A. J. Chase.

Refrigerator.

No. 95,428. Patented Oct. 5, 1869.

Fig. 2.

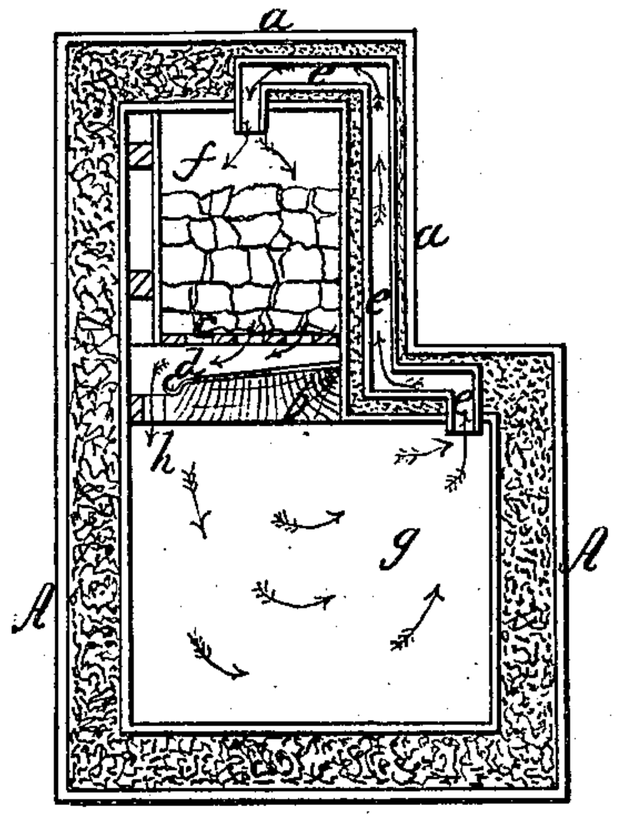
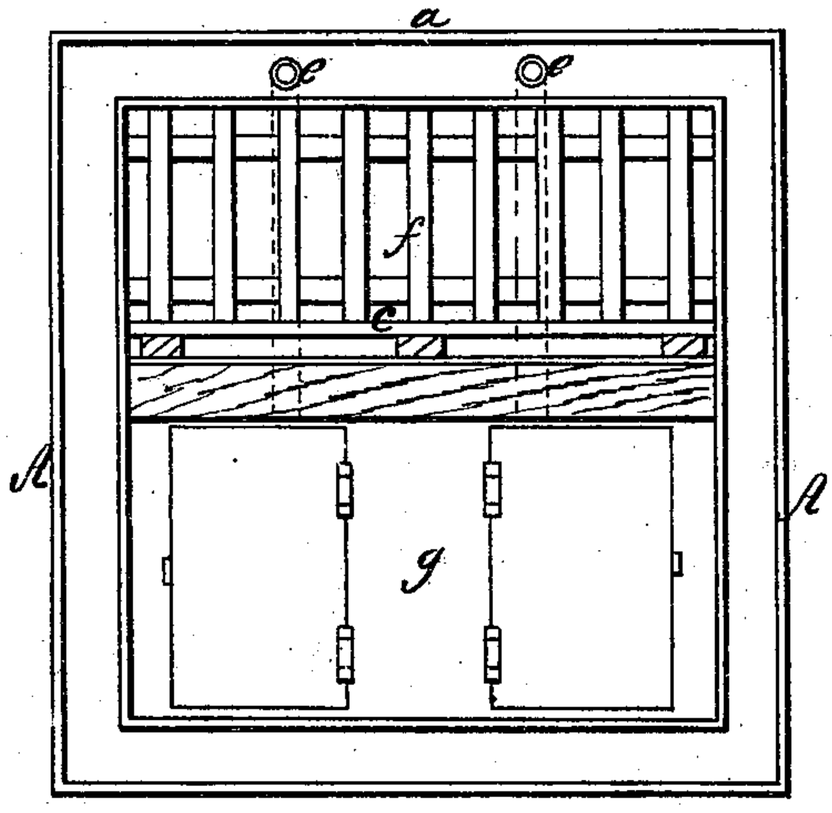


Fig. 1.



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Letters Patent No. 95,428, *dated October* 5, 1869.

IMPROVED REFRIGERATOR.

The Schedule referred to in these Letters Patent and making part of the same.

To all to whom these presents shall come:

Be it known that I, A. J. CHASE, of Boston, in the county of Suffolk, and Commonwealth of Massachusetts, have made an invention of certain new and useful Improvements in Air-Refrigerating Chambers or Chests for Slaughter-Houses, Markets, &c.; and do hereby declare the following to be a full, clear, and exact description thereof, due reference being had to the accompanying drawings, making part of this specification, and in which—

Figures 1 and 2 are respectively longitudinal and transverse-vertical sections of a refrigerating-apparatus embodying my invention.

