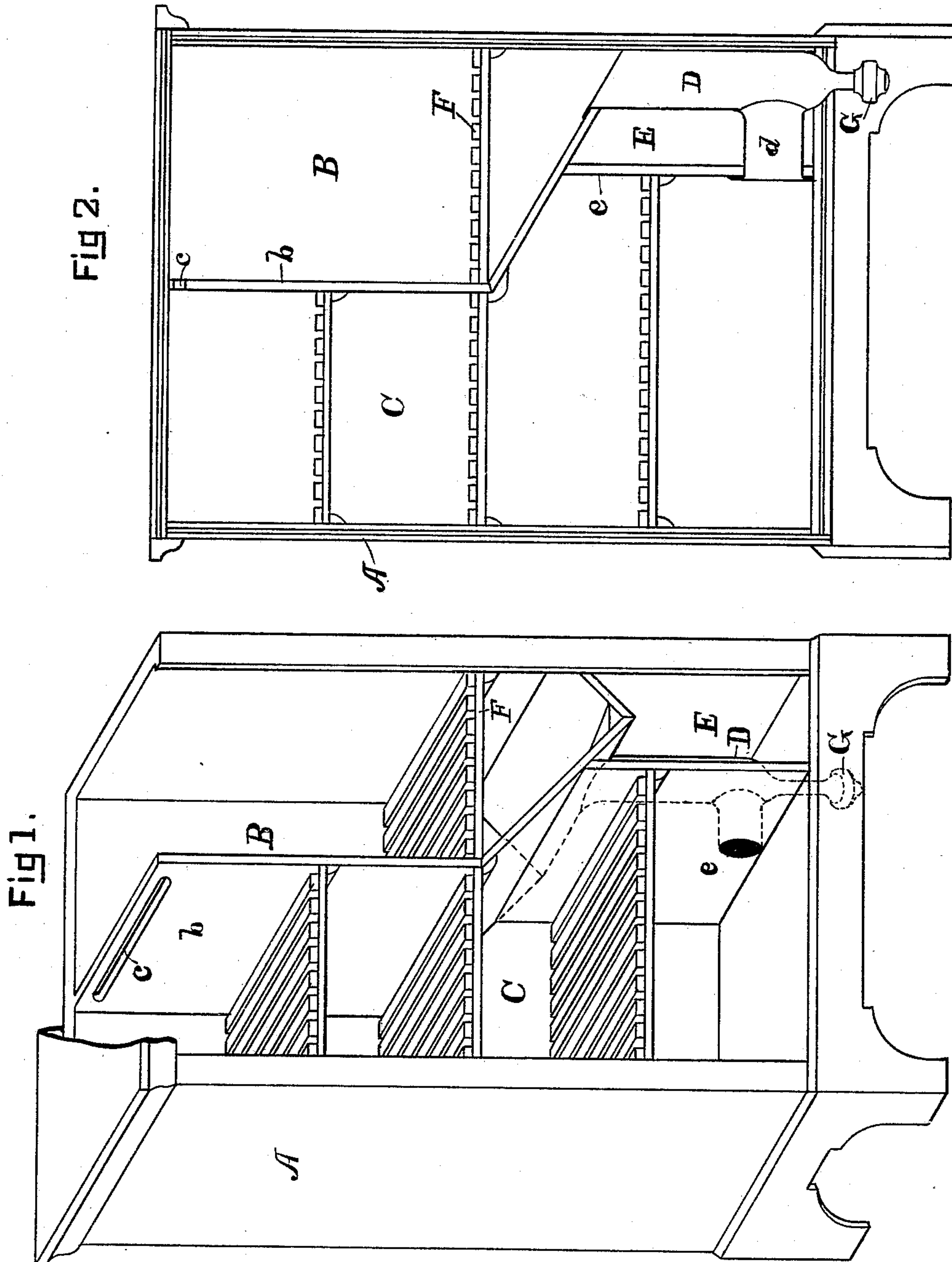


(No Model.)

W. R. MONROE.
REFRIGERATOR.

No. 405,492.

Patented June 18, 1889.



