

(No Model.)

2 Sheets—Sheet 1.

J. ALEXANDER.

REFRIGERATOR.

No. 285,199.

Patented Sept. 18, 1883.

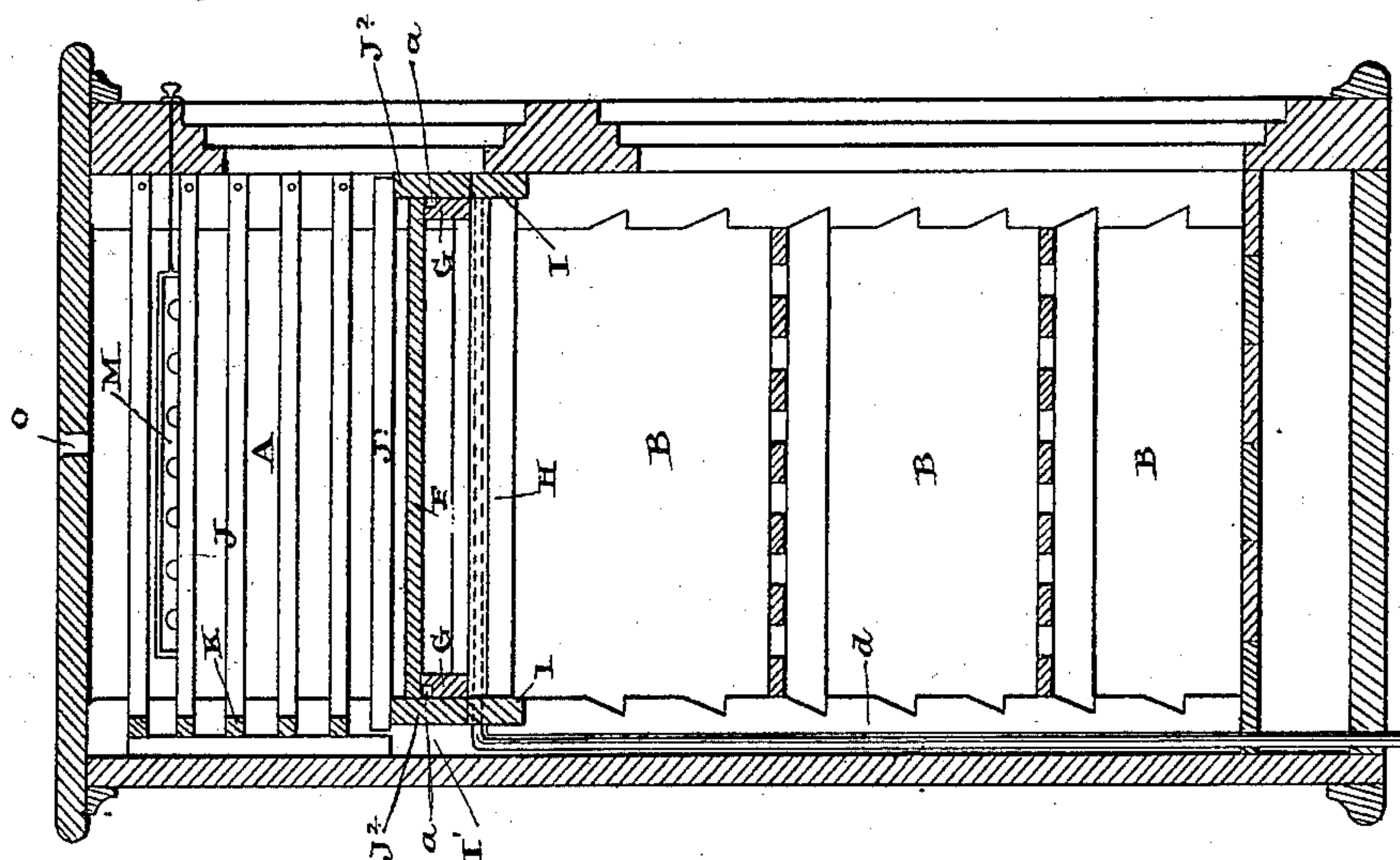


Fig. 2.

