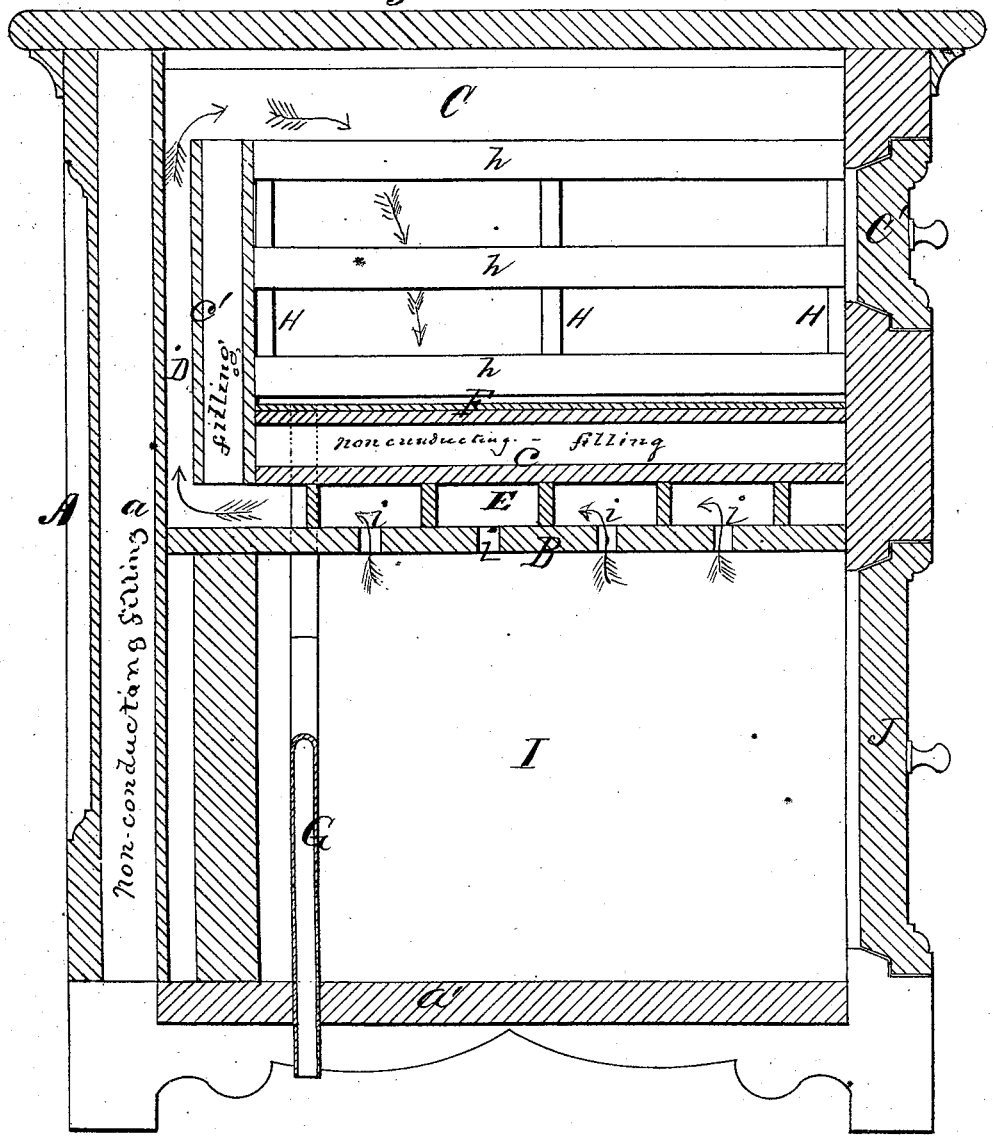
2 Sheets--Sheet 1.

W. GRAYSON.

Refrigerator.

No. 160,422. Patented March 2, 1875.

Fig 1



WITNESSES

Eugene W. Johnson.

