E. F. OLDS.

House for Preserving Fruit.

No. 48,833. Patented July 18, 1865.

Fig. 1

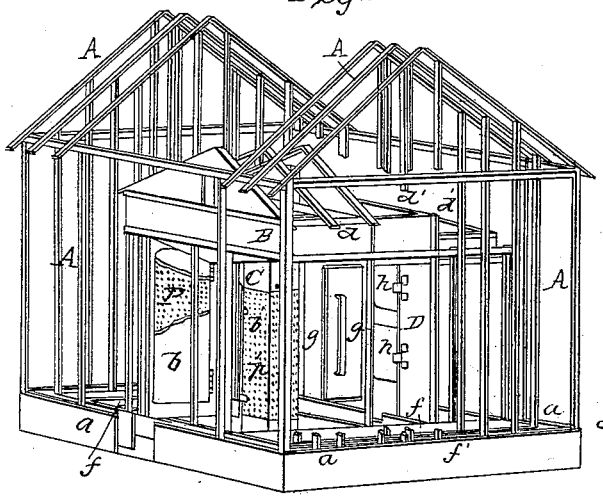


Fig. 4

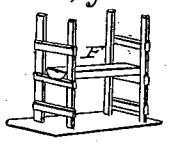


Fig. 5

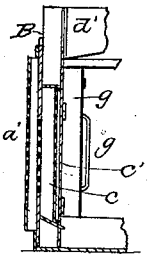


Fig. 2

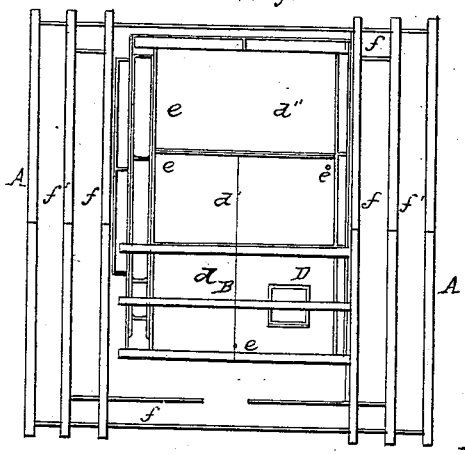
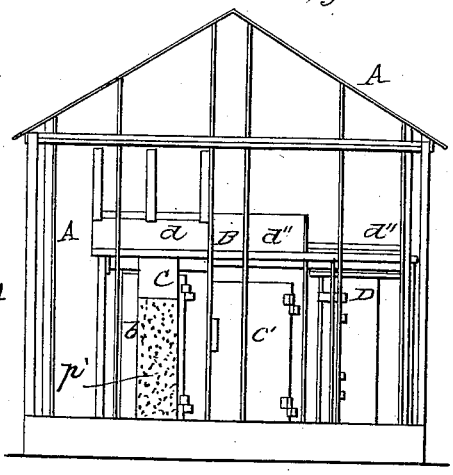


Fig. 3



WITNESSES

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E. F. OLDS, OF NEW HUDSON, MICHIGAN.

IMPROVEMENT IN HOUSES FOR PRESERVING FRUIT, &c.

Specification forming part of Letters Patent No. **48,833**, dated July 18, 1865.

To all whom it may concern:

Be it known that I, E. F. OLDS, of New Hudson, in the county of Oakland and State of Michigan, have invented certain new and useful Improvements in Fruit Safes, Houses, &c.; and I hereby declare that the following is a full and complete description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of the safe in the house. Fig. 2 is a top view of the same. Fig. 3 is an end view. Figs. 4 and 5 are detached sections.

Like letters of reference refer to like parts in the different views.

My improvement relates to the mode of preserving fruit, vegetables, &c., as hereinafter described.

A represents the general outline of the frame of the house for the reception of the safe, designed to be constructed with double walls, as seen at *a*, having one or more rooms, *f*, for holding the requisite amount of ice to keep the safe in operation one season or longer. The house is also provided with air-chambers and chambers *f'* for the deposit of poor conductors, as may be required.

B is the safe, placed inside, which can be made any size or have any number of apartments, and can be constructed in various ways. The walls on the sides and ends may be double, having a space between, as seen at *a'* in Fig. 5, which is a section of a portion of the safe; or the walls can be made single. In the sides and ends of the safe there can also be chambers, as seen at *c* in Fig. 5, *c'* being the door of the chamber, that opens on the inside of the safe, and is made double, as represented. *b*, Fig. 3, is a door into another chamber. These doors are hung on hinges and made to fit very close, so as to exclude the external air from the chambers, and through the doors the chambers are supplied with ice.

g represents a slide-door fitting on a chamber, *g'*, that projects out from the side or is attached to the wall or side of the safe.

