

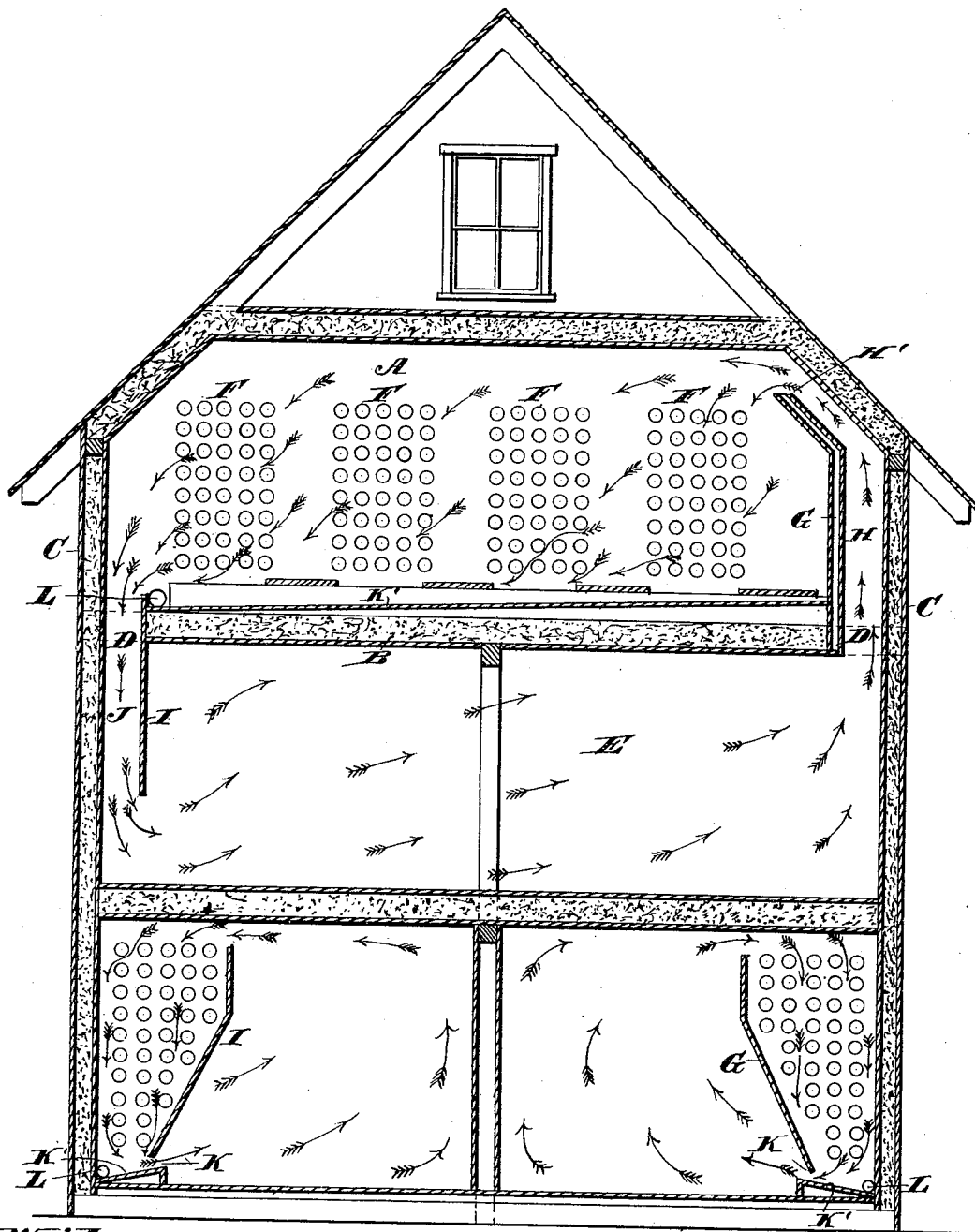
(No Model.)

A. J. CHASE.

REFRIGERATING BUILDINGS AND VESSELS.

No. 346,354.

Patented July 27, 1886.



Witnesses.
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UNITED STATES PATENT OFFICE.

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REFRIGERATING BUILDINGS AND VESSELS.

SPECIFICATION forming part of Letters Patent No. 346,354, dated July 27, 1886.

Application filed April 3, 1886. Serial No. 197,684. (No model.)

To all whom it may concern:

Be it known that I, ANDREW J. CHASE, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Means for Refrigerating Buildings and Vessels, of which the following is a specification.

This invention relates to what is known as the "cold-blast system" for refrigerating compartments and preserving perishable articles, such as meat, contained therein.

