

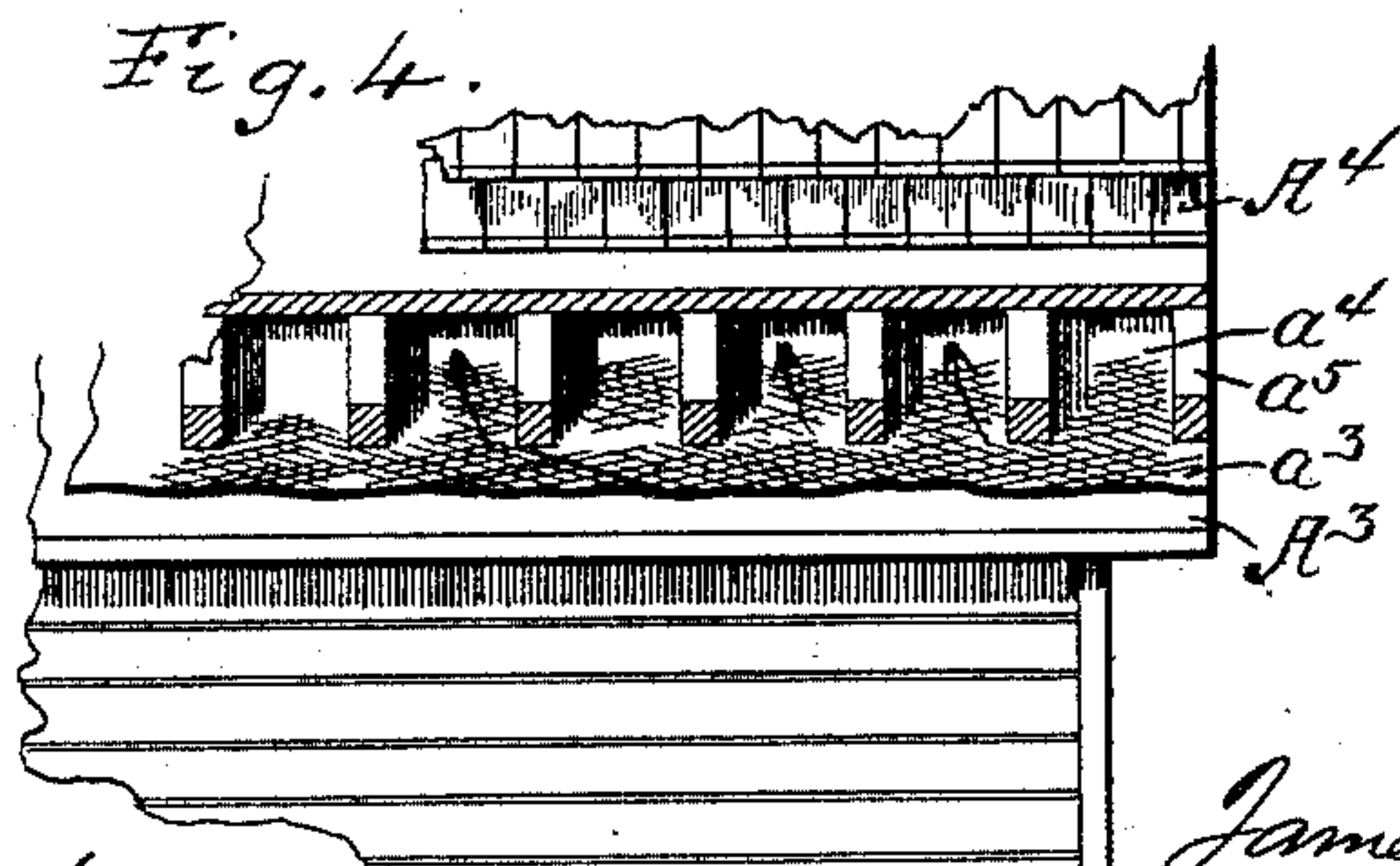