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INVENTOR

William Grayson,

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ATTORNEYS

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

2 Sheets--Sheet 2.

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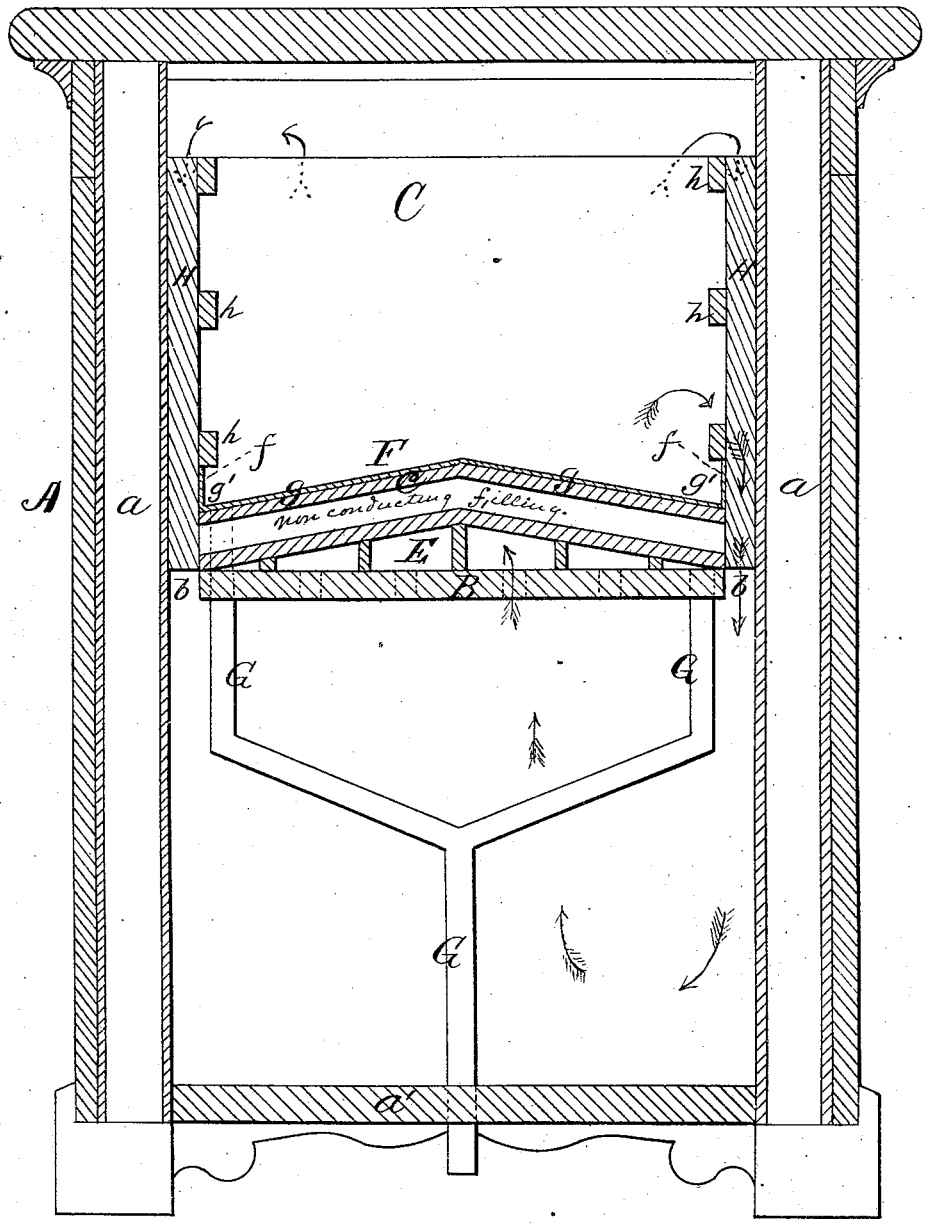
Fig 2



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UNITED STATES PATENT OFFICE.

WILLIAM GRAYSON, OF ST. LOUIS, MISSOURI.

IMPROVEMENT IN REFRIGERATORS.

Specification forming part of Letters Patent No. **160,422**, dated March 2, 1875; application filed December 12, 1874.