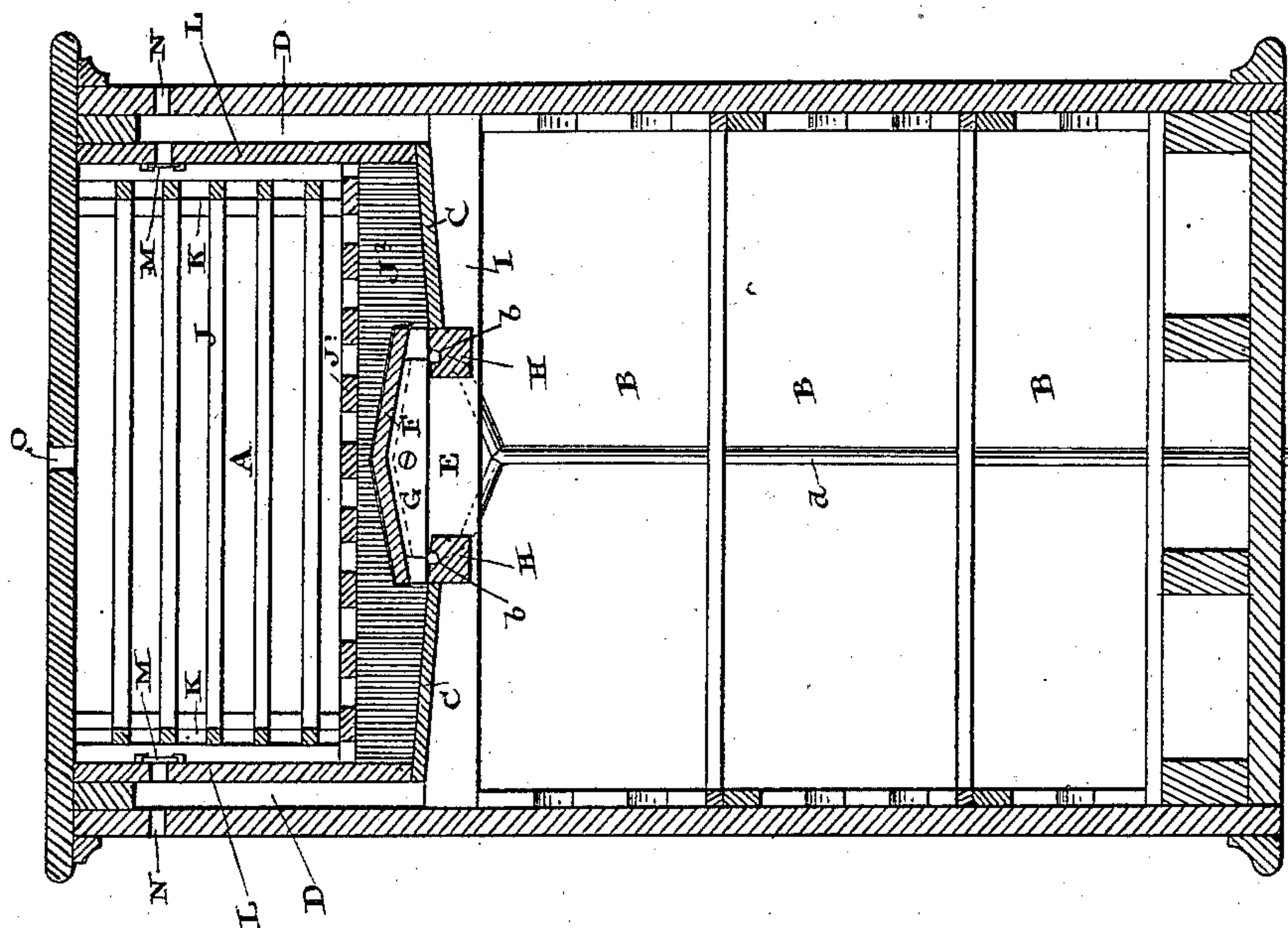


Fig. 1.

Witnesses.

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Chas. C. Baldwin

Inventor.

