

H. J. SLEE & E. K. GOSS,
Mode of Preserving, Protecting, and Handling Ice.

No. 219,121.

Patented Sept. 2, 1879.

Fig 1.

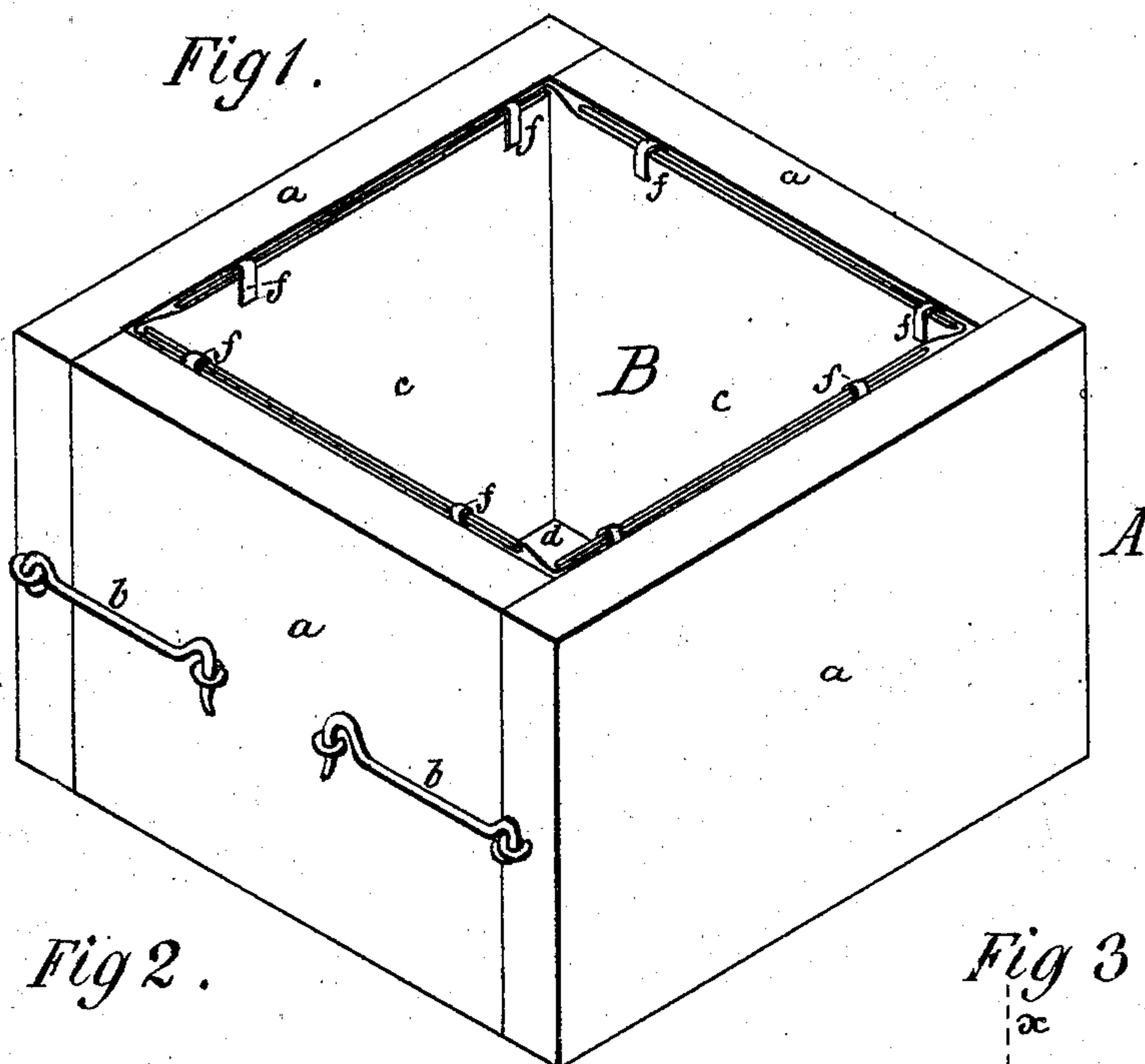


Fig 2.