When there are chambers like *c* formed in the wall, the wall is made deep enough, so that the chambers will be sufficiently wide to hold the requisite amount of ice, whether the outer and inner casings of the wall are made double or single. When made of stone or brick they should be double, with an intervening space between them. The chambers are usually from one to two feet in depth, extending from near the bottom almost to the top of the safe, and they are made so tight that no leakage can take place into the spaces on either side, to be occupied by the poor conductors of heat. There are one or more doors on each chamber, opening on the outside or inside, or both. When the chamber is built on the inside the door has to open on that side alone. The chambers can be made the whole length of the sides of the safe, or they can be made two or three feet wide and arranged at different distances from each other, according to the temperature desired. There is a small opening in the bottom of each chamber for conveying away the water through a pipe as the ice melts. The chambers and doors are lined with one or more thicknesses of woolen cloth, or a similar poor conductor of heat, in summer, to protect the ice from the external heat and to increase the indirect action of the ice on the temperature of the safe. When the safe is large there can be one or more chambers, as C and D, at or near the center, extending from the floor to the top of the safe, or through it, which communicate with a reservoir at the lower end, from which the water is conducted by a double siphon. These chambers can be lined similar to the side chambers, for the same purpose, and are provided with doors on one or more sides, as seen at *h h'*, by means of which the chambers can be packed with ice; or the ice can be put in at the top. By opening or closing the doors the ice can be made to act directly or indirectly on the temperature of the safe.

If anything is necessary to retain the ice in the side and central chambers when the doors are open, narrow strips can be put across as fast as the ice is packed in, or sections of open lattice-work, as indicated by the perforated pieces shown at *p p'*, can be put on, which should be very open. When the ice can be procured in proper-shaped blocks, nothing is required to keep it in the chambers.

By opening or removing the doors of the side and central chambers the influence of the ice upon the temperature of the room is direct; but when the doors are closed the action of the ice on the temperature is indirect, or it

does not so soon affect it. The lining on the inside of the chambers increases the indirect action of the ice and prevents it from melting, as it otherwise would. The thickness of the lining can be increased or diminished, according to the action desired to be produced upon the atmosphere of the safe.

This safe can be made to answer the purpose of a refrigerator, removing the objections made to refrigerators in ordinary use, one of which is it requires so much ice to keep them in operation, and another is it is found to be so difficult to reduce the temperature and keep it there any length of time. With this safe, the chambers being all lined with a non-conductor, as described, the ice is preserved and made to last twice as long as if it were not thus surrounded. And by means of the doors opening into the chambers the ice can be made to act directly or indirectly upon the temperature of the safe, regulating it in every way and manner desirable.

Whenever it is desired to reduce the temperature of the safe quickly the action of the ice in the chambers is made as direct as possible by opening all the doors or removing them. If this is not sufficient to reduce the temperature to the desired point rapidly enough, salt and ice can be put in different places through the room, and when the desired temperature is obtained the salt and ice can be removed and all the doors into the chamber closed. If there should be too much moisture in any portion of the atmosphere of the room, one or more of the chamber-doors at this point can be opened, so that the moisture will be attracted to the ice from the surrounding air, or the lining of the chamber-doors can be removed and then close the doors, a cold surface being thus presented on which the moisture, by a law of nature, will collect. By this latter method the ice will be made to last longer, but the moisture will not be absorbed so rapidly. If there is still any moisture left that would prove injurious, driers—such as chloride of calcium—are placed in troughs *r*, arranged one above another on a portable frame; but it is very seldom they are required. This frame with a trough is represented by Fig. 4.

Another very important means for reducing the temperature of the interior of the safe and for holding it there is having the top of the safe covered with several feet of ice by means of chambers *d d' d''*, that can be lined with a non-conductor and filled with ice, similar to the side chambers. The bottom of these chambers must be inclined downward, either in the middle or at the sides, so that the water as the ice melts can be carried off through holes *e* (seen in Fig. 2) and conveyed away by means of pipes extending down through the safe. This ice will exert a great influence on the temperature of the room below. As the hottest air rises to the top it will be rapidly cooled, thus reducing and regulating the temperature. It is not convenient to have ice-chambers in the top of the safe, unless it is built large and there is abundance of room.

The chambers of this safe, constructed and arranged as described, and by the means for influencing their direct and indirect action, have many advantages, when it is taken into consideration the variety and character of substances to be preserved, some keeping best at different degrees of temperature, and there is so much more moisture eliminated from some than others to suit, all of which can be easily regulated by the chambers in the ways before stated. Some substances keep best in a room so close that the oxygen of the air is excluded. A separate room can be made in the safe, when this is required, in which the moisture and temperature will be regulated as in the other rooms.

There is no necessity for using ice in the chambers during cold weather, as it is only necessary to protect the contents of the safe against the frost. For this purpose the chambers on or in the sides should be filled with a poor conductor and lined closely and the top of the safe covered with the same material, so that no frost or cold can enter.

It is desirable, if the safe is large, to have a house like A built for its reception, though it is not absolutely necessary, as it can be operated successfully without. It is well to have the walls of the sides of the house and safe double for summer as well as winter use, to better protect the interior of the safe against external heat and frost.

The central chambers, C and D, can be removed in winter, as they are not needed to regulate the temperature.

The safe can be divided into several apartments for the purpose of adapting the temperature and moisture of each room to the requirements of the different substances to be preserved.

What I claim as my improvement, and desire to secure by Letters Patent, is—

1. The safe B, arranged and constructed in the manner set forth, in combination with the ice-house A, as specified.

2. The side ice-chambers, *c g'*, and doors *c' b g*, separate and in combination with gauze or perforated slides *p*, as and for the purpose set forth.

3. One or more central chambers, C D, with or without the gauze or perforated slides, in connection with the doors *h h'*, substantially as and for the purpose set forth.

E. F. OLDS.

Witnesses:
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PHEBE ALLEN.