John Alexander
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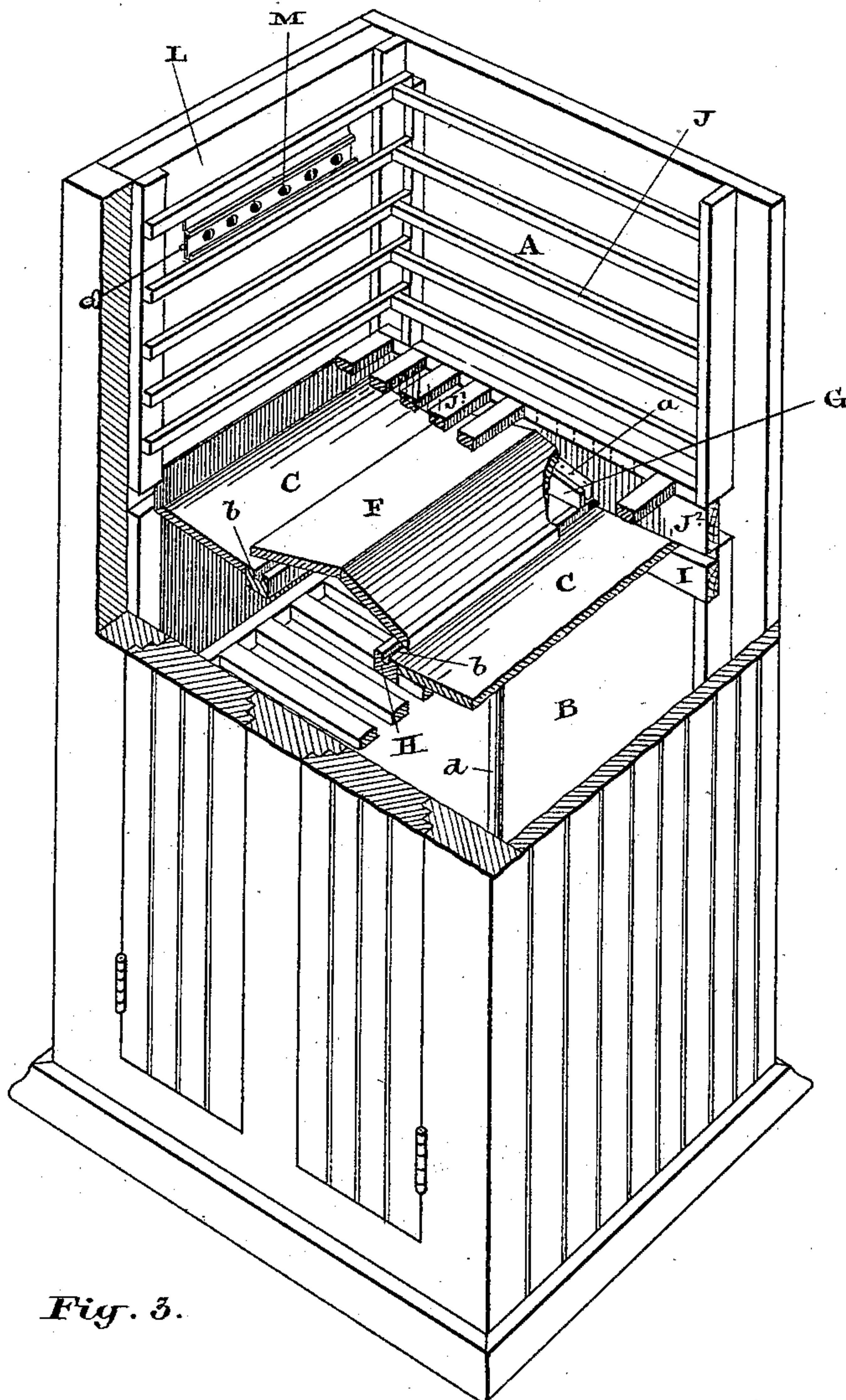


Fig. 3.

Witnesses.

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UNITED STATES PATENT OFFICE.

JOHN ALEXANDER, OF TORONTO, ONTARIO, CANADA.

REFRIGERATOR.

SPECIFICATION forming part of Letters Patent No. 285,199, dated September 18, 1883.

Application filed May 8, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN ALEXANDER, a subject of the Queen of Great Britain, residing at the city of Toronto, in the county of York, in the Province of Ontario, Dominion of Canada, have invented certain new and useful Improvements in Refrigerators, of which the following is a specification.

My invention relates to that class of refrigerators in which an open passage-way exists between the ice-chamber and provision-chamber, separate flues for the escape of the warm air from the provision-chamber being provided; and the object of the invention is to construct a perfectly-ventilated refrigerator, the provision-chamber of which shall be absolutely dry.

