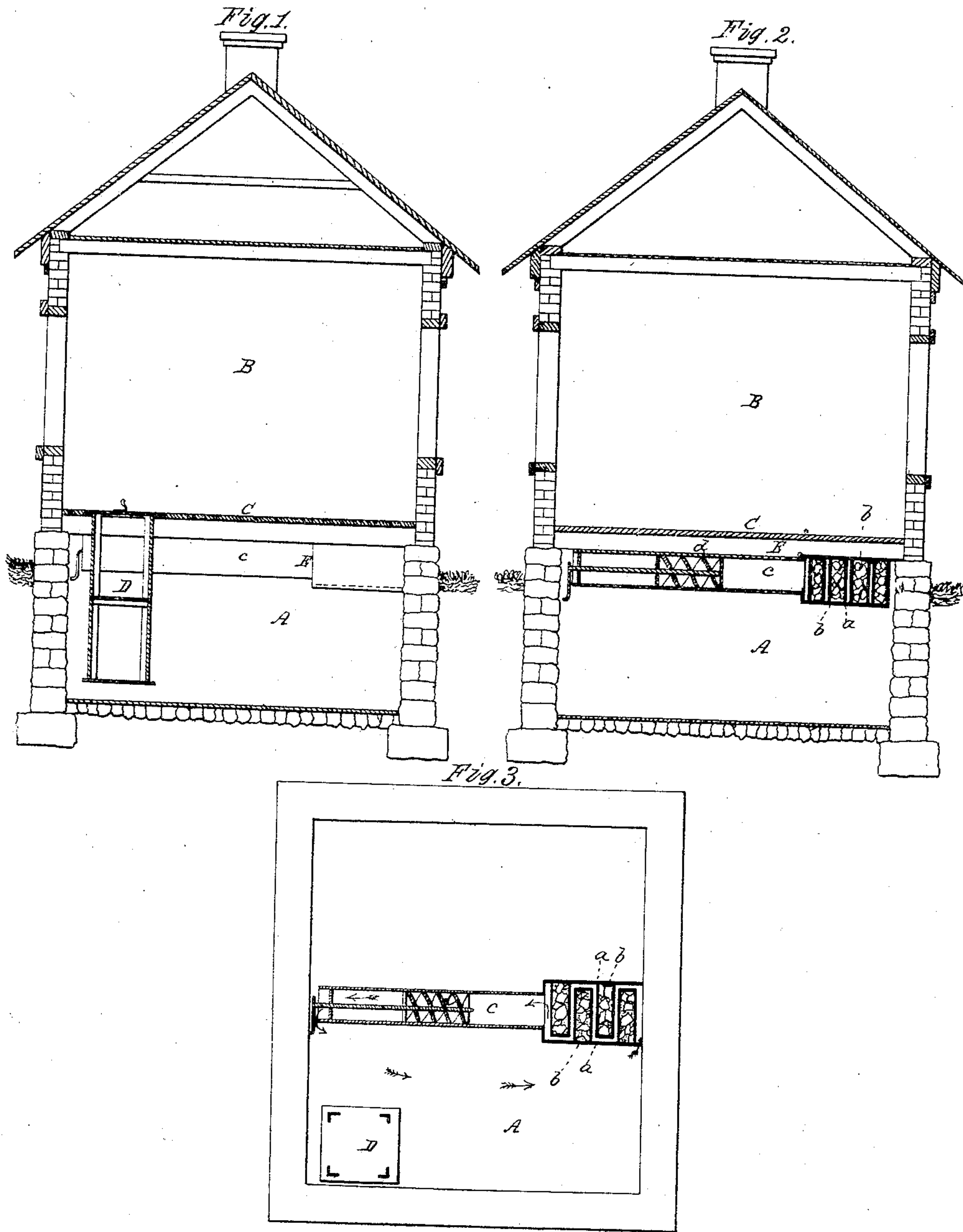


N. S. Shaler.

Refrigerator Building.

N^o 44,664.

Patented Oct. 11, 1864.



Witnesses
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NATHANIEL S. SHALER, OF NEWPORT, KENTUCKY.

PRESERVING FRUIT, &c.

Specification forming part of Letters Patent No. 44,664, dated October 11, 1864.