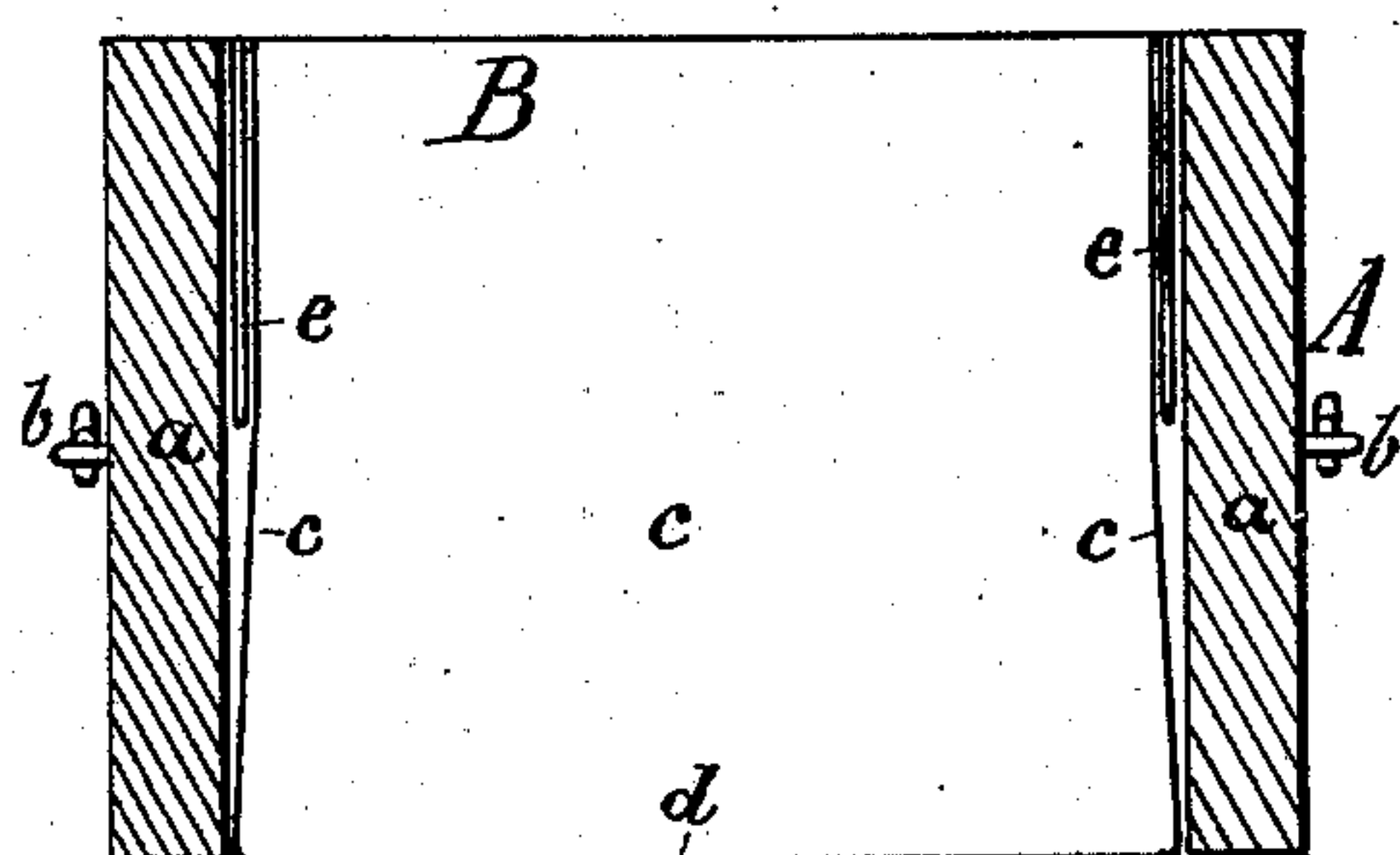


Fig 3.

