

A. LIPPMANN.

Refrigerator.

No. 22,127.

Patented Nov. 23, 1858.

Fig. 1,

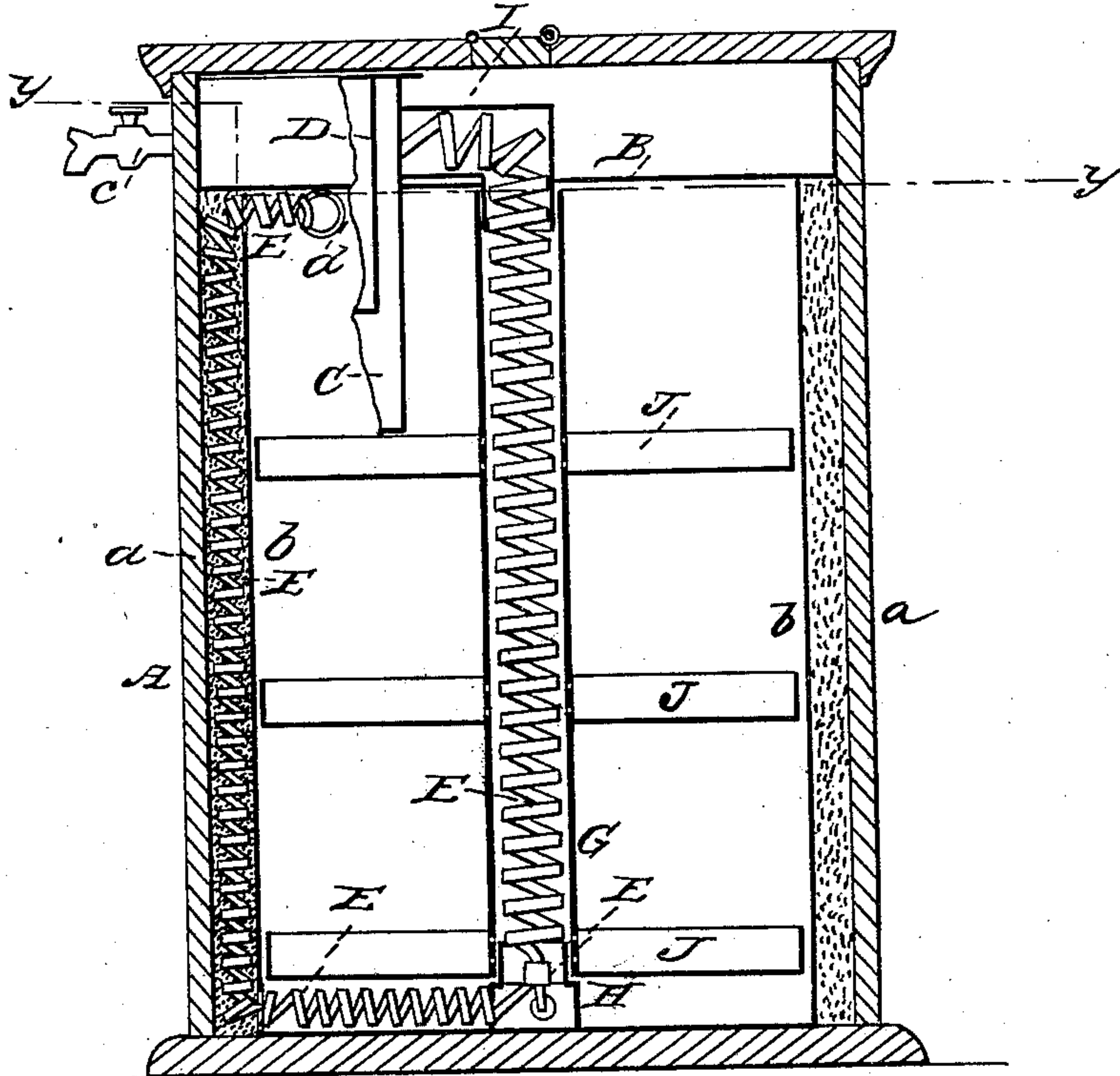