To all whom it may concern:

Be it known that I, WILLIAM GRAYSON, of St. Louis, in the county of St. Louis and State of Missouri, have invented a new and valuable Improvement in Refrigerators; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a longitudinal vertical section of my refrigerator. Fig. 2 is a transverse vertical sectional view of the same.

This invention has relation to improvements in domestic refrigerators; and the nature thereof consists in an ice-box having a doubly-inclined double-walled bottom, and a double-walled end or ends, supported in the upper part of a refrigerator-case upon a perforated platform of slightly less width than the case, and extending from end to end thereof, the said ice-box being of less length and width than the case, whereby a chamber is formed under the floor of the ice-box, and an air-passage at each side and at one or both ends of the said ice-box, into which chamber warm air ascending from the provision-receptacle passes, escaping thence upward into the passages at the ends of the box, ascending which it is reduced in temperature by the ice in the box, and is discharged through the passages at its sides into the chamber below, the upward currents of air being protected from the refrigerating action of ice in the box, whereby their ascent would be arrested by the double-walled bottom and ends of the same, as will be hereinafter more fully explained.

In the annexed drawings, A designates a double-walled refrigerator-case of the usual construction, the spaces *a* between the inner and outer walls being filled with a suitable non-conducting substance. B designates a perforated platform, of slightly less width than the case, and extending from end to end of the same, as shown in Fig. 1, leaving by this means a space, *b*, between its lateral edges and the sides of the case, for a purpose hereinafter explained. Upon this platform is arranged an ice-box, C, having a doubly-inclined double-walled floor, *c*, of the same width as the platform B, and where ice is placed into it through a door, C′, in an end of the case, of an end piece, *c′*, also double-walled, and filled, as is the bottom *c*, with a suitable non-conductor. The end *c′* of this ice-box is transverse to the length of the case, and is so arranged therein as to form a passage, D, communicating with a chamber, E, formed by the arched roof *c* and platform B. F designates a metallic pan, rigidly secured to the inside of ice-box C, and its bottom conforming to the double inclination of the body thereof. The vertical sides *f* of this pan form, with the double inclines *g* thereof, gutters *g′*, at one end of which are cut apertures, into which are rigidly secured the upper ends of a bifurcated eduction-pipe, G, extending downward through the bottom *a′* of the case, as shown in Fig. 1. H designates vertical strips, which are secured in any suitable manner to the inside of case A, above the platform B, across which are applied a number of spaced slats, *h*, which are designed to prevent ice sliding down the inclines *g* from resting against the sides of the case A, and thereby blocking up the air space or passage *b*.

My improved refrigerator works in the following manner, to wit: The articles are placed in a chamber, I, below platform B, to which access is had through a door, J, and the ice upon and in the pan F, when the temperature of the air in the upper part of the refrigerator-case is immediately lowered, and consequently descends through air-passages *b* at the sides of the ice-box C into the chamber I. At the same time the air of lower temperature in the said chamber begins to ascend, and, being precluded from passing upward through air-passages *b* at the sides of the ice-box by the heavier current of ascending cold air, passes through apertures *i* in the platform B into the interior of chamber E, whence it passes into air-passage D, and, being protected from the refrigerating action both while in the chamber and air-passage by the double-walled non-conducting floor and end of the ice-chamber, rapidly ascends into the upper part of the refrigerator-case. Being there exposed to the direct influence of the ice, it is immediately lowered in tempera-

ture, and descends through passages *b b* into the provision-chamber I. In this manner a continuous current of ascending and descending air is maintained and produced as long as there is any ice in the box.

During the melting of the ice all the products of condensation and drip will be received into the gutters *g'*, whence they will be conducted by pipe G to the outside of the case, into a suitable receptacle.

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

1. An ice-box, C, having a non-conducting filling at its bottom and inner end, and provided with open-slatted sides, substantially as described.

2. The ice-box C, the doubly-inclined bottom of which is provided with a filling, in combination with a perforated platform, B, chamber E, and air-passage D, substantially as and for the purpose set forth.

3. The perforated platform B, in combination with the air-chamber E, communicating with the air-passage D, substantially in the manner as described.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

WILLIAM GRAYSON.

Witnesses:

C. W. McGREGOR,

MATTHEW SHAW.