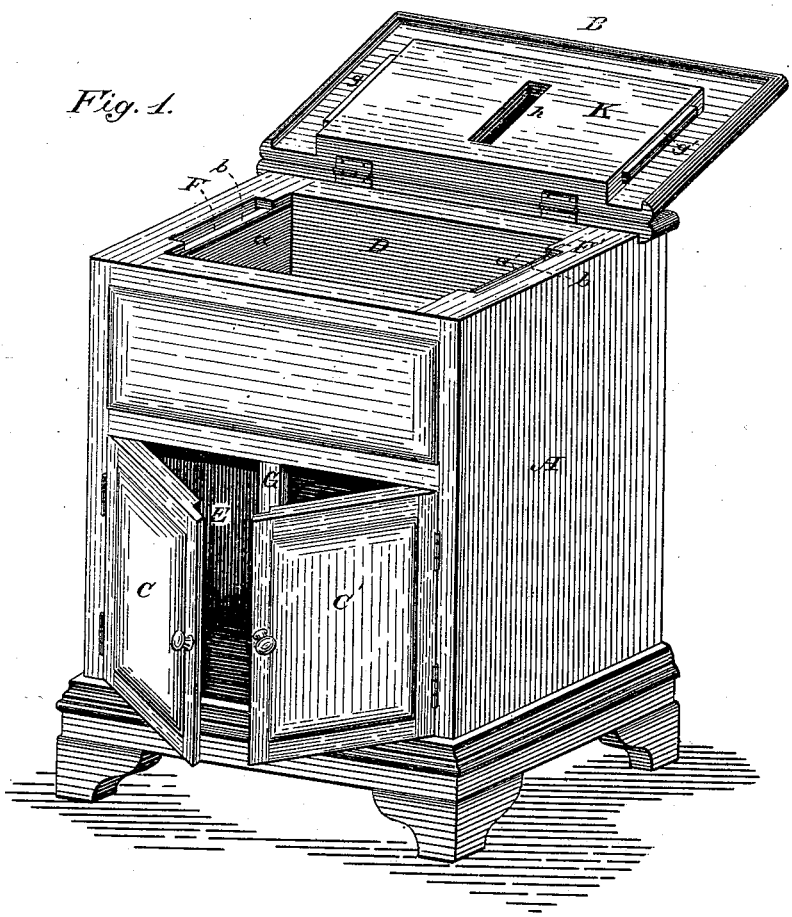
2 Sheets—Sheet 1.

G. F. SMITH.

REFRIGERATOR.

No. 193.563. Patented July 24, 1877.

Fig. 1.



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2 Sheets—Sheet 2.

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REFRIGERATOR.

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Fig. 2.

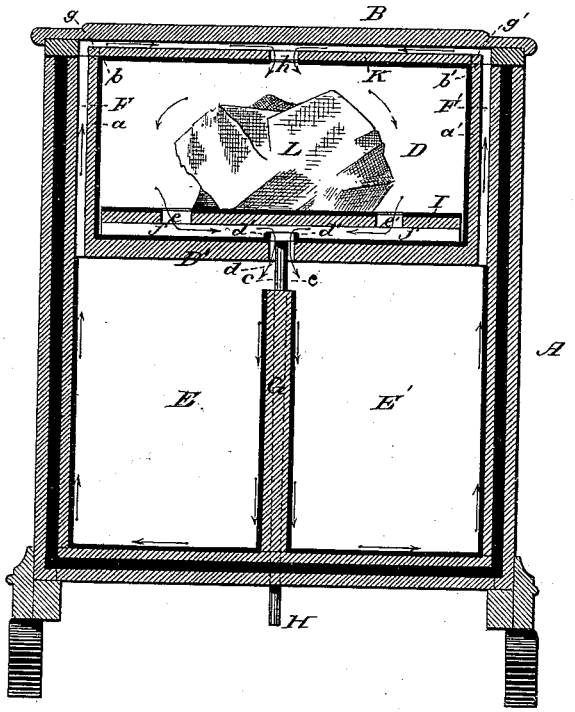
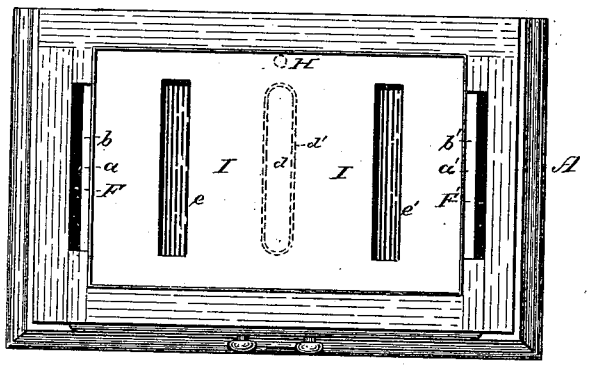


Fig. 3.



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UNITED STATES PATENT OFFICE.

GEORGE F. SMITH, OF MICHIGAN CITY, INDIANA.

IMPROVEMENT IN REFRIGERATORS.

