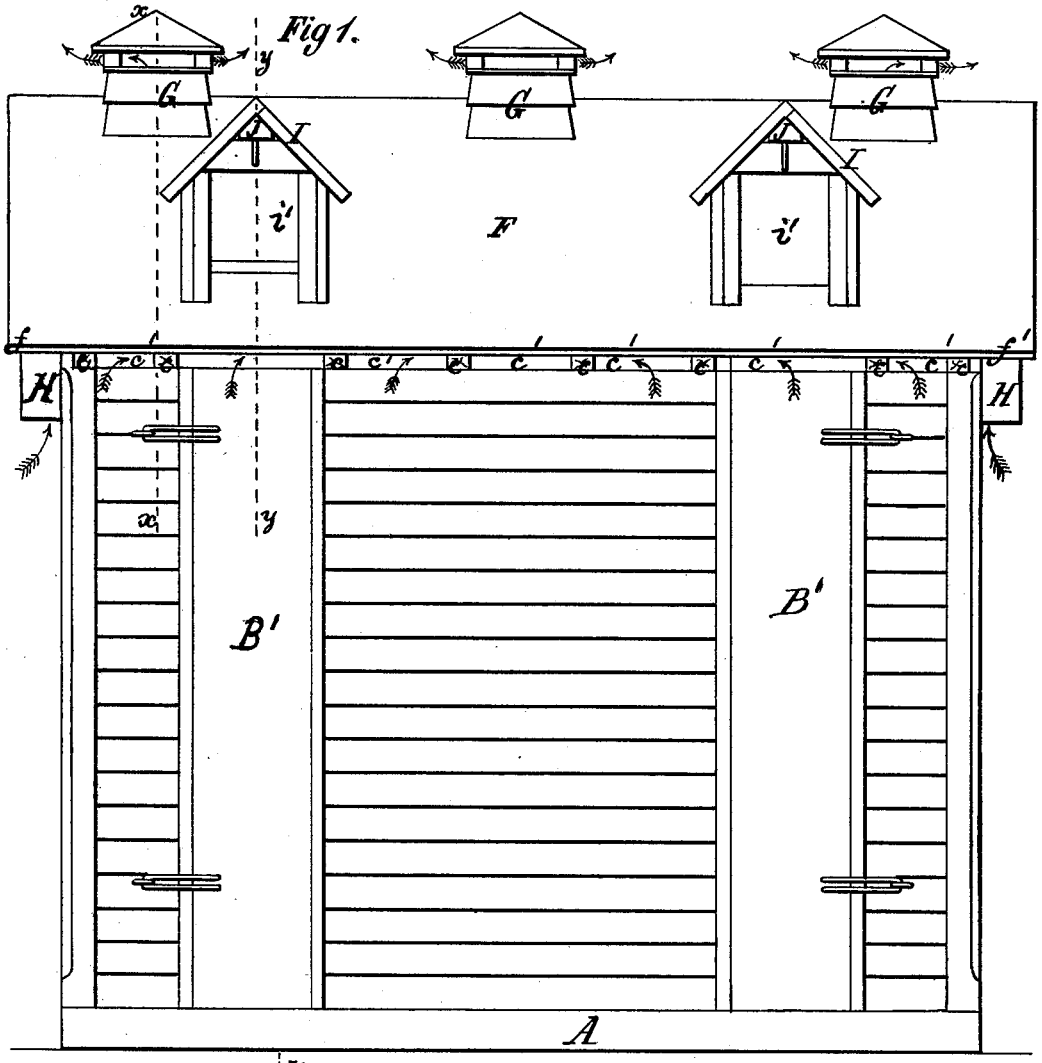
2 Sheets—Sheet 1.

E. SCHANDEIN.

ICE-HOUSE.

No. 191,719. Patented June 5, 1877.

Fig 1.



Witnesses:
J. F. Theodore Lang
James Martin Jr.

Inventor:
Emil Schandein
by Mason Fenwick & Lawrence

Fig 3.