To all whom it may concern:

Be it known that I, NATHANIEL S. SHALER, of Newport, in the county of Campbell and State of Kentucky, have made a new and useful invention having reference to the preservation of fruits, meats, or various other perishable substances; and I do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figures 1 and 2 are vertical sections, and Fig. 3 a horizontal section, of a preservatory constructed on the principle of my invention.

The nature of my said invention consists, principally, in the employment, substantially as hereinafter set forth, of carbonic-acid gas or other gaseous material containing no free oxygen, such carbonic acid or other gas being used within one or more close chambers or vessels containing the meat, fruit, or article or articles to be preserved from putrefaction or decay, and being cooled to a water-freezing temperature by any well-known means, or particularly by a method or means as hereinafter specified.

In carrying out my invention in practice, a building of two stories may be employed, the walls of such building being composed of a good non-conductor of heat. The floor between the two stories or apartments of the building should be made of a good heat-non-conducting material or be so constructed in any well-known manner so as to be non-conductive of heat. The lower apartment or story is to be that for receiving the gas and the articles to be preserved, and there may be one or more frames or shelves, or what are usually known by the name of "dumb-waiters," employed and arranged so as to be capable of being raised from the lower apartment up through the floor of the upper and into the said upper apartment. In this case the tops and bottoms of the dumb-waiters may be made so as to serve as means of closing the openings made through the floor for the passage of the dumb-waiters from one apartment to the other. The perishable articles to be preserved are to be placed in such frames or on the shelves thereof.

In the upper part of the lower or gas chamber or in some other convenient and proper

position there is to be an apparatus for cooling the gas to a temperature of 32° Fahrenheit, or thereabout, in order to freeze or condense any moisture which may be in the gas while it may be circulating through such apparatus. The refrigerator may be a chamber or channel surrounded by a refrigerating-mixture, and having a revolving screw or other proper mechanism or apparatus for either drawing or forcing the gas through the chamber or channel in such manner as to cause the gas to circulate in contact with the cooling surface or surfaces thereof, and in consequence thereof to have its moisture removed from it and frozen or condensed against such surface or surfaces.

The articles to be preserved will be in a temperature rather above 32° and will not be frozen, but in consequence of being suffered to remain in the cooled and dry gas they will be preserved from decay.

In the drawings, A denotes the lower, and B the upper, chamber or story of the preservatory, while C is the floor of the latter story.

D is a frame or dumb-waiter, which is arranged in and below an opening in the floor, and may be provided with suitable means of elevating it through such opening and from the lower to the upper story of the preservatory.

The gas-refrigerating apparatus is represented at E, it consisting of a tortuous channel *a*, surrounding a series of pans or vessels *b b b*, for containing ice or a suitable refrigerating-mixture. The said channel *a* leads into a conduit *c* containing a rotary screw or fan-wheel *d*, such as, when put in revolution, will induce a current of the gas in the conduit and through the tortuous channel. The gas while passing through the channel will have its moisture frozen or condensed against the sides of the channels or those of the refrigerating cisterns or vessels *b b b*.

There are various other ways in which the articles to be preserved may be either introduced into or removed from the preserving-chamber. It is essential to my invention that the preserving-chamber should have combined with it a means of abstracting the moisture from the gas and keeping such gas in a cool state. My invention is applicable to navi-

gable vessels as well as to positions on land. It may also be applied to carriages for transporting substances from one place to another.

I claim—

1. As my invention for preserving animal, vegetable, or other matters liable to putrefy or decay when exposed to the ordinary atmospheric air and temperatures, the employment of carbonic-acid gas and a refrigerating temperature together and relatively to such substances, substantially in manner as hereinbefore set forth.

2. The combination of a preserving-chamber *a*, a moisture-refrigerating apparatus, and a means of circulating the carbonic-acid gas of such chamber through or so in contact with

the surfaces of the refrigerating apparatus as to not only cool the gas but cause such mixture to be frozen or condensed and abstracted from the gas, substantially as specified.

3. The preservatory as constructed, of one or more dumb-waiters or elevators *D*, or the equivalent thereof, the gas-chamber *A*, the gas-refrigerating apparatus *E*, and the gas-circulating apparatus, the whole being arranged and combined substantially as and so as to operate in manner and for the purpose as specified.

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Witnesses:

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