

Improvement in Refrigerators.

Patented June 11, 1872.

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IMPROVEMENT IN REFRIGERATORS.

Specification forming part of Letters Patent No. 127,863, dated June 11, 1872.

Specification describing certain Improvements in Refrigerators, invented by JOHN GRAVENSTINE, of Philadelphia, Pennsylvania.

Improvement in Refrigerators.

My invention consists of an upright refrigerating-chest, in which, by a certain arrangement of air passages and flues, fully described hereafter, I am enabled to maintain a circulation of air around the ice-box within the closed chest, and without admitting external air to facilitate such circulation; and my invention also consists in the combination, with the refrigerating-chest and ice-box, of a detachable water-cooler, as hereafter described.

In the accompanying drawing, Figure 1 is a vertical section of an upright refrigerating-chest with my improvement; and Fig. 2, a vertical section on the line 1 2, Fig. 1.

A represents the chest, of which *a* is the front, *b* the back, *d* and *d'* the opposite sides, and *e* the hinged lid or top, the latter being of sufficient size to admit the ice-box B, which is supported within the chest in any suitable manner by means of its flanged upper edge, and which, in the present instance, is closed at the top by the lid of the chest. The space between the ice-box and the front *a* of the refrigerator is somewhat wider than the space *f* between the said ice-box and the back of the refrigerator, and the said front space is divided, by a partition, *g*, of non-conducting material, into two air-passages, *h* and *i*, the former communicating at the bottom with the body of the refrigerator, and at the top, over the partition, with the passage *i*. The latter communicates at the bottom with an air-passage, *j*, formed between the bottom of the ice-box and a partition, *k*, which is joined at the front with the lower end of the partition *g*, and terminates at its opposite end at a short distance from the back *b* of the chest, (see Fig. 1.) The air in the passages *i* and *j*, being in immediate contact with the ice-box, will become cooled, and will pass downward and rearward, in the direction indicated by the arrows in Fig. 1, into the body of the chest, and the warmer air within the latter will rise through the passage *h*, pass over the partition *g*, into the passage *i*, and, on be-

coming cooled, again descend through the latter and the passage *j* into the chest. A portion of the air will also pass from the passage *i* around the sides of the ice-box, and thence into the passage *j* and body of the refrigerator. In this way a constant circulation will be maintained within the closed chest, which will decrease in rapidity as the temperature approaches equalization. In order to facilitate this circulation, and thus enable the temperature to be still more rapidly reduced and maintained at as low a point as possible, I also propose to arrange the two flues *m m* at the opposite sides of the ice-box, close to the top of the same, in order to establish communication between the passage *h* and the passage *f*—before referred to—at the back of the ice-box. A portion of the warm air from the passage *h* will pass through these flues *m* into the passage *f*, and, becoming cooled in the latter by contact with the ice-box, will descend into the refrigerator with the air from bottom passage *j*.

It is important that the partitions *g* and *k* be of non-conducting material in order to preserve the relative difference in temperature of the bodies of air at opposite sides of said partitions.

In addition to the above improvements I also propose to combine with the refrigerator a water-cooler, D, Fig. 2, which is inserted into the chest through an opening in the side of the same in the manner of a drawer, so that it can be entirely detached when it is necessary to replenish or cleanse it. The rear portion of the cooler is also introduced beneath, and is thus brought in immediate contact with, the ice-box, which is cut away at one side for its reception, while the outlet-pipe *p*, to which the cock *q* is attached, extends along the bottom of the cooler to its rear end, and terminates at a point close to the ice-box, so that the coolest water shall always be drawn off through the said pipe.

I claim as my invention—

1. An air-tight or closed refrigerating-chest, in which are combined, substantially as described, the ice-box, non-conducting partitions *g* and *k*, and air-passages *h*, *i*, and *j*.

2. The combination, substantially as described, of the ice-box, air-passages *h*, *i*, and *j*, and side flues *m*, and air-passage *f*.

3. The combination of the ice-box B and independent water-receptacle D, fitted to the ice-box, and detachable, as set forth.

In testimony whereof I have signed my name

to this specification in the presence of two subscribing witnesses.

JOHN GRAVENSTINE.

Witnesses:

WM. A. STEEL,

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