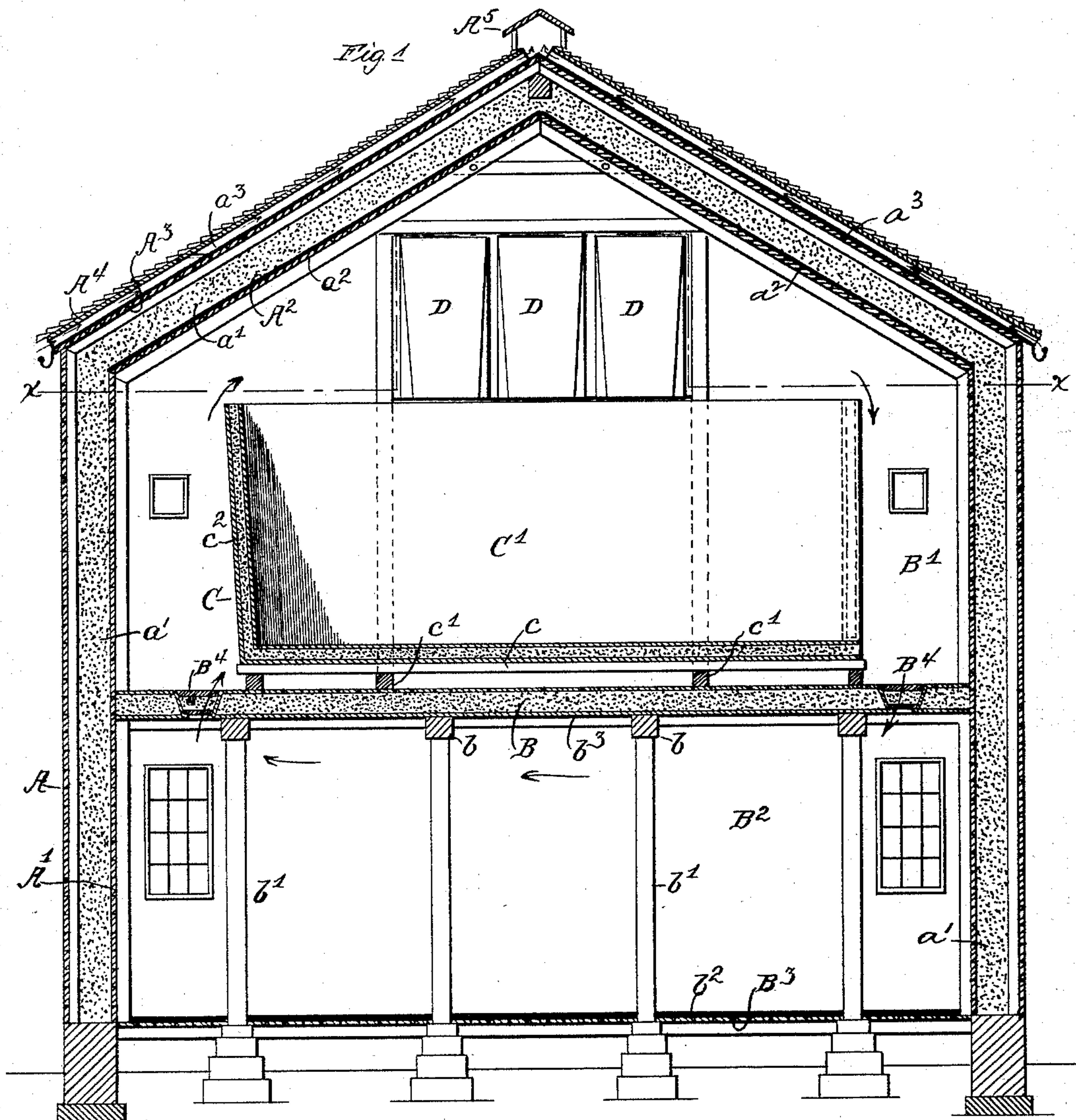
(No Model.)