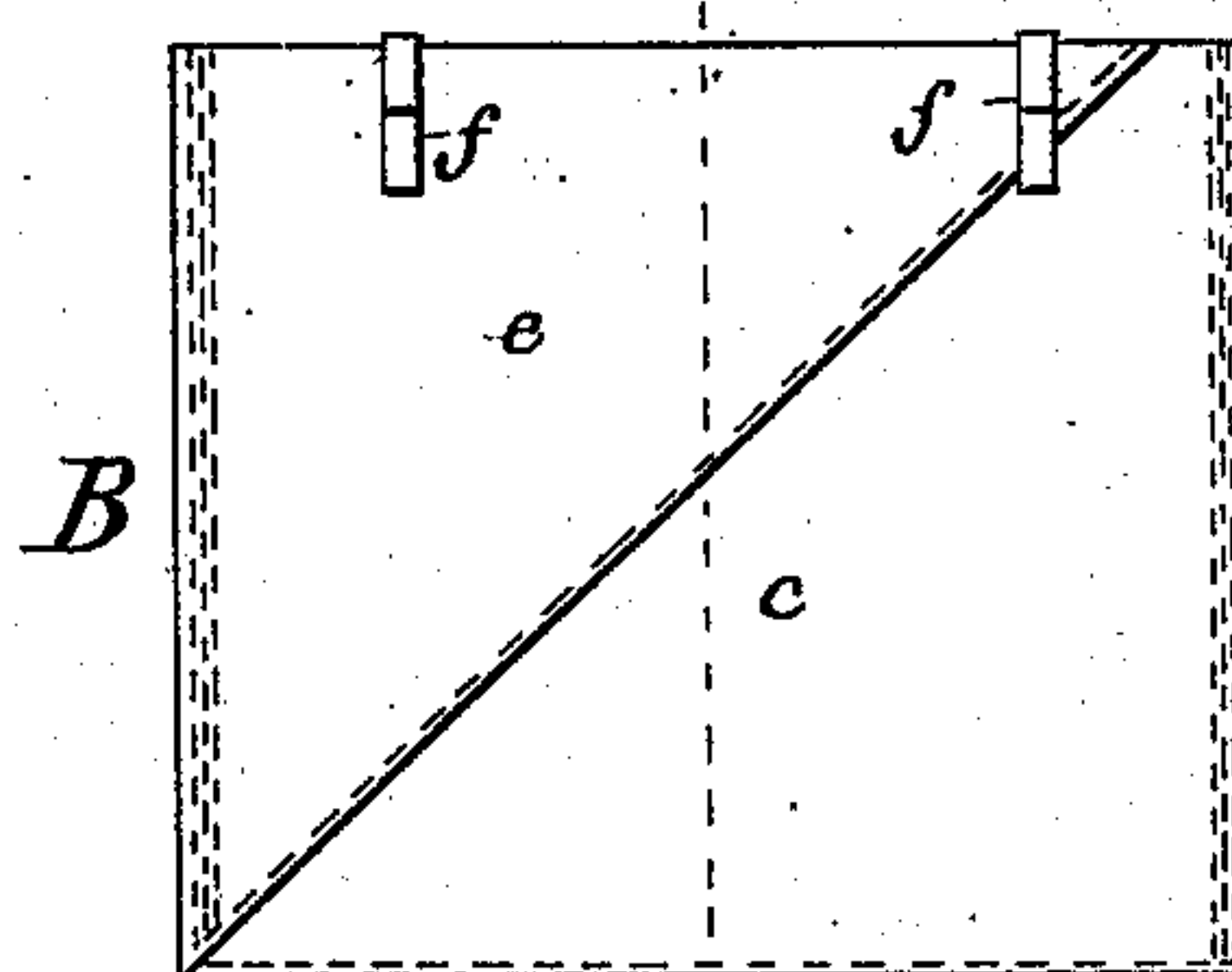


Fig 4.