WITNESSES.

Frank. Miller.
N. J. Bainbridge

INVENTOR.

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UNITED STATES PATENT OFFICE.

WILLIAM R. MONROE, OF CLEVELAND, OHIO.

REFRIGERATOR.

SPECIFICATION forming part of Letters Patent No. 405,492, dated June 18, 1889.

Application filed January 23, 1889. Serial No. 297,235. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. MONROE, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and
5 useful Improvements in Refrigerators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of my improved refrigerator with the front side and
10 part of the top removed. Fig. 2 is a central vertical sectional view of a refrigerator in which the pipe D is arranged in a slightly-different position from that shown in Fig. 1.

15 The object of my invention is to so construct a refrigerator that the greatest possible amount of refrigeration may be obtained in the preserving-chamber from the employment of a given quantity of ice, and whereby
20 the rise in the temperature occasioned by the opening of the doors of the preserving-chamber may be overcome quickly when said doors are closed; and the invention consists in the construction, combination, and arrangement
25 of the parts herein shown and described, as pointed out in the claim.

Referring to the drawings, A represents the refrigerator-case, the walls of which are
30 constructed in any manner adapted to prevent the outside temperature from affecting materially the temperature within. At one side of the case the ice-box B is separated from the preserving-chamber C by a partition
35 *b*, and a slot *c* through the upper part of this partition admits the air from the preserving-chamber to the ice-box. The ice-box is provided with an inclined bottom, substantially as shown, and a rack F, upon which
40 the ice rests, is fixed in said ice-box near its lower end. Below the ice-box a partition *e* separates from the preserving-chamber a chamber E, in which cold air is confined. A pipe D connects with the ice-box at its lowest point and extends downward through the
45 cold-air chamber E, and serves the double purpose of a drip-pipe and a circulating air-duct. The lower end of this pipe is reduced in size, as shown, and is provided with a suitable valve G, which permits the water to escape,
50 but prevents the entrance of the air.

Just above the point where the reduction in the size of the pipe D begins said pipe is connected with the lower part of the preserving-chamber by the pipe *d* or its equivalent.

The mode of operation of the above-described refrigerator is as follows: The air
55 from the preserving-chamber enters the ice-box through the slot *c* and circulates around in contact with the ice, by which it is cooled and the foul vapors condensed. The cooled
60 and purified air falls downward and is deflected by the inclined walls at the lower part of the ice-box to the pipe D, through which it passes with considerable rapidity, and is discharged into the lower part of the refrigerating-chamber. This cool air then passes
65 upward, driving before it the warmer air in the preserving-chamber. The cold drip from the melted ice passes down through the pipe D, from whence it escapes through the valve
70 in the bottom. In passing down through said pipe in contact with the walls thereof it cools said walls, whereby the circulating air is still further cooled by contact therewith, and whereby the air inclosed within the cold-air
75 chamber C is also cooled and kept cool.

When the door of the preserving-chamber is opened, the temperature of the air therein, and consequently of the air within the pipe D, is sensibly raised; but the temperature of
80 the air within the inclosed chamber C is not affected thereby. Therefore, when the refrigerator-doors are closed, the air in the chamber C tends to cool the walls of the pipe D, which in turn cools the air circulating
85 through it, whereby the temperature of the said circulating air is quickly reduced.

If desired, the pipe D may be arranged, as shown in Fig. 2, so that it is not entirely surrounded by the air in the chamber E. In this
90 case the influence of the cold air within the chamber E in cooling the pipe D and air passing through it will be to some extent lessened. The form shown in the first figures is, however, believed to be the most complete
95 and satisfactory.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

In a refrigerator, the combination of a pre- 100

serving-chamber and an ice-box with a permanently-inclosed chamber beneath said ice-box, and a combined drip-pipe and air-duct which connects with the ice-box and passes
5 through said inclosed chamber out through the bottom of the refrigerator, and which has a passage through its side connected with the

preserving-chamber, substantially as and for the purpose specified.

WM. R. MONROE.

Witnesses:

E. L. THURSTON,
FRANK MILLER.