

(No Model.)

A. I. DEXTER.
COLD STORAGE BUILDING.

No. 525,695.

Patented Sept. 11, 1894.

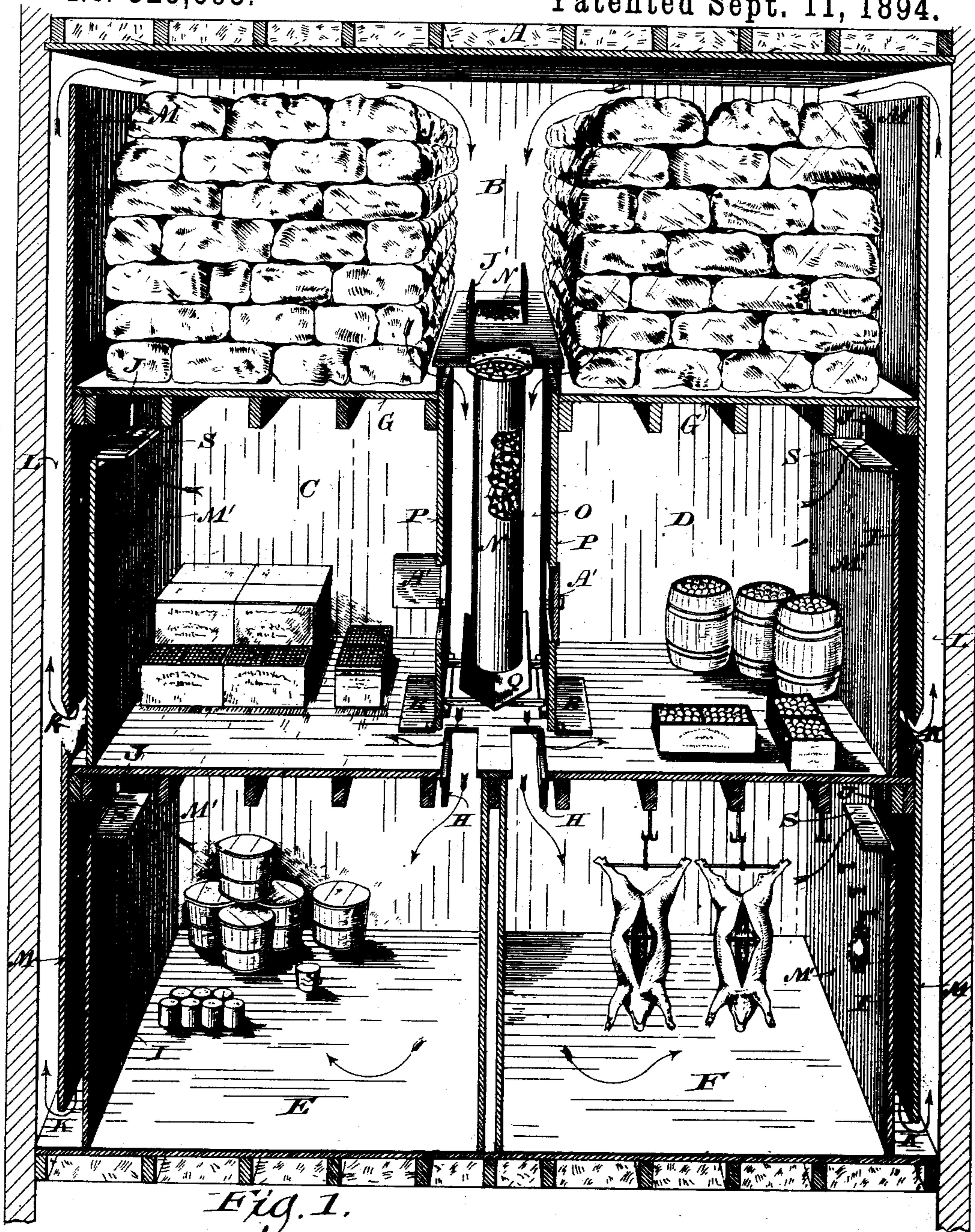


Fig. 1.

Witnesses
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Fig. 2.

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UNITED STATES PATENT OFFICE.

AVELYN I. DEXTER, OF WAUWATOSA, WISCONSIN.

COLD-STORAGE BUILDING.

SPECIFICATION forming part of Letters Patent No. 525,695, dated September 11, 1894.

Application filed October 23, 1893. Serial No. 488,861. (No model.)

To all whom it may concern:

Be it known that I, AVELYN I. DEXTER, a citizen of the United States, residing at Wauwatos, in the county of Milwaukee and State of Wisconsin, have invented new and useful Improvements in Refrigerator or Cold-Storage Buildings, of which the following is a specification.

My invention relates to improvements in that class of refrigerator or cold storage buildings which combine in a single plant a system of both natural and chemical refrigeration.