It consists, first, in a rectangular hole through the bottom of the ice-chamber leading into the provision-chamber, and provided with a detachable cover resting on triangular supports placed at either end of the rectangular hole, so as to leave a space between the bottom and the edges of the cover for the free passage of the cold air, the triangular supports having grooves running from their apex to their base, which grooves connect with grooves made in the bottom on either side of the hole and connecting with an escape-pipe, as hereinafter more particularly explained; secondly, in a ceiling to the provision-chamber slanting from the inner edges of the warm-air flues toward the rectangular hole leading into the ice-chamber, the placing on the said ceiling, at either side of the hole, of strips extending longitudinally along the edges of the hole below the ceiling, so as to form a cushion to separate the warm air accumulating at the ceiling of the provision-chamber from the cold air descending through the hole; thirdly, in providing an auxiliary cold-air passage made at the back of the ice-chamber at right angles to the warm-air flues, and protected by a strip projecting below the ceiling of the provision-chamber along the edge of the said auxiliary cold-air passage, so as to form a cushion to separate the warm air accumulated at the ceiling from the cold air descending through the auxiliary cold-air passage; fourthly, in providing a refrigerator having a rectangular hole in the ice-chamber protected by a slanting cover supported as described, an ice-rack arranged to support the ice above the bottom of the ice-

chamber, and ice-racks around the sides of the ice-chamber, so as to keep the ice clear of the sides and leave side passages between the ice and sides of the chamber leading into the air-chamber formed between the bottom ice-rack and the bottom of the ice-chamber; fifthly, in providing a refrigerator having an opening between the ice-chamber and provision-chamber, with a warm-air flue or flues leading from the ceiling of the provision-chamber at a point above the cold air to a point at or about the top of the ice-chamber, from which point the air is permitted to escape through a hole made in the outer skin of the refrigerator; sixthly, in providing the warm-air flues, constructed as stated, with an adjustable damper covering an opening leading into the ice-chamber for the purpose of admitting, if desired, the warm air from the flue into the ice-chamber; seventhly, in providing a refrigerator having an open bottom between the ice-chamber and provision-chamber, and warm-air flues for conducting the warm air from the provision-chamber outside the box, with a hole made in the top of the ice-chamber for the purpose of supplying fresh air to the refrigerator.

Figure 1 is a sectional front view of my improved refrigerator. Fig. 2 is a cross-section of the same. Fig. 3 is a perspective view of my improved refrigerator with the top, front, and one end of the ice-chamber removed.

As my invention relates to a class of refrigerators the construction of which is now well understood, it will not be necessary in this specification to describe in detail the principle upon which they are constructed. I shall, therefore, merely confine myself to the parts constituting my improvements. I may, however, state that A is the ice-chamber, and B the provision-chamber, separated by the boards C, which slant from the inner edge of the warm-air flue D, formed at each end of the ice-chamber, toward the rectangular hole E, which constitutes an opening between the two chambers A and B.

In order to prevent the drippings from the melting ice falling into the provision-chamber, I provide a cover, F, which is arched or hipped, as shown, and rests upon the triangular supports G, placed at either end of the hole E. These supports G carry the cover F, so as to leave a clear open space between the

boards C and the edges of the cover, in order that the cold air in the ice-chamber may pass freely through the hole E into the provision-chamber.

5 *a* are grooves or channels made in the outer top edges of the triangular supports G, leading from their apex to their base, and connecting with similar grooves or channels, *b*, made, as shown, in the strips H. These latter
10 grooves connect with the escape-pipe *d*, which carries away the water collected in the grooves *a* and *b*.

H are strips placed one on each side of the hole E, and projecting below the ceiling of the provision-chamber formed by the boards C. These boards, as before mentioned, slant toward the warm-air flues, which slanting directs any warm air which may accumulate at the ceiling of the provision-chamber toward
15 the warm-air flues D, while the strips H form, as it were, air-cushions to separate the warm air at the ceiling from the cold air descending through the hole E.

