(No Model.) 2 Sheets—Sheet 1.

# N. L. BAUMGARDNER.

## REFRIGERATOR.

No. 303,794. Patented Aug. 19, 1884.

Fig. 1

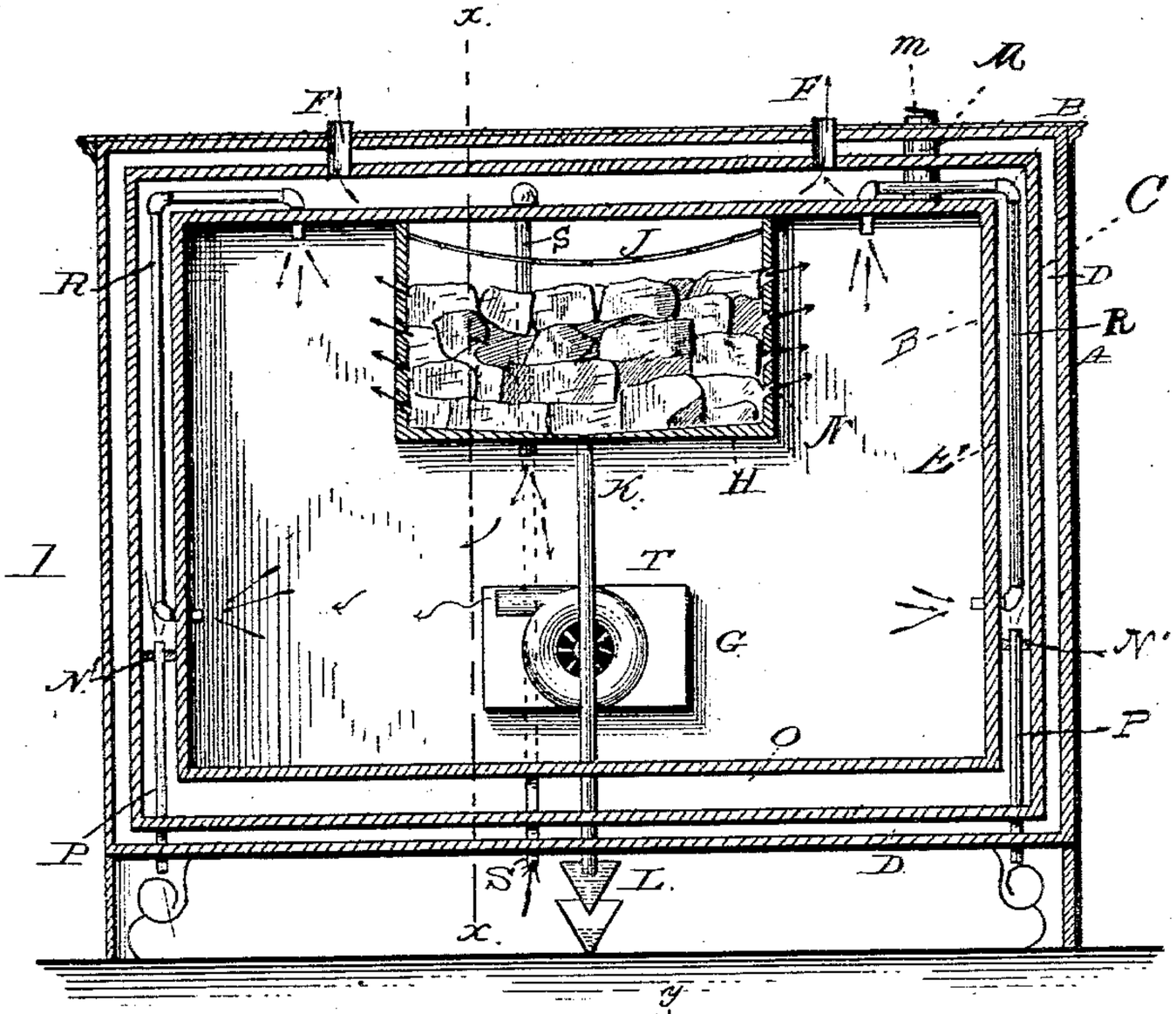
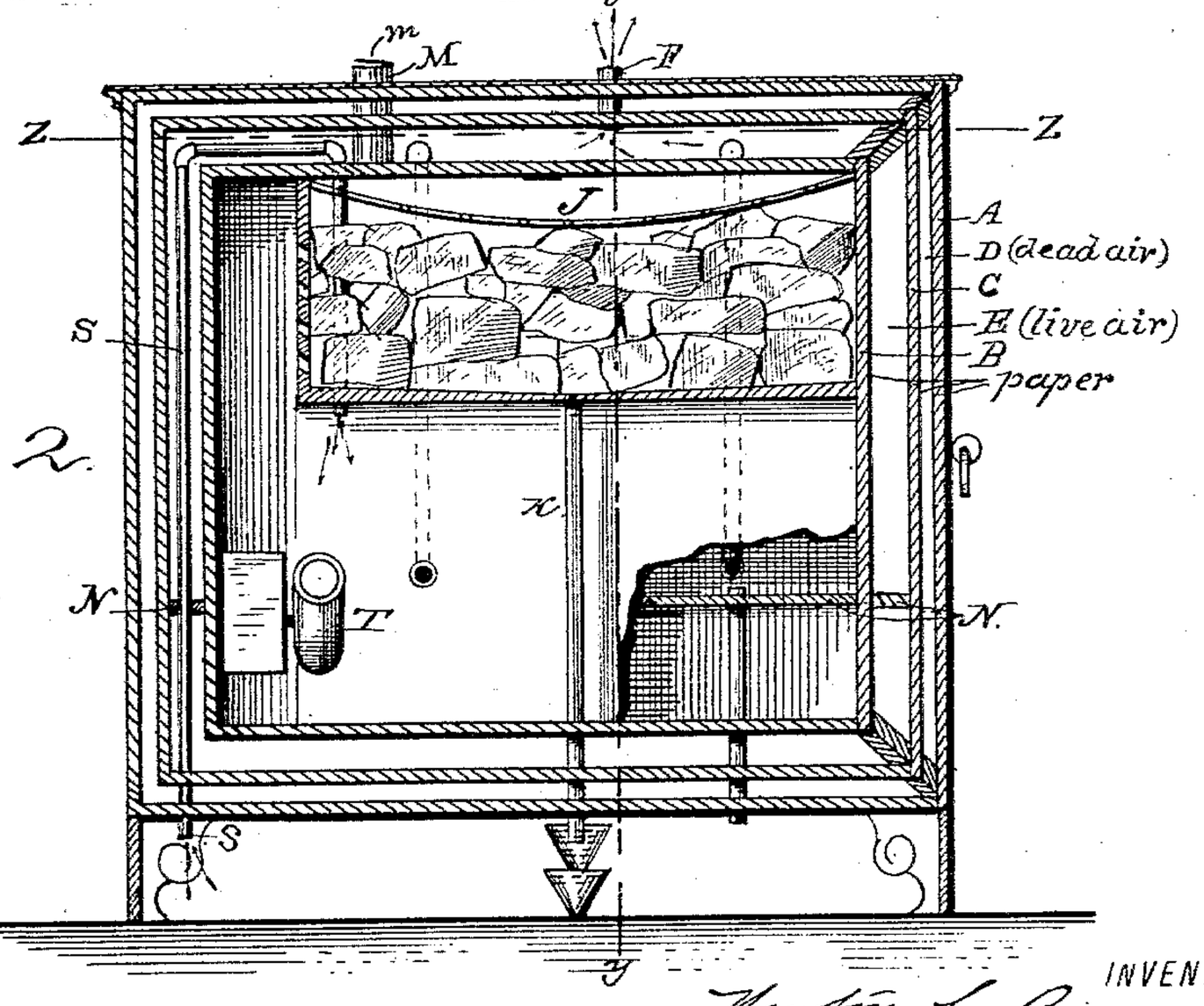