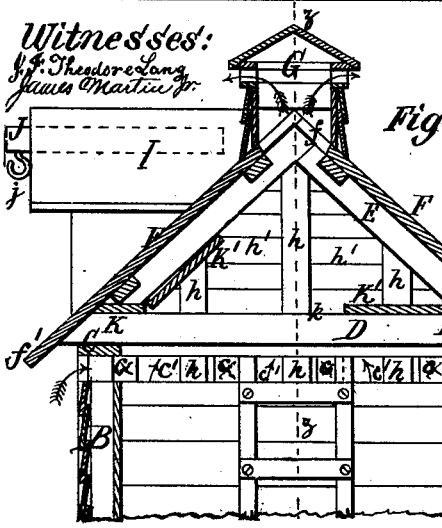
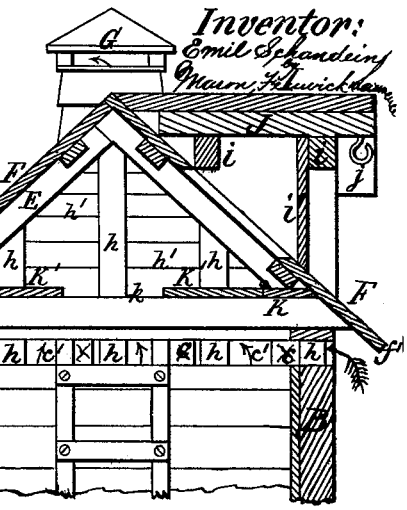


Fig 4.



2 Sheets—Sheet 2.

E. SCHANDEIN.

ICE-HOUSE.

No. 191,719. Patented June 5, 1877.

Fig2.

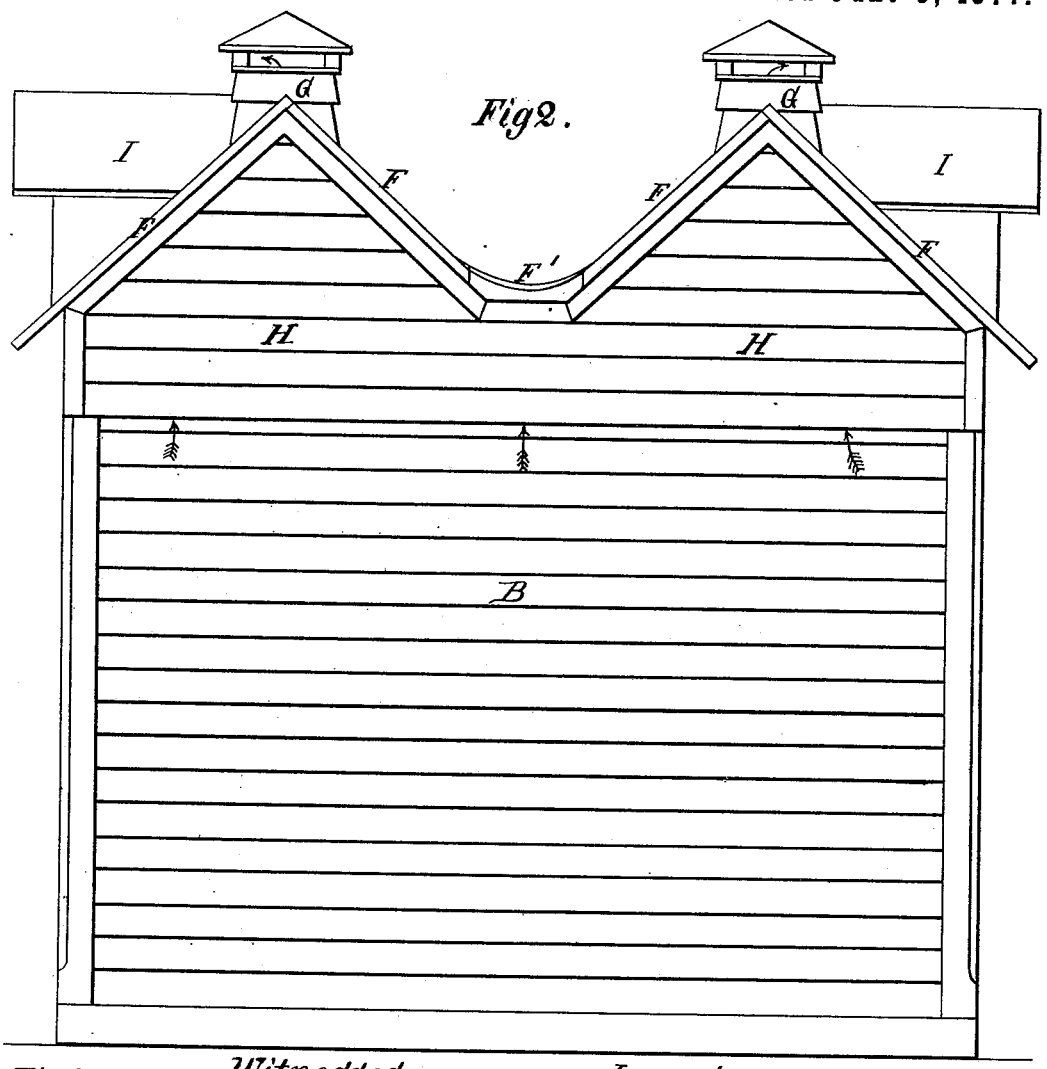


Fig5.