I is a strip placed near the back of the refrigerator and projecting below the ceiling of the provision-chamber. This strip I forms the inside wall of the auxiliary cold-air passage I', which cold-air passage is at right angles to the warm-air flues D, and leads from
20 the bottom of the ice-rack J in the ice-chamber to a point below the level of the opening of the warm-air flue. The strip I in projecting below the ceiling forms a cushion to separate the warm air collected at the top of the ceiling from the cold air entering through the
25 cold-air passage J. The strips H and I therefore prevent the condensation which would otherwise take place were the two currents not separated by the cushions formed by the
30 said strips.

J' is a horizontal rack resting on and supported by the shelves J². These shelves hold the rack above the boards C, so as to leave an air-space between the said bottom and the ice
35 carried by the rack.

K are side racks extending from the top of the shelves J² to the top of the ice-chamber A. These racks keep the ice clear from the sides of the refrigerator, leaving open spaces for
40 the passage of the air down to the chamber formed between the boards C and rack J. It is therefore possible in my refrigerator to pack the ice-chamber tight, while the circulation will still be maintained.

55 It will be noticed on reference to the drawings that the warm-air flues D extend up to a point near the top of the ice-chamber, thus separated from the said ice-chamber by the wall L. A series of holes are made through
60 the wall L, communicating with the flue D. These holes are provided with a damper, M, so that the communication between the flue D and the exterior of the ice-chamber can be completely cut off; or the holes may be opened,
65 so as to admit the air from the flue into the ice-chamber. When the dampers are closed, the warm air ascending the flues D will escape

through the hole N, made through the outer skin of the refrigerator.

O is a hole made in the top of the ice-chamber, through which fresh air is admitted. When
70 the dampers M are closed, the fresh air admitted into the ice-chamber passes through the cold-air passages before mentioned into the provision-chamber B, thence up through the
75 flues D, and out of the holes N. When the dampers M are open, a portion of the fresh air in the flues D will re-enter the chamber A, and if the holes N are closed by a damper all the air will re-enter the chamber A, so that complete
80 circulation will be maintained; but I think it will generally be found preferable to permit the air to escape out of the refrigerator after it has passed once through the ice-chamber.

What I claim as my invention is—

1. In a refrigerator having a rectangular hole through the bottom of the ice-chamber leading into the provision-chamber, two
85 grooves or channels made in the bottom, one on each side of the rectangular hole and connected to an escape-pipe, and two triangular supports, one at each end of the hole, grooves being made in the supports leading from their apex to the side grooves, in combination with
90 a detachable cover arranged to fit and rest on the triangular supports and protect the provision-chamber from moisture, while permitting the free downward current of the cold air.

2. In a refrigerator having a hole made in
95 the bottom of the ice-chamber leading into the provision-chamber for the passage of the cold air, and separate flues for the escape of the warm air accumulating at the ceiling of the provision-chamber, the combination of two
100 strips placed one on each side of the hole and extending below the bottom into the provision-chamber, thereby forming cushions to separate the warm air at the ceiling of the provision-chamber from the cold air descending
105 into it from the ice-chamber.

3. In a refrigerator in which a central opening connects the ice-chamber with the provision-chamber, and having cold-air passages separate from the warm-air flues, and in which
110 the ceiling of the provision-chamber slants from the mouth of the warm-air flue toward the said center opening, a cold-air passage leading from the bottom of the ice-chamber into the provision-chamber at right angles to
115 the warm-air flues, in combination with a strip extending along the side of the said cold-air passage below the ceiling of the provision-chamber for the purpose of forming air-cushions to separate the warm air at the ceiling of
120 the provision-chamber from the cold air descending through the said passage.

4. A refrigerator having an ice-chamber located in the upper portion of the main box and separated from the provision-chamber by
125 a partition inclining inward, and having central cold-air channel, and having also a warm-air chamber leading from the provision-chamber, racks, as J K, adapted to prevent con-

tact of the ice with the closed partition L, and means for connecting or separating said warm-air chamber and ice-chamber at will, as and for the purposes set forth.

- 5 5. In a refrigerator having a warm-air flue leading from the ceiling of the provision-chamber to a hole through the outer skin of the refrigerator at a point near the top of the ice-chamber, the combination of an adjustable

damper placed in the partition between the ice-chamber and flue for the purpose of regulating the admission of the warm air from the flue into the ice-chamber, substantially as and for the purpose specified.

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Witnesses:

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