Specification forming part of Letters Patent No. **193,563**, dated July 24, 1877; application filed April 17, 1877.

To all whom it may concern:

Be it known that I, GEORGE F. SMITH, of Michigan City, in the county of La Porte and State of Indiana, have invented a new and useful Improvement in Refrigerators; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates to that class of refrigerators wherein a constant circulation of air is maintained through the ice-box and provision-chambers; and its object is to increase the circulation, reduce the air to a lower temperature than heretofore, and to deliver such air into the provision-chambers free from moisture, preventing the sides of the said provision-chambers from "sweating," and better preserving the articles placed therein.

My invention therein consists in the combination, construction, and arrangement of the parts for effecting the circulation of the air, as fully hereinafter explained.

To enable others skilled in the art to manufacture my refrigerator, I proceed to describe the same, having reference to the drawings, in which—

Figure 1 is a perspective view of the refrigerator with the cover thrown open; Fig. 2, a central vertical section of the same with the cover closed; and Fig. 3, a plan view of the refrigerator, the top being removed.

Like letters denote corresponding parts in each figure.

A represents the body of the refrigerator, which is constructed with double walls, the space between these walls being filled with some non-conducting material, as shown.

B is the cover to the ice-box, and C C′ doors opening into the provision-chambers. In the top of the refrigerator is situated the ice-box D, which is separated from the provision-chambers E E′ below it by a horizontal partition, D′. Both the ice-box and the provision-chambers are lined with zinc in the usual manner. At the ends of the ice-box are thin vertical partitions *a a′*, supported a short distance from the walls of the refrigerator, so as to form between them and such walls air-passages F F′, which lead from the tops of the provision-chambers, and open into the recesses *b b′* in the walls of the refrigerator, as shown in Figs. 1 and 3.

The provision-chambers E E′ are provided with any suitable number of racks, (not shown,) and are separated from each other by a central partition, G, running from the front to the rear of the refrigerator. This partition does not rise quite to the horizontal partition D′, but an open space, *c*, is left at the top of the same, which connects the two provision-chambers. Above this space, in the horizontal partition D′, is cut an opening, *d*, and around the edge of this opening the lining of the ice-box is turned up, as shown at *d′*, to prevent the waste water from running through the same. H is the waste-pipe, extending from the bottom of the ice-box down through the partition G, and out at the bottom of the refrigerator. I is a false bottom, made of wood, and supported above the floor of the ice-box by two or more longitudinal strips. This bottom is covered by a sheet of zinc, and has cut through it, near its ends, two openings, *e e′*, forming under such bottom an air-passage, *f*, leading to the central opening *d*.

To the under side of the cover B is attached a shallow air-box, K, which hangs down into the ice-box, and is covered with zinc. This box is open at the ends the width of the recesses *b b′*, and has strips *g g′*, Figs. 1 and 2, which set into and occupy a part of the space of such recesses, thus cutting them off from the ice-box when the cover is closed, and connecting the air-passages F F′ with the air-box. Through the center of the air-box K is cut on opening, *h*, leading into the ice-box.

A cake of ice, L, is represented in Fig. 2 in position in the ice-box.

In use the air in the ice-box, becoming cold, passes down through the openings *e e′* in the false bottom, along the passage *f* to the central opening, and through such opening into the provision-chambers. The warm air in the provision-chambers is displaced by the cold air, and makes its exit at the sides through the passages F F′. From them it enters the air-box K, and is discharged through the opening *h* into the center of the ice-box. A constant circulation is thus maintained. The air, being taken from near the sides of the ice-box and discharged centrally into the provision-

chambers, passes out at the sides of the provision-chambers, and again enters the ice-box directly over the ice contained therein.

By circulating the air in the manner and by the means described, a more constant circulation is maintained, and the warm air, being discharged directly upon the ice, is reduced to a lower temperature than heretofore.

The ice resting centrally upon the false bottom, the circulating air is thrown into contact with the metal covering of the air-box K, and against the sides of the ice-box, and the moisture in the same is condensed mostly before it passes through the openings in the false bottom. Then, passing along the channel *f*, the moisture in the air is further condensed upon the metal bottom of the ice-box, and enters the provision-chambers comparatively dry, thus preventing the sweating of such provision-chambers, and better preserving the articles contained therein.

The water caused by this condensation and by the melting of the ice runs into the bottom of the ice-box, and is carried off by the waste-water pipe H, it being preventing from passing through the opening *d* by its upturned edge *d'*.

Having thus fully described my refrigerator, and explained some of its advantages, what I claim as my invention, and desire to secure by Letters Patent, is—

In a refrigerator, the combination, with the two provision-chambers E E′ and the single ice-box D, provided with opening *d*, and situated above such provision-chambers, and extending the entire width of the refrigerator, of the side flues F F′, air-box K, having opening *h*, and the false bottom I, having the side openings *e e'*, all constructed and arranged substantially as described and shown.

This specification signed and witnessed this 5th day of April, 1877.

GEORGE F. SMITH.

Witnesses:

CHARLES W. WOODS,

HENRY C. SMITH.