2 Sheets—Sheet 1.

J. M. ROSSE.
ICE FORMING AND PRESERVING ROOM.

No. 485,805.

Patented Nov. 8, 1892.



Witnesses
Charles Leonard
J. P. Wilson

Inventor
James M. Rosse
By his Attorney
W. L. Bertram

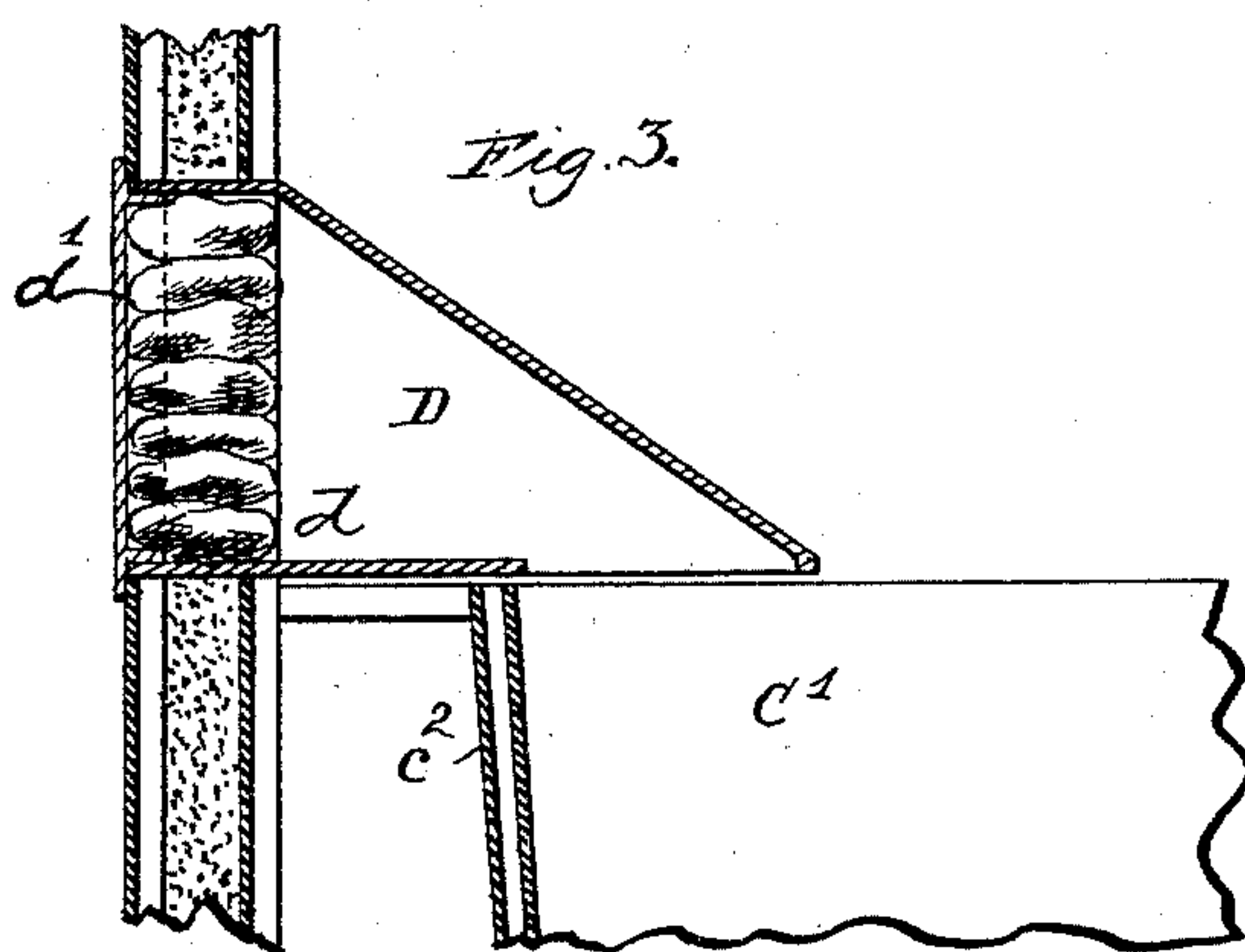
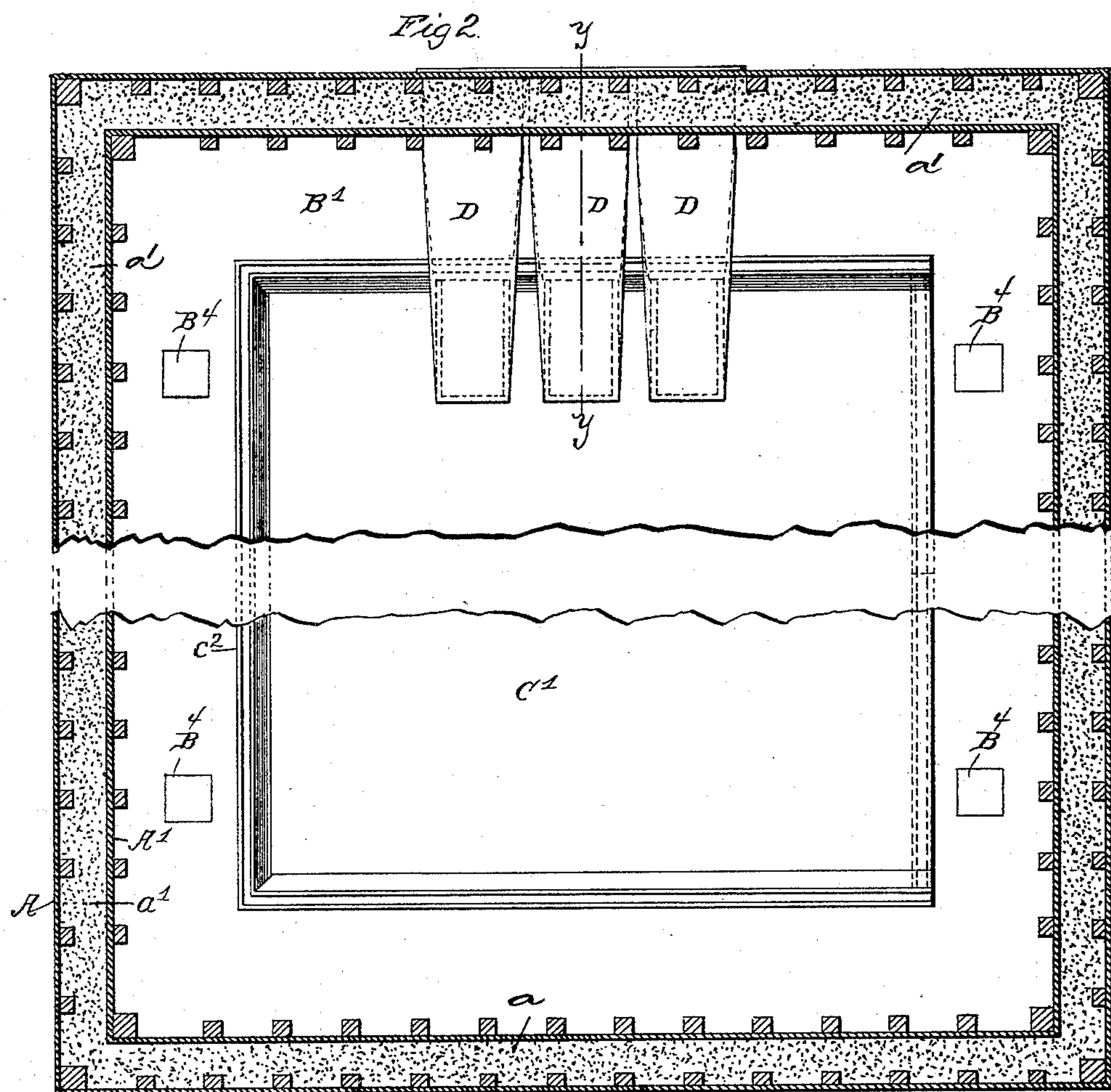
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Witnesses
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UNITED STATES PATENT OFFICE.

