

(No Model.)

A. I. DEXTER.
REFRIGERATOR BUILDING.

No. 493,256.

Patented Mar. 14, 1893.

Fig. 1.

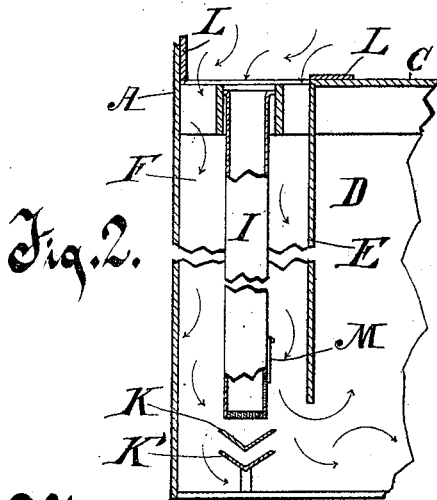
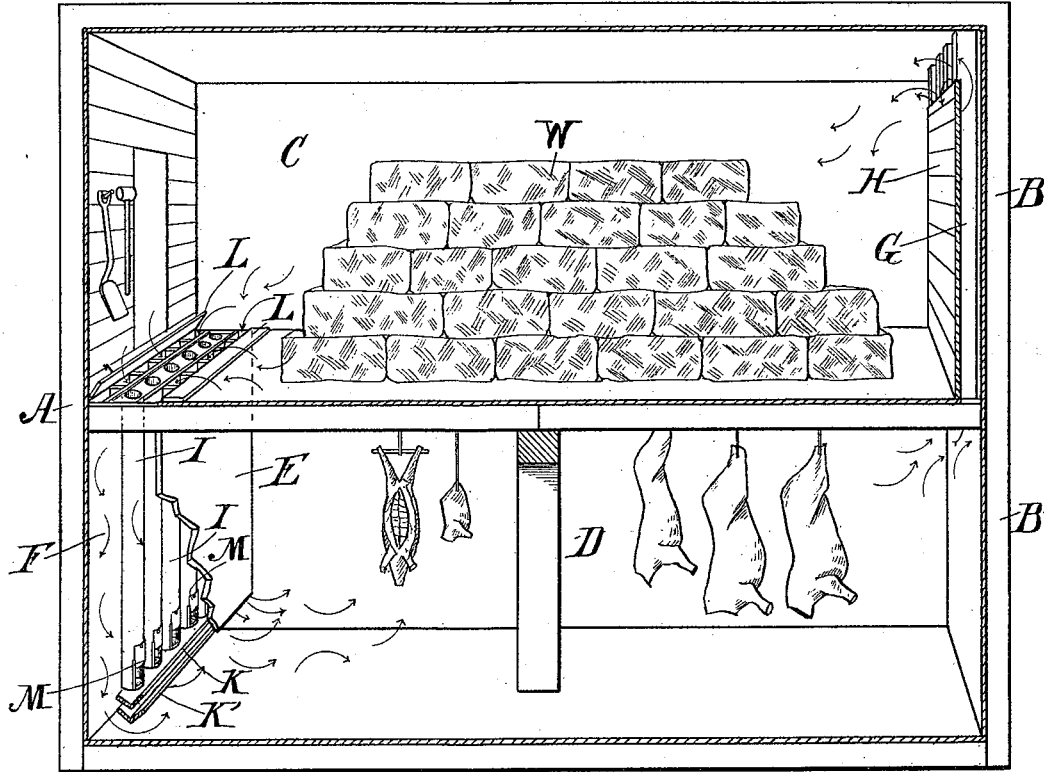


Fig. 2.

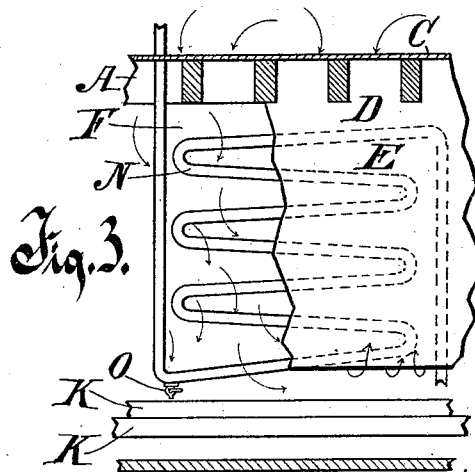


Fig. 3.

Witnesses.

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UNITED STATES PATENT OFFICE

AVELYN I. DEXTER, OF WHITEWATER, WISCONSIN.

REFRIGERATOR-BUILDING.

SPECIFICATION forming part of Letters Patent No. 493,256, dated March 14, 1893.

Application filed November 27, 1891. Serial No. 413,219. (No model.)

To all whom it may concern:

Be it known that I, AVELYN I. DEXTER, of Whitewater, in the county of Walworth and State of Wisconsin, have invented a new and useful Improvement in Refrigerators, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

My invention relates to improvements in refrigerators or cold storage buildings.