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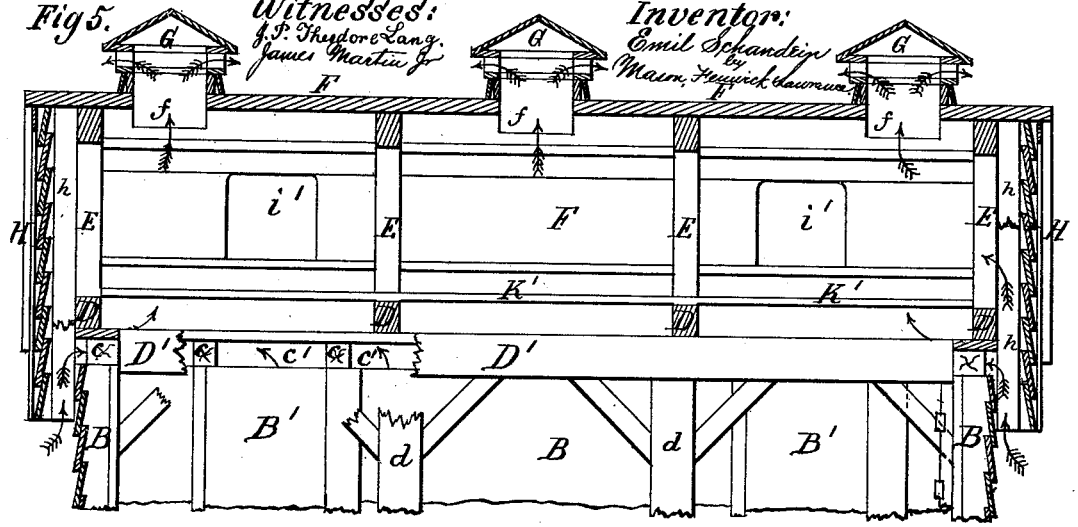

UNITED STATES PATENT OFFICE.

EMIL SCHANDEIN, OF MILWAUKEE, WISCONSIN.

IMPROVEMENT IN ICE-HOUSES.

Specification forming part of Letters Patent No. 191,719, dated June 5, 1877; application filed February 20, 1877.

To all whom it may concern:

Be it known that I, EMIL SCHANDEIN, of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a new and Improved Ice-House; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front elevation of my improved ice-house. Fig. 2 is a side elevation of the same. Fig. 3 is a part section of the same in the direction of line *x x* in Fig. 1. Fig. 4 is a similar section in the direction of line *y y* in Fig. 1. Fig. 5 is a section through the said ice-house in the direction of line *z z* in Fig. 3.

The nature of my invention consists of certain constructions, combinations, and arrangements of parts, as hereinafter described and specifically claimed, whereby an ice-house is produced with an improved ventilation and improved means for storing and removing ice.

The object of my invention is to prevent the formation of water upon the surface of the packed ice by removing the vapor rising therefrom by means of a constant and well-distributed draft of fresh air. Another object of my invention is to provide such facilities for the storing up and removing of ice that the labor may be performed more perfectly and in a shorter time than heretofore.

