIANAPOLIS, INDIANA.

IMPROVEMENT IN APPARATUS FOR COOLING ROOMS AND BUILDINGS.

Specification forming part of Letters Patent No. **138,411**, dated April 29, 1873; application filed April 4, 1873.

To all whom it may concern:

Be it known that I, THOMAS D. KINGAN, of the city of Indianapolis, county of Marion and State of Indiana, have invented a new and useful Improvement in Devices for Cooling and Curing Fresh Meats, of which the following is a specification:

My invention relates to that class of devices whereby an entire room is cooled by means of a continual circulation of the air, in manner and form as hereinafter more fully described.

Figure 1 of the accompanying drawing is a top view of the device; Fig. 2, a vertical longitudinal section of the same; Fig. 3, a vertical transverse section of the same.

A rectangular box or trough, represented by *b c d e*, is to be made of any convenient size. In this trough or box are to be placed the tubes *a* and *a'* and *f g h i k l*. The tubes *a* and *a'* are so bent that each forms two adjacent sides of a rectangle. The long end rests near the bottom of the box or trough *b c d e*, where it may be fastened by means of any convenient device. The other end extends up, and a convenient distance beyond the vertical side of the box or trough. These tubes are open at both ends and through their whole length. The long end passes through the walls or side of the box or trough *b c d e*. These long ends of the tubes *a* and *a'* are laid parallel to each other near the bottom of the trough or box *b c d e*, perpendicularly to its long sides, and so disposed that the short or vertical ends will alternate along the interior sides of the box or trough *b c d e*, as shown in the drawing. Upon these tubes *a* and *a'* or rather upon their long ends is placed another tube of larger size, represented by *f g h k l i* of Fig. 1, and *g h i* of Fig. 3, which is to be of the form there represented; it is also open from end to end. Its ends *f* and *i* pass through the walls of the trough or box *b c d e*, communicating with the external air. The whole device when completed is to be constructed and arranged substantially as represented in the drawing.

This device is to be used as follows: A suitable room for cooling and curing fresh meats having been constructed, a convenient number of these troughs or boxes, constructed and arranged as aforesaid, are placed at a suitable distance from the ceiling. The end *f* of the tube *f g h k l i* is now to be connected with any blowing apparatus which will cause a current or blast of air to pass freely through said tube *f g h k l i* in the direction of the arrows. The body of the box is then filled with ice and salt to produce cold. The salt, being gradually melted with the ice, will fill the lower part of the trough *b c d e* with an intensely-cold brine, which will be allowed to rise high enough to cover the said tube *f g h k l i* and the lower parts of the tubes *a* and *a'*. This will greatly reduce the temperature of the air flowing through the tube *f g h k l i*, so that as soon as it reaches the external atmosphere, at *i*, it will, on account of its increased density, sink downward toward the floor, driving the warm air in the room upward toward the ceiling. At the same time the air in the tubes *a* and *a'*, becoming condensed by a reduction of its temperature, will flow out of the long end of the tube, as represented by the arrow in Fig. 3, giving place to the warm air from above, which, flowing through as the cool air from below presses it, will also be cooled. In this way a constant circulation of the air will be kept up until the temperature of the room is reduced so low that vegetable and insect germs cannot be generated in it, and that it will be of proper temperature for cooling and curing fresh meats. This is especially useful in summer time, when quantities of fresh meat are to be cured, largely saving both labor and expense in the process of cooling and curing.

I claim as my invention—

An air refrigerator or cooler for rooms, buildings, &c., consisting of the rectangular air-tubes *a a'*, having vertical and horizontal arms, and the horizontal tube *g h k l i* for the passage of an air-blast, in combination with the surrounding case for a refrigerating mixture or medium, substantially as described.

In testimony that I claim the foregoing specification I have hereunto set my hand this 11th day of February, 1873.

THOS. D. KINGAN.

Witnesses:

FRED. WERBE,

F. M. MCDONALD.