JAMES MONROE ROSSE, OF NYACK, NEW YORK.

ICE-FORMING AND PRESERVING ROOM.

SPECIFICATION forming part of Letters Patent No. 485,805, dated November 8, 1892.

Application filed October 13, 1891. Serial No. 408,570. (No model.)

To all whom it may concern:

Be it known that I, JAMES MONROE ROSSE, of Nyack, county of Rockland, and State of New York, have invented a certain new and useful Improvement in Ice-Forming and Preserving Rooms, of which the following is a specification.

This invention relates to rooms or receptacles for cold-storage of fruits, vegetables, &c., and within which ice is formed for such refrigeration; and the invention consists in the construction and novel arrangement of parts, as hereinafter set forth.

In the accompanying drawings, Figure 1 is a transverse vertical section of a device embodying my invention. Fig. 2 is a horizontal section on the line xx of Fig. 1. Fig. 3 is an enlarged sectional detail. Fig. 4 is an enlarged view showing the flues extending longitudinally at the roof-ridge.

Referring by letter to the drawings, A designates the outer vertical walls of a room, and A' shows the inner vertical walls of the room. These walls A A' form a double wall at all the vertical sides of the room and they may be constructed of any suitable material—such, for instance, as sheathing-boards nailed to studs for the outer wall and any suitable boards nailed to studs for the inner walls. There is a space formed between the outer and inner walls, which is closely packed with insulating material a' , such as sawdust. The roof preferably has a pitch from its center to opposite side walls, and the roof, like the side walls, is made double—that is, it consists of the inner portion A², supported on rafters, and the outer portion A³, also supported on rafters. The space between the portions A² A³ of the roof is closely packed with insulating material a' . Preferably a layer of tarred or similar paper a^2 is placed between the material a' and the boards of the inner-roof portion A² and a similar paper a^3 may be laid on the sheathing-boards of the roof portion A³. Above the portion A³ of the roof I desire to have a free circulation of air. I therefore provide flues a^4 , which are formed by securing any desired number of strips a^5 to the upper surface of the roof portion A³, and placing a shingle or similar roofing A⁴ on the strips. These ducts a^4 are open at the bottom or at the eaves of the structure and at

the upper end are open to the atmosphere. Preferably the upper ends of the ducts will open into a hooded duct A⁵, extending longitudinally at the roof-ridge and having suitable openings in its sides.

A flooring or partition B divides the structure into an upper chamber B' and a lower chamber B². The flooring B is supported on beams b , which rest upon or are framed into standards b' . The chamber B² has a flooring B³, which is preferably covered with concrete or similar non-conducting material b^2 . The flooring B is preferably double and has its space closely packed with insulating material b^3 , such as sawdust. At opposite sides the floor B is provided with a series of openings B⁴, which provide air communication between the chambers B' B², so that a circulation of cold dry air may be maintained through the chamber B², within which material to be preserved is placed, as will more fully appear hereinafter. For the purpose of affording light the walls of the chamber B may be provided with windows, as shown.