I would preface the description herein to follow of my invention, by the remark that I am, of course, well aware that it is no new thing to effect the ventilation or purification of the interior of a refrigerator by the admission thereto of external atmospheric air, and so far as my knowledge extends, which my business of manufacturing refrigerators, as well as extended and careful trials, as a matter of necessity have rendered comprehensive, all experiments to this end have been conducted upon the supposition that to thoroughly ventilate the interior of a refrigerator, the presence of atmospheric air in large quantities therein was necessary.

Numerous and elaborate experiments have demonstrated to me the fallacy of this theory, and my present invention has rather to do with an air-tight refrigerator, so to speak, or one in which practically no atmospheric air is admitted, or only that effecting an entrance at short clandestine intervals of time, such as opening the door or cover of the device affords.

My present invention, then, may be said to constitute a self-ventilating, practically air-tight refrigerator, since it does not depend for success, in any material degree, upon the presence of atmospheric air in material quantities.

In carrying out the invention herein described, and which constitutes the subject-matter of these Letters Patent, I provide a case, box, or structure, A, of wood, or other suitable material, and I construct such object with double walls, and fill the intervening spaces with any proper non-conducting material, after the manner of a majority of refrigerators now in use.

The upper portion *a* of the structure A is, preferably, contracted in size, and separated from the lower by a floor, *b*, provided with a suitable rack, *c*, for supporting the ice, and also with a discharge-pipe, *d*, for carrying off tainted ice-meltings, and with apertures *h*, for the descent of the cold air.

In pursuance of the principles of my invention, I dispose, preferably within the hollow walls of the structure, and surrounded by its non-conducting material, one or more tubes or air-conduits *e e*, &c., one extremity of such conduit opening into the upper part of the ice-chamber *f*, and the opposite and lower extremity into the upper part of the provision-chamber *g*, as represented in fig. 2 of the drawings, by which means free communication is offered between the two. The non-conducting material employed for filling the walls of the structure isolates the air-conduits from the influence of the ice within the ice-chamber.

The above description embraces the mechanical construction and organization of my invention, and, though brief, will be amply sufficient, with the aid of the annexed drawing, to enable mechanics of fair acquirements to manufacture the invention, the operation of the device being as follows:

The cold air, produced by the presence of the ice in the chamber *f*, falls, by natural laws, to the warmer provision-chamber below, by this creating or tending to create a vacuum above the ice, which must be supplied from some source, as well as exerting a weight, mechanically speaking, upon the air in the chamber below.

The weight, as well as the tendency to a vacuum, drives the air from the remotest upper part of the chamber *g*, where it naturally collects, through the conduits *e e*, and into the upper part of the ice-chamber, and is precipitated upon the ice therein, this passage or flowage of air through the apparatus becoming afterward self-continued and regular.

The air, in its passage through the provision-chamber, becomes charged and impregnated with the odors from the provisions contained therein.

It is well known that objects of a low degree of temperature possess a great affinity for warm odors or vapors, exhaled from animal or vegetable matter; consequently, the ice in the ice-chamber possesses a great attraction for the warm odors and animal heat escaping from the contents of the provision-chamber.

These odors strike against and circulate about the ice, and, while tending to melt the latter, are seized by and incorporated with the water resulting from the melting of the ice, and escape with it from the apparatus, through the waste-pipe *d*.

It will be seen, that while a small quantity of air is evolved within the ice-chamber, by the melting and partial evaporation of the ice therein, and a small quantity is also admitted to the provision-chamber by the insertion or removal of provisions, my refrigerator may, notwithstanding, be considered practically an air-tight one, inasmuch as the air gaining access to its interior is infinitessimal in comparison with those admitting and discharging external air directly, as a systematized process of ventilation.

Owing to the exclusion of any great amount of external air from the interior of the structure, the wasting of the ice is very slow, a great economy in this respect being effected in comparison with refrigerators through which a current of such air circulates.

Having thus described the nature and operation of my invention,

What I believe to be novel and original with myself, and desire to secure by Letters Patent of the United States is as follows:

Claim.

An "air-tight" refrigerator, so called, composed of the two chambers *f g*, separated by the partition *b*, and communicating with each other through the cold-air aperture *h*, and the conduit *e* for the ascent of the warm air, the latter passing up through the non-conducting material which forms the walls of the refrigerator, and the whole being arranged for joint operation, as herein shown and described.

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Witnesses:
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