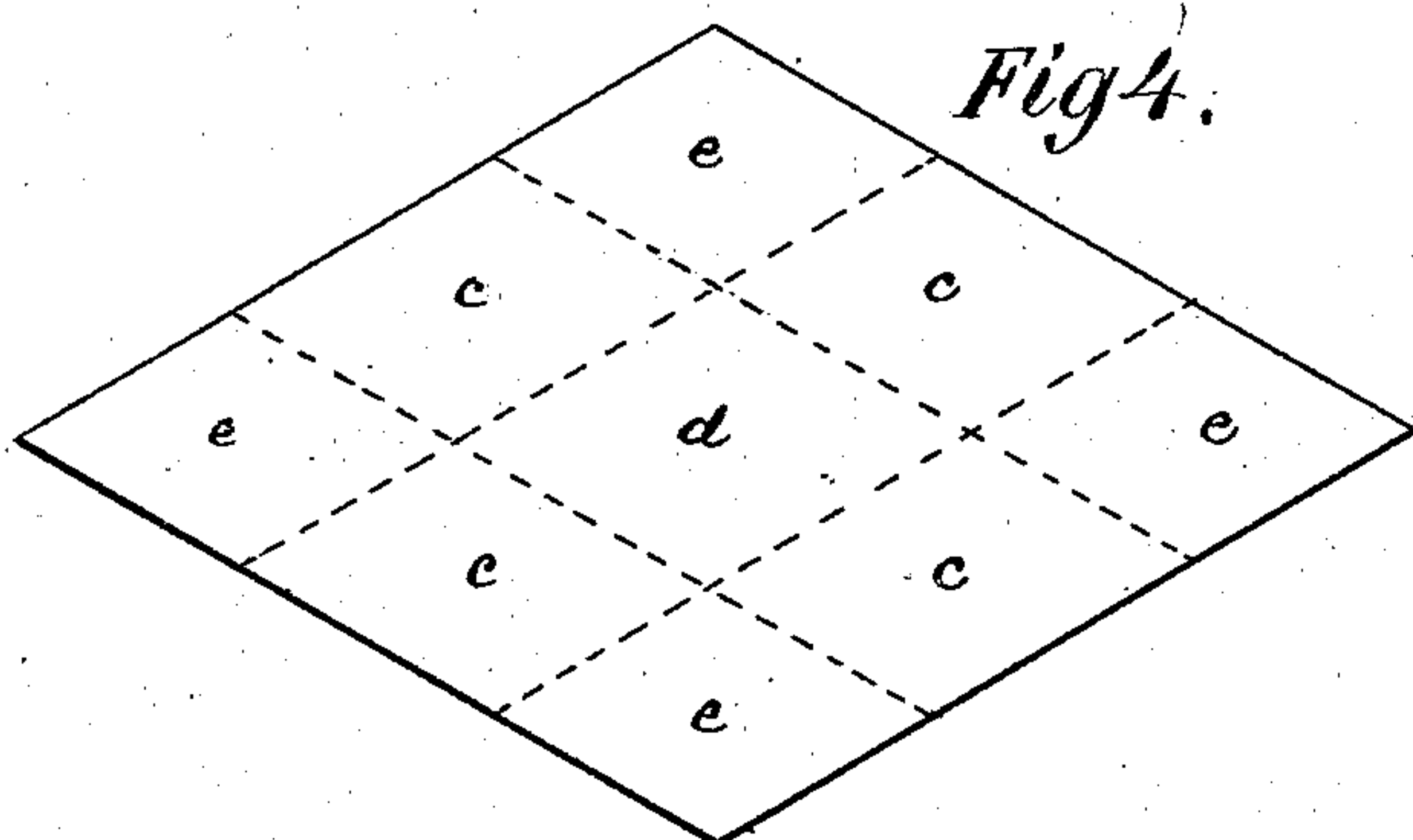