The object of my improvements is to combine in a single building with a storage apartment or room for produce a storage apartment for natural ice and a chemical refrigerating system whereby several very important objects are attained which cannot be attained either by the natural ice or the chemical refrigerator alone. By locating the ice storage apartment in the upper story of the building, the building is kept at a uniform low temperature by the presence of the ice thus stored, which is sufficiently cold to preserve certain kinds of produce but not sufficiently cold to preserve all kinds; while by the use of the chemical refrigerator the temperature of the storage room may be lowered below that of the ice to any degree desired as found necessary for preserving certain other kinds of produce. It is obvious also, that changes in the exterior conditions of the atmosphere from intense heat to intense cold make it desirable and important to be able to control the temperature of the storage rooms, which cannot be done when dependent upon the uniform temperature of the stored ice alone, and can only be accomplished through the aid of a chemical refrigerator, while the presence of the melting ice in the ice storage room performs an important function at the same time in condensing the foul and impure vapors arising from the produce in the lower storage room which condensed impurities are carried from the building by the constant flow of water from the melting ice.

The construction of my invention is explained by reference to the accompanying drawings in which

Figure 1 represents a vertical section thereof. Fig. 2 is a detail, showing the device for producing chemical refrigeration.

Like parts are represented by the same reference letters in both views.

A represents the exterior inclosing wall of the building which is formed in two stories, B and B'.

C is the ice storage room.

D is the produce room.

E is a wall inclosing the chemical refrigerator.

F is a cold air flue or passage, which communicates at its upper end through the floor C with the ice storage room B, and at its lower end with the storage room B'. An air passage or duct is formed through the floor C which communicates with the air passage G located preferably but not necessarily between the exterior wall and the interior wall or partition H, which wall H extends from the floor of the ice room to near the ceiling, whereby the air as it becomes warmer in the storage room below rises and passes therefrom up through the passage G into the upper part of the ice storage room, thus carrying with it the foul and impure vapors arising from the produce which is stored below. As the air and impure vapors are thus brought into the ice storage room they are cooled by contact with the ice therein whereby the vapors are condensed and flow away as stated with the water from the melting ice.

The chemical refrigerator referred to consists of a number of metallic tanks I. The tanks I are suspended from the floor of the ice room in the flue F. When for the reasons stated it is desirable to lower the temperature of the lower storage room, the tanks I are filled with crushed ice and salt, which thus commingled form a freezing mixture by which an intense cold is produced in said cold air flue F, which is communicated by and through the air throughout the entire produce storage room of the building. As the refrigerating tanks are thus located in the cold air flue, the air is brought to a low temperature before coming in contact with said tank, whereby it does not become necessary to re-charge said artificial refrigerator as frequently as it would otherwise be necessary to do. As the air is cooled by contact with the tank of the refrigerator, it becomes heavier and is caused thereby to fall more rapidly, whereby the circulation of the air to and from the ice storage room through the produce room is greatly accelerated.

K, and K' are drip troughs through and by which the water condensed upon the surface of the ice tanks is conducted from the room. The trough K' is provided to carry such water of condensation as may drip from the exterior of the trough K.

The upper end of the air flue F is provided with trap doors L, L, by which it is closed when charging the tanks, or when desired to close communication between the ice compartment and the produce compartment below.

The several tanks I are preferably provided with doors M, which may be opened when desirous to clean out the tanks.

It is obvious that by thus using the chemical refrigerator in connection with the stored ice, the temperature of the storage compartments can as stated be lowered and regulated at will to meet the various requirements for preserving different products. An intense cold may be produced for preserving meat, or other animal products, or a higher temperature may be used for preserving vegetables; while by thus locating the refrigerating device within the cold air passage, the air in descending is cooled by contact therewith, whereby it falls more rapidly and thereby accelerates the circulation of the air in its course through said compartments, which has the effect to more rapidly and effectually remove the noxious vapors from the storage room, while the moisture which congeals upon the surface of said refrigerator tanks has the effect to produce a dryer atmosphere in the produce room.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination in a refrigerator or storage building having an ice storage apart-

ment, a produce apartment located below said ice apartment, and upward and downward air flues or passages communicating between said ice and said produce apartments of a chemical refrigerator located in the downward air flue communicating from said ice apartment to said produce apartment, said chemical refrigerator being adapted to cool the air in its passage through said downward flue and accelerate its movement, substantially as and for the purpose specified.

2. In a refrigerator or cold storage building the combination of an ice storage apartment, a produce apartment located below said ice apartment, an upward air duct communicating from the upper part of said lower apartment with the upper part of said ice apartment; a downward air flue communicating from the lower part of said ice apartment to the lower part of said produce apartment, and a chemical refrigerator located in said downward air flue, adapted to intensify the cold air as it falls from said ice storage apartment to the produce apartment substantially as set forth.

3. In a refrigerator or cold storage building the combination with the ice apartment and produce apartment located below said ice apartment, having upward and downward air flues communicating between said apartments of a series of metallic ice receivers suspended at their upper end from the floor of said ice apartment and extending downward into said produce apartment, all substantially as and for the purpose specified.

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

AVELYN I. DEXTER.

Witnesses:

C. T. BENEDICT,
ANNA V. FAUST.