Heretofore various systems for refrigerating buildings and vessels have been invented in which a refrigerating-fluid is passed through pipes to cool the surrounding air and cause a circulation thereof through the refrigerating-chamber and the air-cooling chamber. A serious objection existing in such systems resides in the fact that there is no perfect and reliable provision for collecting and carrying off the drip-water resulting from the liquefaction of the frosty covering formed on the pipes during the operation of the processes. This frost collects on the exterior surface of the pipes to a considerable depth, and when the passage of the refrigerating-fluid through the pipes ceases the frosty deposit liquefies and drips from the pipes in the form of the most impure and nauseating water, as it is the impure moisture congealed from the circulation of the air.

To improve the system of artificial refrigeration, avoid the above objection, carry off from the refrigerator the said impure drip-water as rapidly as formed, create an intense degree of cold, and provide for the automatic circulation at great velocity of pure dry air through the refrigerating-compartments, are the objects of my present invention; and these objects I accomplish in the manner and by the means hereinafter described and claimed, reference being made to the accompanying drawing, in which the figure represents a vertical sectional view of a building provided with means in the top story sufficient to refrigerate these stories at the freezing-point of water, but showing the lower story having the refrigerating system in the same story with the refrigerating-apartment—as, for instance, between the decks of a sea-going vessel.

The principal feature of my invention is the utilization of artificial or process refrigeration,

and in order to enable those skilled in the art to make and use the same I will now describe it in detail, referring to the drawing, where— 55

A indicates the upper story and air-cooling chamber of a building, having a floor, B, terminating at a short distance from each side wall, C, to provide the openings D. The space E below the floor is the refrigerating compartment, and there may be as many as three, or even more, of these refrigerating-compartments, each having a floor and side openings, like those above mentioned. In the air-cooling chamber are placed a series of nests, F, of 65 tubes or pipes, each nest, as here shown, comprising a series of forty tubes arranged parallel to each other in horizontal rows. There may be one or any number of these nests, and they may comprise a greater or less number of the parallel horizontal rows of tubes. The passage 8 of a refrigerating-fluid through these tubes creates in their midst an intense degree of cold, and as the lower the temperature through which air may be passed the drier it becomes and the greater the velocity of its circulation. I am enabled by my arrangement to attain these ends. The floor B at one side is provided with an upwardly-projecting insulating portion, G, forming a vertical passage-way, H, opening at its upper end, as at H, into the air-cooling chamber and upon the nest of tubes. The opposite edge of the floor is provided with an attached pendent insulating-partition, I, to form a passage-way, J, 85 which opens at K, into the refrigerating-compartment near the bottom thereof.

In practicing the invention the air in immediate contact with and among the cold pipes falls out in consequence of its increased weight incident to diminished temperature. The up- 90 rising air, containing moisture and heat abstracted from goods placed in the refrigerating-chamber, is drawn in, or, rather, rushes into the space left vacant by the aforesaid cold air and goes through the same process of cooling and drying. The cold air passes down through the passage-way J into the refrigerating-chamber, and the warm moist air rises through the passage-way H, thereby automatically provid- 100 ing a continuous circulation of the air at great velocity.

In the space between the surface of the floor C and the lower rows of pipes comprising the

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nests is arranged an inclined drip-pan, K', the discharge L for the drip being at the lower side of the pan.

5 The nesting of the pipes makes it very convenient to collect and discharge the drip from the refrigerator. In operation the pipes comprising the nests become covered with frost, sometimes several inches thick. This frost is the most impure moisture congealed from the circulating air, and if for any reason or from 10 any cause the passage of the refrigerating fluid through the tube ceases the frost will liquefy and drip from the pipes in the form of most nauseating impure water, which should be discharged immediately from the refrigerator. 15 This is effected by my construction and combination.

The arrangement in the lower story of the building, illustrated in the drawing, is, as before stated, designed for placing the nests of 20 tubes, drip-pans, and insulating-partitions in one or two rooms on the same level. The partitions G and I terminate at top and bottom, to provide the upper and lower passage-ways, H' and K, and in operation the circulation of the 25 air is the same as before explained.

The arrangement of the nests of tubes and the other parts provides a very desirable pre-

serving means, consisting of dry cold air in constant circulation at great velocity. 30

The grouping or nesting of the pipes as described and shown produces better and different results in cooling, drying, and circulating the inclosed air than is accomplished by the same number of pipes scattered or distributed 35 through a large part of the air-cooling chamber. The nesting of the pipes also provides a space about each nest, so that a workman can pass around the same for repairing, cleaning, and other purposes. 40

Having thus described my invention, what I claim is—

As a means for refrigerating buildings or vessels, the combination of the closely-nested tubes for the passage of the refrigerating-fluid, 15 the inclined drip pan or pans thereunder, and the insulating partitions G and I, arranged to provide the upper and lower openings, H' and K, the combination being substantially as shown, for the purposes described. 50

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

ANDREW J. CHASE.

Witnesses:

JOS. L. COOMBS,

J. A. RUTHERFORD.