C designates an ice-making tank located in the upper chamber B', and in Fig. 1 C' represents a solid body of ice formed therein. The tank C has a less surface area than the floor B and is located between the opposite openings B⁴ for a purpose hereinafter specified. The tank C consists of a platform c , resting on strips c' , which raise the platform slightly above the surface of the floor B, so that there is a space for the free circulation of air beneath the tank, and side walls c^2 , which extend upward from the platform c . The tank is open at the top and one of the sides is made in sections and removable, so that after a body of ice shall have been formed the said side may be moved to allow the passage of air over the exposed surfaces of the ice in its transit to the lower or preserving chamber. The inner surfaces of the tank are suitably lined with metal or other waterproof material and its joints are rendered water-tight by any suitable means. The side walls of the tank preferably flare outward toward the top, so that the expansion of the water while freezing will be directed upward and not laterally.

D designates conducting tubes or funnels for conducting the air from the outer side of

the structure to the tank C for the purpose of freezing the water contained therein. There may be any desired number of these conducting-tubes and they may be of any desired form. I have, however, shown but three conductors, formed in the shape of hoods, communicating with the outer air through apertures in one of the end walls of the structure and extending a short distance over the tank.

It is to be understood that the ice is formed only during a time when the temperature is sufficiently low, or during the winter months, and that a sufficient quantity of mass is formed to last through the warmer weather for preserving fruits, &c., in the chamber B². Of course during the process of forming ice the openings B⁴ are tightly sealed by hatches or bags of sawdust, as shown in Figs. 1 and 2, and during warm weather the passages through the wall communicating with the conducting-tubes D are to be tightly sealed, and I find that bags of sawdust *d* serve the purpose of sealing, and blinds or shutters *d'* may also be closed against the bags.

Having described the mechanical construction of my invention, I will now describe the process of forming ice therein and of utilizing the ice for preserving.

Water is placed in the tank to a depth of about three inches and this is allowed to freeze by admitting cold outside air through the conducting-tubes D. When this first layer of water is frozen sufficiently hard, more water is poured upon it and allowed to freeze, and this process is carried on until the tank is filled, or nearly so, with a solid mass of ice. When it is desired to utilize the ice for preserving material in the lower chamber, any desired number of the hatches are removed from the openings B⁴ and one of the tank-walls removed. The air in passing over the ice will be thoroughly cooled and dried, and it will circulate, as indicated by the arrows, through the openings B⁴ at one side of the ice into the lower chamber and back again through the openings B⁴ at the opposite side of the ice. It is obvious that the flow of air to and from the lower chamber may be regulated by closing more or less of the openings B⁴.

I have described and shown my ice-chamber and preserving-chamber as arranged one above the other; but I do not wish to be con-

finer to this construction, as it is obvious that the chambers may be placed side by side with the air-circulating apertures or openings B⁴ in the top and bottom of the dividing partition. Neither do I wish to be confined to the described construction of my ice-tank, as its walls may be made without any incline with good results.

Having described my invention, what I claim, and desire to secure by Letters Patent, in an ice-forming chamber and preserving-room, is—

1. A refrigerating and preserving building comprising double side walls A A', packed with insulating material, a roof having the inner portion A² and outer portion A³, each supported on an independent series of rafters, insulating material *a* between said outer and inner portions, a layer *a'* of tarred material between the material *a* and the inner roof portion, a similar layer *a'* above the outer roof portion, a series of parallel contiguous air-ducts above the outer roof portion A² and covered by the roofing proper, said ducts running from each eave to the ridge and communicating with the atmosphere at both ends, a flooring B³, having a non-conducting surface, and an intermediate horizontal transverse partition B, dividing the interior into an upper and a lower compartment, substantially as specified.

2. In an ice-forming and preserving building, the combination, with the upper chamber B', surrounded on all sides by double packed walls and roofing, said roofing having a series of air-ducts therein, of an ice-forming tank located in said chamber and having a less surface area than said chamber, the walls of said tank being flaring and one removable, a series of ducts or hoods D, communicating with the outer air through a wall of the building and extending over said tank, and an adjacent preserving-chamber having openings communicating with the chamber B' and means for sealing said openings and the hoods or ducts D when desired, substantially as specified.

JAMES MONROE ROSSE.

Witnesses:

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