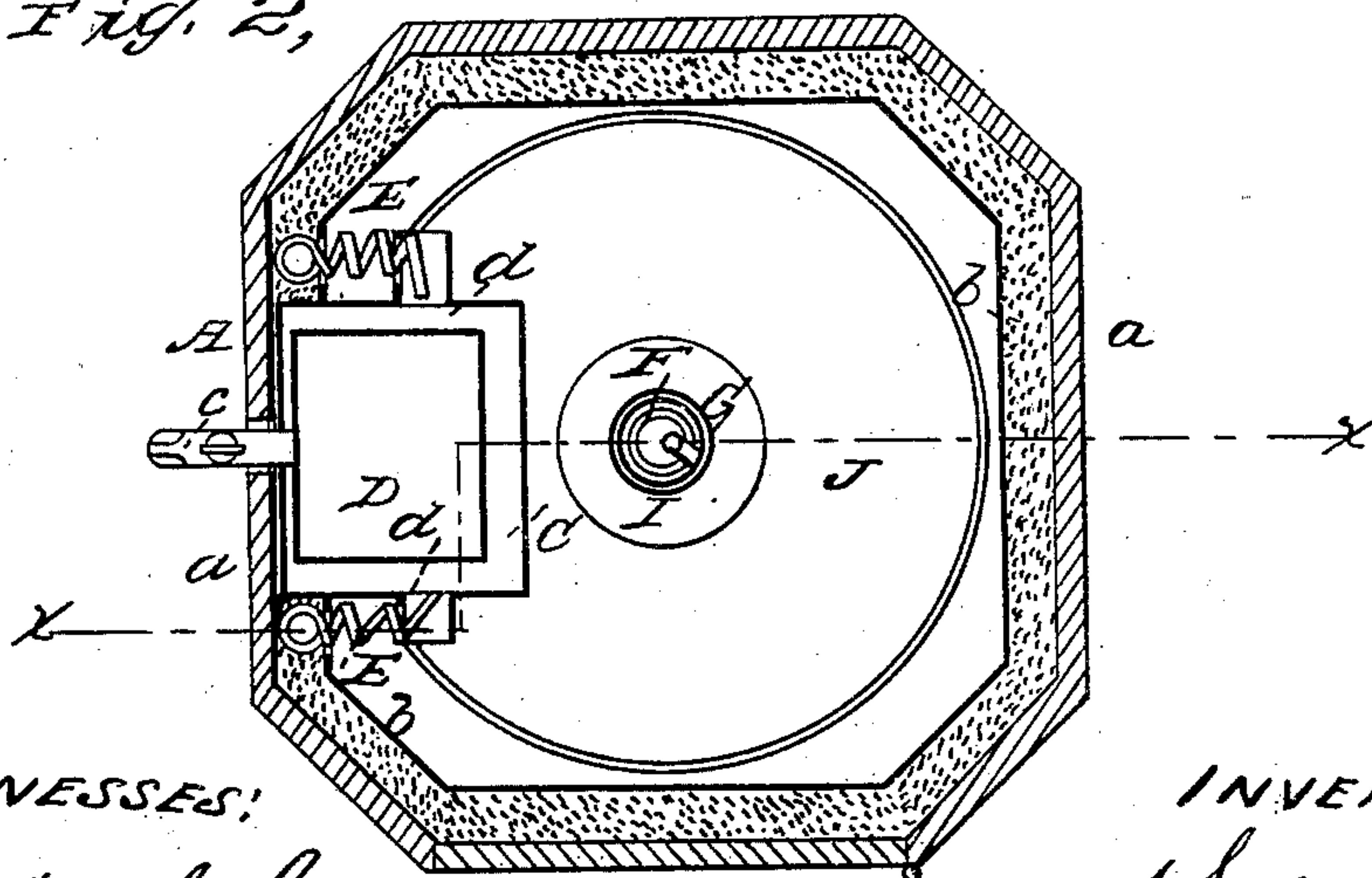


Fig. 2,



WITNESSES:

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# UNITED STATES PATENT OFFICE.