In the accompanying drawings, A is a suitable platform; and B, an inclosure of double side walls, such as are used for preserving ice. The tops of the said side walls are trimmed up and provided with an elevated sill-frame, C, which rests upon blocks *c*, arranged at suitable distances apart, and fastened to the tops of the side walls. Upon the frame C the cross-timbers D of the roof are placed, which may have a central support in the shape of a girder, D′, and upright columns *d*. The said cross-timbers D support a double-pitched or twin roof, F, by means of rafters E. The roof F, which is of suitable construction and material, is provided with openings *f* and capped ventilating-chimneys G. The gables H of the roof project laterally over the side walls, so that the air may pass between them and the walls, and thence through the opening *c′*, between the blocks *c*, into the interior of the building. To prevent rain-drifts from entering with the draft, the direction of the said draft is broken by extending the said gables down beyond the level of the openings *c′*. The said gables are of light construction, but weather-proof, and the studs *h* for the support of the weather-boards *h′* may be used for subdividing and equalizing the draft before it enters the building. The eaves *f′* of the roof are also made lower than usual, to prevent the rain from entering the openings *c′*, which are underneath them. The roofs F are united by means of a gutter, F′, which collects and draws off the moisture. The outer parts of the roof are provided with a number of dormer-windows, I, which are provided with sliding beams J, supported upon cross-beams *i* of the dormer-windows, and which serve to support, by means of hooks *j*, tackles for the purpose of raising and lowering heavy ice blocks. The said beams J, while in operation, are slid out to the full extent, in order to prevent injury to the eaves *f* of the roof when heavy ice blocks are hoisted above them to be delivered through the dormer-windows. The said dormer-windows are securely closed by doors *i′ i′* when the ice-house has received its supply. The cross-beams D serve as supports for a floor, which consists of a stationary part, K, at each end of the cross-beams and at each side of the gutter F′. To the said parts K swinging boards K′ are hinged, as at *t*, between which a space, *k*, is left, which extends from one gable to the other, and which affords a direct passage for the draft introduced below. The said roofing F and flooring K K′ form, with the gables H, a chamber, which serves for heating the air within by means of the heat of the sun without, whereby the colder air around the building is caused to enter through the spaces *c′* to restore the equilibrium of pressure. Directly below the said dormer-windows I side walls B of the building are provided with narrow doors B′, which occupy the whole height of the said walls, thereby greatly facilitating the storing or packing of the ice.

By subdividing the surface to be roofed over, and providing such subdivisions each with a separate roof, joined together by means of gutters for the collection and removal of rain-

water, I preserve, and even increase, the amount of heating-surface over that presented by one large roof, but I greatly diminish the room inclosed by such roofs, thus exposing a greatly-reduced amount of air to the said heated surface, which, consequently, becomes warm in a very short time, and thereby very speedily and effectually increases the draft of the ice-house, the increase being nearly double over that of a single roof.

Operation: The house is thoroughly cleaned and dried, and all the doors opened. The storing away of the ice is then performed in the usual manner, at the beginning without the aid of a tackle, and afterward with it, until it is deemed inconvenient to pass the ice through the doors. The doors are then closed, and the ice is now elevated with the tackle to the dormer-windows I, the beam J then being slid out, as before described. When the ice is at the proper elevation, the beam J is pushed back, and the ice is passed through the opening in the roof, and deposited upon the board K′, either on the one on the left or on the right side of the passage, as circumstances require. If the ice-blocks should be too large to be passed through the space *k*, one of the boards, K′, is raised on its hinges *t*, to allow sufficient room for its passage. When the surface of the stored ice rises to the tops of the side walls B, the building is filled, and all the doors B′ below and those *i*′ above are closed.

The air from without the building has free access through the spaces *c* to the surface of the ice, thereby preventing accumulation of heat and generation of steam above the said surface during calm and cloudy weather; but if the sun is shining during a calm, the heated air between the roof and the flooring K K′ is forced out through the ventilating-chimneys G by the force of the colder air entering below, and a draft is produced, which is proportionate in force to the heat of the sun-rays. The draft thus produced passes over the whole surface of the ice, and removes every particle of vapor which may rise therefrom, and which otherwise would condense and moisten the ice, thus furnishing the most powerful means for its destruction, even if it should be covered with sawdust, wooden shavings, hay, or any other article of like nature.

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

1. In an ice-house, the combination of the walls B, having openings *c*′, and the overhanging gable H of the roof F, substantially as and for the purpose set forth.

2. The combination of the single ventilated ice-chamber of an ice-house and a twin ventilating-roof, whereby the force of ventilation-currents caused by external heating of the roof is augmented, substantially as set forth.

3. The roof having the door *i* in the dormer-window, the said door forming, practically, a continuation of the door B′ in the body of the ice-house without cutting through the plate or sill on which the roof rests, substantially as and for the purpose described.

4. In an ice-house, a ventilating-roof, as described, having a floor, K and K′, consisting of a stationary part and a movable part hinged thereto, whereby the central ventilating-opening may be made small, to serve as a flue for the passage of air, moisture, and vapor to the ventilators in the roof from below the floor, and the size of the space *k* between said hinged floors for the passage of ice through it may be enlarged at pleasure, substantially as and for the purpose described.

Witness my hand in the matter of my application for a patent for an improved ice-house this 17th day of February, 1877.

EMIL SCHANDEIN.

Witnesses:
FRED. MEYER,
G. T. STAMM.