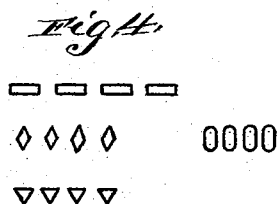
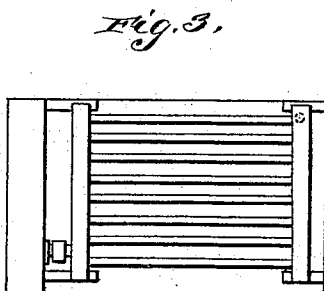
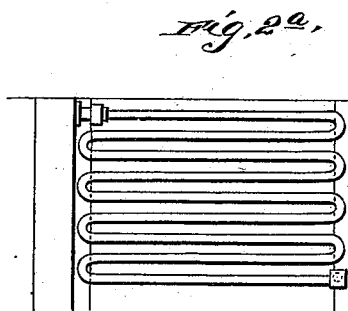
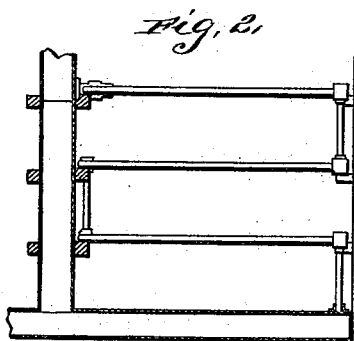
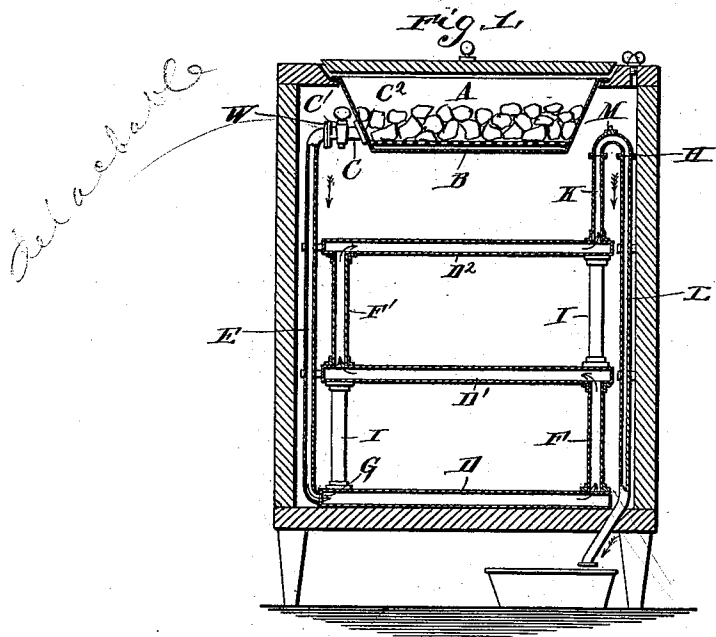


(No Model.)

T. SCHOPPE.
REFRIGERATOR.

No. 510,192.

Patented Dec. 5, 1893.



Witnesses:

H. A. Johnston.
Charles R. Searle.

Inventor:

Thos. Schoppe
By his attorney
Charles R. Searle

UNITED STATES PATENT OFFICE.

THEODOR SCHOPPE, OF BONN, GERMANY.

REFRIGERATOR.

SPECIFICATION forming part of Letters Patent No. 510,192, dated December 5, 1893.

Application filed March 15, 1893. Serial No. 466,152. (No model.) Patented in Germany July 23, 1892, No. 67,546.

To all whom it may concern:

Be it known that I, THEODOR SCHOPPE, a subject of the Emperor of Germany, residing at Bonn, in Rhenish Prussia, Germany, have invented a certain new and useful Improvement in Ice-Chests or Refrigerators, (patented in Germany July 23, 1892, No. 67,546,) of which the following is a specification.

In this refrigerator a series of partition-bottoms or platforms serving for placing thereon the objects to be cooled or to be kept in a cool state, are constructed hollow, and are in communication with one another and with the elevated ice-reservoir in such way that the ice-water from the ice-reservoir first runs into the lower hollow platform, and thence upward through the other, and finally from the highest through a rising pipe which extends above the bottom of the ice-reservoir. The water is conducted downward from there through a waste-pipe, and may be discharged into a collector arranged, as usual, beneath. This arrangement conducts the ice-water in a serpentine route slowly through the refrigerator in order to give to this water the opportunity of taking up the caloric, or in common language, giving off its cold, so that the same will be utilized in lowering and keeping low the temperature of the objects placed in the refrigerator. The providing a rising-pipe on the uppermost platform and extending it above the bottom of the ice-reservoir, has for its object to insure that the apparatus shall always hold securely filled with ice-water the hollow platforms and their connecting tubes, and to produce a certain transferring of the cold of the ice to the contents of the structure.