ADOLPHUS LIPPMANN, OF NEW YORK, N. Y.

## REFRIGERATOR.

Specification of Letters Patent No. 22,127, dated November 23, 1858.

*To all whom it may concern:*

Be it known that I, ADOLPHUS LIPPMANN, of the city, county, and State of New York, 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 same, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1, represents a vertical section of my improved refrigerator, the line *x, x*, Fig. 2, indicating the plane of section. Fig. 2, is a horizontal section of the same, the line *y, y*, Fig. 1, indicating the plane of section.

This invention consists in arranging a series of coiled pipes which emanate from the sides of the ice chamber in such a manner that they descend between the two walls of the refrigerator, where they are surrounded by some nonconducting material, so that when the same are connected at their lower ends to another coil which extends through a central tube from top to bottom of the refrigerator and back into the ice chamber the cold air from this chamber is caused to descend through the first named series of coiled pipes and to ascend and flow back to the ice chamber through the central coil and so that by such circulation of the air the temperature in the refrigerator may be brought to a very low degree with a comparatively small amount of ice.

To enable others skilled in the art to fully understand and construct my improvements I will proceed to describe the same.

A, is a box with two walls *a*, and *b*, and the space left between the two walls is filled with some nonconducting material, such as sawdust, charcoal dust or some other stuff of the same kind. In the upper part of this box and fastened to a horizontal partition B, is the ice chamber C, and this chamber is made large enough so as to leave room for a water cooler D, which is placed within the ice chamber above the ice and from which cold water for drinking purposes may be drawn by a faucet *c*. The sides of the ice chamber are perforated with several openings *d*, and coiled pipes E, are connected to these openings so that the cold air from the ice chamber has free access to them. These pipes extend to the space between the two walls *a*, and *b*, of the refrigerator and down between those walls where they are surrounded by the nonconducting material with

which the space is filled, and they are connected at the bottom with a coil F, which extends through a central tube G, all the way up through the refrigerator and back to the ice chamber. The tube G, fits over a socket H, at the bottom and its top is supported by the end of the bent tube I, through which the coil F, runs back to the ice chamber and which is rigidly attached to the horizontal partition B, so that the shelves J, which are attached to the tube G may be freely revolved, which is of great convenience in putting some articles in or taking them out of the refrigerator. The tube G, is perforated so that the air in the refrigerator communicates freely with the outside of the coil F.

The operation is as follows: After the ice has been introduced into the ice chamber and after the several doors and the lids of the refrigerator have been closed, the cold air from the ice chamber enters the coiled pipes connected to the same, and as cold air is heavier than when it is warm, it will descend in these pipes. The air contained in the coil F, however, the sides of which are exposed to the influence of the warmer air in the refrigerator, will soon become warmer than the air contained in the coiled pipes E, which are surrounded by some nonconducting material, so that the air contained therein preserves its original cold temperature and as from these influences the air in the coil F, will be come rarefied to a certain extent it will ascend and flow back to the ice chamber where it is cooled again by coming in contact with the ice, and as no other opening is left in the ice chamber and as therefore all communication between this chamber and the outer atmosphere is cut off, the same air will be caused to circulate from the ice chamber where it is cold by coming in contact with the ice down through the coiled pipes E, and back through the coil F, wherein it becomes warmed and rarified to a certain extent by the influence of the warmer air in the refrigerator so that it ascends and flows back to the ice chamber. At the same time the air in the refrigerator by coming in contact with the outside of the coil F, is cooled, and the temperature of the same is brought down to a very low degree with but a trifling amount of ice, as it comes in contact with the same air over and over again, so that all the heat necessary for melting the

ice must come from this quantity of air, the temperature of which after a certain time will approach the freezing point.

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

The within described arrangement of a series of coiled pipes E, which emanate

from the ice chamber C, and which are carried down between the two walls *a*, and *b*, 10 of the refrigerator to a central coil G, substantially as and for the purpose specified.

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Witnesses:

O. D. MUNN,

WM. TUSCH.