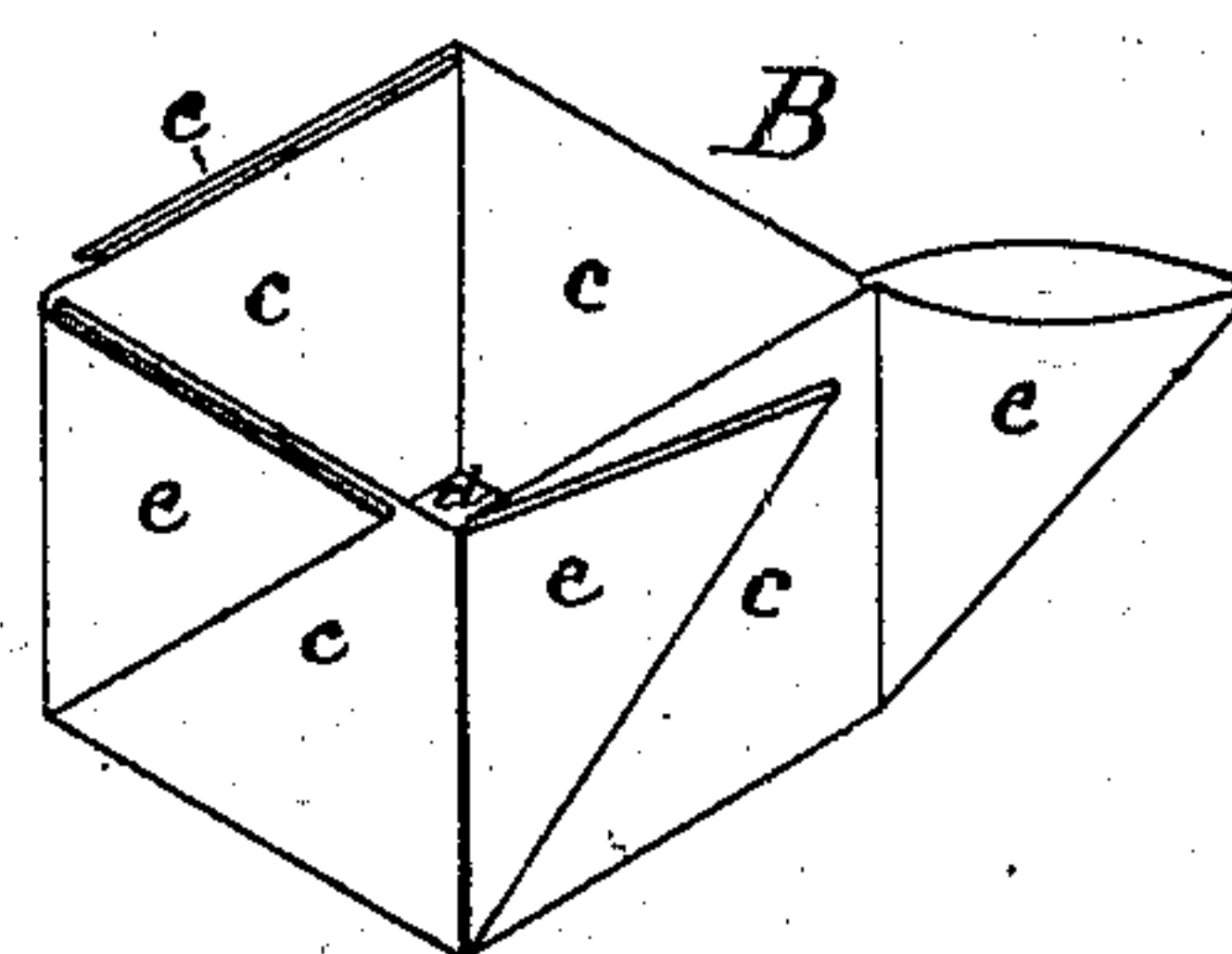