My invention pertains more especially to the peculiar construction and arrangement of the storage rooms, the air flues and draft controlling appliances by which the combined action of the two systems may be made effective, the currents of air from each may be mingled and modified as desired, and air of various degrees of temperature controlled at will and conducted to any of the several storage rooms, whereby each of the several storage rooms in the building may be supplied with and maintained at just such a temperature as is best adapted to preserve the kind of produce in such room. It is a well known fact that a low temperature which is best adapted to preserve meat, fish and other animal products would destroy eggs, fruit, &c., which require a higher temperature; while other products are best preserved by an intermediate temperature.

My invention also pertains to the heat intercepting air flues of the storage rooms. As cold is a negative state or condition which is attained by the absence of heat, the storage rooms being once cooled, the desired temperature is easily maintained at a small expense of ice so long as the heat which penetrates the exterior walls can be intercepted and prevented from reaching the storage rooms. This most desirable object is attained by a novel arrangement of the heat intercepting air flues located around the interior of the inclosing wall.

Heretofore the warm air flues have always led direct from the ceiling or upper part of the storage room to the upper part of the ice room above, as the warm air, owing to its buoyancy will not enter a flue direct from the lower part of the room.

By my improvement the warm air at the upper part of the storage room enters the flue at that point, which flue leads first downward to the floor and then upward to the upper part of the ice room, whereby the air is caused to pass twice between the exterior wall and the storage room before escaping, thus effectually intercepting such heat as may penetrate the exterior wall, and carrying it to the ice room, while such heat has a tendency to accelerate the movement of the air as it rises in said intercepting air flues.

My invention is further explained by reference to the accompanying drawings, in which—

Figure 1 represents a vertical section thereof. Fig. 2 is a detail representing a vertical section of the upper ends of the ice tanks N and that portion of the floor and cover through which they communicate with the ice storage room.

Like parts are represented by the same reference letters.

The inclosing walls A of the building are preferably lined with mineral wool or other non-conductor of heat, in the ordinary way. Ice is stored in the upper part of the building in the room B, beneath which any desired number of separate storage rooms C, D, E and F, may be located. When in operation the cold air from the ice room, owing to its greater specific gravity descends to the storage room below the floor G, while the warmer air, displaced thereby is caused to pass up into the ice room above. As there is no direct means of communication between the lower room and the ice room the air in passing to the ice room is caused to enter the flues I, at their upper ends through the opening J, when it passes down in said flue I, and from thence through the opening K, when it passes up through the flue L, over the upper edge of the wall M, into the upper part of the ice room. Thus a circulation of air to and from the ice room through the storage rooms is maintained, and the storage rooms are kept at as low a temperature as can be produced by the natural ice alone.

To produce a still lower temperature by chemical refrigeration, a series of metallic tanks N, are provided which tanks are suspended from the floor of the ice room within

the flue O, which flue O, is formed by the inclosing walls P, P. This flue is preferably located centrally in the building as shown so as to be readily put in communication with
5 any one or all of the several produce rooms as may be desired, whereby through the aid of the draft controlling doors R, the cold air from the chemical refrigerator may be led to or excluded from any one or more of said stor-
10 age rooms, whereby by the adjustment of said doors the temperature of any of the rooms may be regulated to any desired intermediate degree between the two extremes as the pro-
15 duce in such room may require. Communi- cation with the flues I, is controlled by the doors S. The upper ends of the ice tanks N are provided with a door J'.

When in operation the moisture of the at-
20 mosphere congeals upon the surface of the tanks N. By breaking and removing such ice from the tanks at frequent intervals the action of the refrigerator is accelerated and a dry atmosphere, important for the proper preservation of the produce, is maintained.

25 For convenience in removing the ice from the tank, the walls P of the air flue are provided with doors A'. Q is a trough formed for the reception of the ice as it is broken from the freezing tanks.

30 Having thus described my invention, what

I claim as new, and desire to secure by Letters Patent, is—

1. In a refrigerator or cold storage building, the combination of an ice storage room; one
35 or more produce storage rooms located below said ice storage room; downward cold air flues communicating from said ice storage room to said produce rooms; and heat intercepting
40 flues communicating first downward and then upward from the upper parts of said produce storage rooms to said ice storage room, sub-
stantially as and for the purpose set forth.

2. The combination in a refrigerator or cold storage building of two or more produce stor-
age rooms: a chemical refrigerator: cold air
45 distributing flues communicating between said chemical refrigerator and said produce storage rooms: an ice storage room located
above said chemical refrigerator and warm
50 air flues, communicating from the upper part of said produce storage rooms, first downward
and then upward to the upper part of said ice storage room, all substantially as and for the purpose specified.

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

AVELYN I. DEXTER.

Witnesses:

JAS. B. ERWIN,

LEVERETT C. WHEELER.