Fig. 2.




WITNESSES

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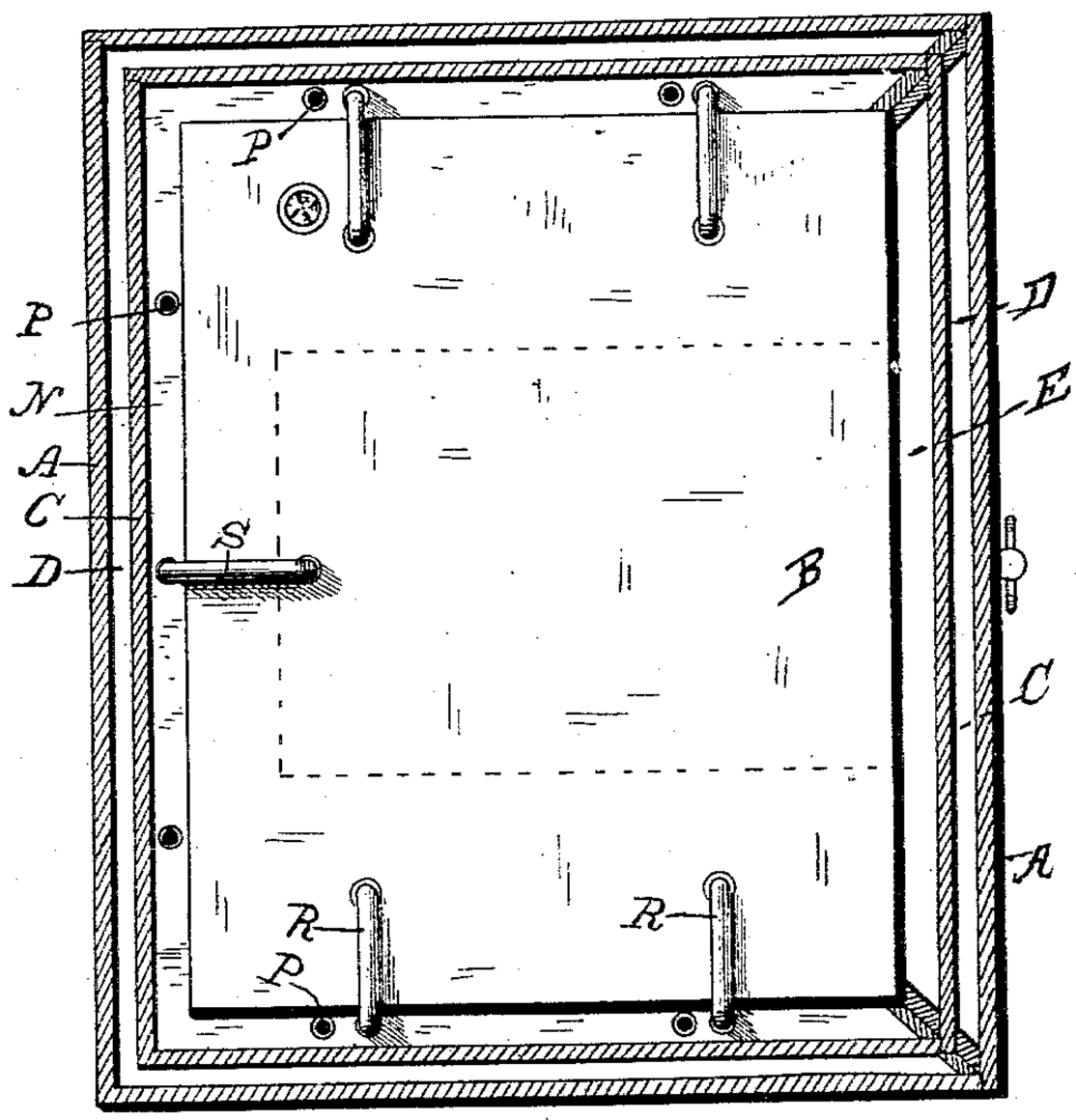
(No Model.) 2 Sheets—Sheet 2.

# N. L. BAUMGARDNER.

## REFRIGERATOR.

No. 303,794. Patented Aug. 19, 1884.

*Fig. 3.*

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# UNITED STATES PATENT OFFICE.

NEWTON L. BAUMGARDNER, OF WOOSTER, OHIO.

## REFRIGERATOR.

SPECIFICATION forming part of Letters Patent No. 303,794, dated August 19, 1884.

Application filed June 6, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, NEWTON L. BAUMGARDNER, of Wooster, in the county of Wayne and State of Ohio, have invented certain new and useful Improvements in Refrigerators; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

My invention relates to a new and useful improvement in refrigerators; and the object of my invention is to furnish a refrigerator for the preservation of fresh meat, food, and other substances that require to be kept cool, and is simple in construction, convenient and effective in use, allowing the circulation of air to be readily controlled, and greatly diminishing the waste of ice.

My invention consists in constructing the walls of a refrigerator with double air-passages around its sides, top, and bottom, and so constructed that one of the passages shall form a dead-air chamber, while the other forms an air-circulating chamber or passage around the sides and top of the refrigerator, means for producing a circulation of air within the provision-chamber and circulating-passage, and other minor details of construction hereinafter described and claimed.

Referring to the accompanying drawings, illustrating my invention, Figure 1 is a vertical longitudinal sectional view. Fig. 2 is a vertical cross-sectional view taken through line *x x*, Fig. 1; and Fig. 3 is a top plan view taken through line *z z*, Fig. 2.

A designates the exterior wall, which may be constructed of any desired shape and dimensions, in the well-known manner, and of such material as is customary in this class of inventions.

B designates the inside wall, and should be constructed of sweet hard-wood lining.

C designates the middle wall or partition-wall located between the walls A B, and together with these latter walls form air-passages D E, the former being a dead-air chamber. The sides of the walls A B C contiguous to the air-passages D E should be lined with paper-board or some such suitable non-conducting material.

F designates ventilating-pipes, communicating with the air-circulating passage E and the external atmosphere, whereby a circulation of air may be maintained in said passage E.