Fig 5.



Witnesses:
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UNITED STATES PATENT OFFICE

HENRY J. SLEE AND EDWARD K. GOSS, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN MODES OF PRESERVING, PROTECTING, AND HANDLING ICE.

Specification forming part of Letters Patent No. **219,121**, dated September 2, 1879; application filed March 11, 1879.

To all whom it may concern:

Be it known that we, HENRY J. SLEE and EDWARD K. GOSS, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Method of Preserving, Protecting, and Handling Ice; and that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, and the letters of reference marked thereon.

The nature of our invention consists in a novel mode of preserving, protecting, and facilitating the handling of ice-blocks which are formed by water naturally frozen in water-proof seamless paper boxes, which mode is storing the paper boxes, with the ice-blocks in them, in the ice-house, one box, with its block of ice, being placed upon another. By this mode the blocks of ice are kept separated and cannot leak water upon one another, and they can be removed without waste from cutting, and without delay from removing partitions or other agents employed for protecting the ice, my mode permitting the box and block of ice in it to be removed together, and in this form the ice can be transported and delivered to customers in merchantable-sized blocks; and while it is being consumed the paper box serves as a temporary protector against heat, and at the same time prevents leakage upon the floor or receptacle of the ice.

In the drawings, Figure 1 is a perspective view of a supporting-frame, A, composed of four walls simply, as at *a*, and only held in position, as shown in said figure, by fastenings, as at *b*, applied upon opposite sides thereof, two of which fastenings are indicated in the figure. This frame we use for supporting a paper box, B, when placed therein, as shown, and filled with water to be frozen into a block or cake of ice of rectangular form, corresponding to the form of the box. The determined size of the paper box determines the size and the weight of the block of ice made therein; and the block of ice, when made, being of rectangular form, affords great facility for compactness of storage in an ice-house. Fig. 2 is a vertical central section of Fig. 1, and in the line *x x* of Fig. 3. Fig. 3 is an elevation of the paper box B, shown inside of the frame A in Fig. 1. Fig. 4 represents a sheet of paper with which to form the box B, the dotted lines indi-

cating the creases made by so folding the sheet that it can be manipulated into a box having a bottom and four sides, open at top, and represented as nearly completed in Fig. 5.

When the sheet of paper is manipulated into the form of a box, as shown in the figures, the spaces *c* in Fig. 4 will constitute its side walls, the space *d* its bottom, while *e* will form a double thickness of the paper and constitute laps to fold against the sides *c*, as shown, when the box is completed. The laps *e*, it will be seen, extend from the bottom to the top of the box, and are secured with sufficient firmness to the sides *c* by sheet-metal clasps, as at *f*, or in any other suitable manner.

In selecting the paper with which to construct the box B, we prefer a thick heavy fabric sometimes called "felt," and in practice we prefer to have it saturated either with pitch or with tar, or with a mixture of pitch and tar, before making it into a box, B, and thus make it impervious to water.

Having constructed a sufficient number of frames A and boxes B to carry on the manufacture of ice, the frames, with the boxes therein, are set upon the floor of an open building or shed contiguous either to a well or the street-hydrant of a city, from which water may be supplied to fill the boxes more or less, according to the coldness of the weather. If the temperature is such that the thermometer stands at or near zero, the boxes may be filled with water, and if at or a little below the freezing-point, then but small quantities of water will be supplied, so as to freeze solidly at such higher temperature, and this being repeated from time to time will finally fill the boxes with solid masses of ice.

The boxes B, having been filled with ice by exposing water therein to the action of the weather, are now removed from the frames A, and each box, with its inclosed block of ice, is then stored in an ice-house in adjoining tiers of boxes, with the bottom of one box directly over the top of another, except as to the uppermost tiers. In this condition the blocks of ice during warm weather are protected from melting by the paper or felt of which the boxes are composed; and in case the ice in any one or more of the boxes should melt, the water cannot escape and come in contact with the ice contained in any other box. The boxes B thus

serve as a protection against the melting of the contained ice during warm weather; also as a protection against the chipping off and breaking of the ice in the act of storing it in the ice-house; also as a protection against the damaging effect of water in the event that the ice in some of the boxes should melt while stored in the ice-house. They also serve, when made of a given size, to determine the weight of the block of ice which they contain, and thus do not require to be weighed on delivery to a consumer; and, finally, afford a protection against chilling the hands of the person who handles them.

We do not claim making ice in layers or cakes, and at the same time storing it in the ice-house, by sprinkling water in freezing weather on paper and between partitions of paper arranged to separate the ice in layers or blocks of suitable size and thickness, the water being sprinkled slowly, so as to freeze as it falls, or very soon afterward, and the paper being coated with melted resin and tallow, or

other suitable substance, to prevent the ice from sticking to it, and enabling the ice to be taken out readily in blocks, and the joints of the paper made water-tight, to prevent the water running out, when required, by heating the paper a little, so as to stick together by the coating, as such method is shown and described in Letters Patent No. 177,717; but

We claim—

The mode herein described of preserving, protecting, and facilitating the handling of ice-blocks which are formed by water naturally frozen in water-proof seamless paper boxes, said mode consisting in storing the paper boxes, with the ice-blocks within them, in the ice-house, one box with its block of ice being placed upon another, substantially as and for the purpose described.

HENRY J. SLEE.

EDWARD K. GOSS.

In presence of—

BYRON C. CONERY,

ABNER H. WELLS.