Located inside the provision-chamber G, and near the top of the same, is an ice box or chamber, H, communicating with the provision-chamber by means of lateral passages N. Within the ice box or chamber, and near its top, is situated a condensing-pan, J, made of zinc or heavy tin, concave, and provided with an opening, whereby any moisture that may accumulate upon the same drips on the ice placed beneath. The bottom of the ice box or chamber is made to incline toward the center, and communicates with a waste-pipe, K, which waste-pipe extends to the outside of the refrigerator, and is there provided with a water-seal, L.

M designates a ventilator provided with a self-acting valve, *m*, opening outwardly and communicating with the interior of the car and the external atmosphere. The object of this ventilator is to provide a suitable means whereby the provision-chamber may be deprived of any objectionable gases that may perchance accumulate therein.

N′ designates a partition located within the air-chamber E, near the bottom of the refrigerator, and extending entirely across said air-chamber, whereby a dead-air chamber, O, is formed at the bottom of the refrigerator and contiguous to and parallel with the dead-air chamber D.

Communicating with the external atmosphere is a pipe, P, which conducts air into the air-circulating chamber E.

Communicating with the interior of the refrigerator, near its bottom, is a pipe, R, which extends upward within the air-circulating passage E, and enters the provision-chamber at its top.

Communicating with the external atmosphere is a pipe, S, which, passing through the walls of the refrigerator, extends up through the air-circulating passage E to its top, and then passes down through the ice-box, com-

municating with the interior of the refrigerator or provision-chamber.

T designates an air-circulating apparatus or agitator consisting of a small fan-blower incased, admitting air in the center of the casing at a shaft on which a fly or blower wheel is attached, forcing the air out at the rim of said casing through suitable pipe or pipes, to be conducted to any portion of the room desired. The said blower or fan may be operated by clock-work or other mechanical device to work automatically at regular periods or continuously, as may be desired.

From the construction shown and described a perfect continuous air circulation is maintained throughout the interior of the provision-chamber by means of the pipes R, conducting cold air from the lower part of the provision-chamber to and admitting the same into the provision-chamber at or near the top, thus equalizing the temperature throughout the entire provision-chamber. By means of the pipe S fresh air is continuously supplied to the provision-chamber, being cooled and dried by passing through the ice box or chamber, and so placed that the short arm of said pipe will be in contact with the ice. The air therein, becoming cooled, will fall toward the bottom of the provision-chamber, displacing the warm air, causing the same to pass out at the ventilator M and through valve *m*, which is designed to be hinged upon a hair-spring, whereby the least suction of air will cause it to close.

Heretofore in the construction of refrigerators hot and impure air has been permitted to accumulate in the top of the provision-chamber, thus causiug a considerable loss. Furthermore, upon the principle that cold air always descends, refrigerators now in general use are cold at their lower divisions, while the upper division becomes hot and obnoxious, &c., by ascending hot air. I have obviated this difficulty by my arrangement of air-flues which conduct cold air to the top of the provision-chamber, and a free circulation of cooled air throughout the entire provision-chamber.

It is evident that the air-flues may be within the provision-chamber, or may be formed in the walls of the refrigerator by interposing suitable partitions, or in any other manner that suggests itself.

Having thus described my invention, what I claim is—

1. In a refrigerator, the combination, with the air-circulating passage, as described, of the pipe R, communicating with the provision-chamber near its bottom and at its top, and air-circulating mechanism located within the provision-chamber.

2. In a refrigerator, the combination, with the air-circulating passage, having air-circulating pipes therein, as described, of the pipe P, for admitting air thereto, and ventilators F, substantially as described.

3. In a refrigerator, the combination, with the air-circulating passage, as described, of the pipe P, for admitting air thereto, ventilators F, and the pipe R, communicating with the provision-chamber near its bottom and at its top, and air-circulating mechanism located within the provision-chamber, substantially as set forth.

4. In a refrigerator, the combination, with the air-circulating passage, as described, of the pipe R, communicating with the provision-chamber near its bottom and at its top, and air-circulating mechanism located within the provision-chamber of the ice box or chamber, and automatically-operating valve, substantially as described.

5. The combination, with the refrigerator provided with the air-circulating passage, of the pipe R, communicating with the provision-chamber, as described, the pipe S, communicating with the external atmosphere, passing through the ice-box and entering the provision-chamber, and means for producing a circulation of air within the provision-chamber, substantially as described.

6. The combination, with the refrigerator provided with the air-circulating passage, as described, and pipe R, communicating with the provision-chamber, as stated, of the pipe S, communicating with the external atmosphere and interior of the provision-chamber through the ice box, and the automatically-operating valve, substantially as described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

NEWTON L. BAUMGARDNER.

Witnesses:

O. E. DUFFY,

F. O. MCCLEARY.