The accompanying drawings form a part of this specification and represent what I consider the best means of carrying out the invention.

Figure 1 is a central vertical section showing one form of my invention. In this, the refrigerator has but a single chamber and a single set of the hollow partitions and connections. Fig. 2 shows in outline a portion of the construction when the invention is applied to a refrigerator having two or more chambers, and a corresponding number of sets of partitions and pipes. Fig. 2^a is a corresponding plan view. Fig. 3 is a plan view

of a portion showing another modification. Fig. 4 is a diagram showing a number of cross-sections of pipes, any of which forms may be used in my invention.

Similar letters of reference indicate corresponding parts in all the figures where they appear.

The ice-reservoir A, wherein the ice is placed on a grate B, is provided with a short waste-pipe C, having preferably a cock or cut-off device C'. To this waste-pipe is connected a removable waste-pipe E leading to the lowest hollow partition bottom or platform D, and connected by a close-fitting joint at G. The hollow platforms D, D', D², are in communication with one another by the pipes F, F', which may permanently connect them. These pipes and platforms will receive the water from the melted ice, and conduct it through. Posts I are provided for further supporting and connecting the platform.

On the uppermost platform D², there is a set-up or rising pipe K, which is of such height as to extend a little above the bottom of the ice-reservoir A. This rising pipe is connected by a tight joint at H, with a waste-pipe L. At the highest point is a short air-pipe M, which may have a cock or cut-off device by which air may be admitted so that the apparatus will be prevented from working like a siphon and emptying unintentionally the hollow spaces of the platforms. In consequence of the pipe E being removable from the short pipe C, by a removable joint W and of pipe K being removable from pipe L, the hollow platforms and their connecting pipes may be conveniently introduced and removed through a door in the side; or by removing the ice-reservoir, it may be removed through the top.

The pipe E through which the ice-water descends directly from the top to the bottom is permanently attached to the several platforms, as indicated. This pipe is removable from the construction with the platforms. The pipe L through which the ice-water descends after traversing the several platforms and their connecting pipes is permanently attached to the interior of the refrigerator. A slight degree of independent motion of these pipes may be permitted to facilitate the making and breaking of the joints connecting the

pipe E with the pipe C, and the pipe K with the pipe L.

Modifications may be made without departing from the principle or sacrificing the advantages of the invention. Instead of the flat case-shaped platforms D, D', D², as shown in Fig. 1, there may be used platforms made of pipes or hollow metal parts having any desired cross-sections, arranged as shown in Figs. 2 and 3, and of the form of cross-section shown in Fig. 4, and which pipes also can be taken out bodily if desired. The entire spaces under the provision chambers and between them in these modifications, may be permanent parts of the structure, the ice-water from an ice-reservoir not shown, filling the spaces between and under the chambers, and finally flowing upward through the hollow platforms, and distributing its cooling influence to every part of the several chambers. The platforms or hollow horizontal partitions instead of being arranged horizontally may be arranged obliquely, or even vertically. I provide before the waste-pipe C of the ice-reservoir a strainer C², in order to prevent the passage of saw-dust or other large impurities into the hollow platforms and their connecting pipes. The cross-sections of the platforms and of the pipes are made large in order to prevent their becoming obstructed. There may be any suitable drain-cock, not shown by which to empty the whole when required.

I claim as my invention—

1. In a refrigerator, the connection of the lower hollow partition bottom D with the ice

reservoir A by means of a waste-pipe E, permanently connected to the said bottom, and detachably connected to the ice reservoir, in combination with the upper hollow partition bottoms D', D², and the connecting tubes F, F', substantially as herein specified.

2. In a refrigerator the removable series of hollow platforms as D, D', D², pipes F, F', firmly uniting such platforms, and detachable joints G and H connecting such at will with the elevated ice-reservoir A and discharge drain pipe L, all combined and arranged to serve as herein specified.

3. In a refrigerator, a series of two or more removable hollow platforms D, D', pipes F, F', uniting such platforms, and allowing the water to circulate through the same from below, posts I, I, aiding to connect and rigidly support the platforms, pipes E, L, permanently connected, one with the removable platforms and the other with the stationary casing of the refrigerator, the detachable joint W connecting the pipe E with the pipe C and the detachable joint H connecting the pipe L with the platforms, all arranged for joint operation substantially as herein specified.

In testimony whereof I have hereunto set my hand, at Cologne, Germany, this 23d day of February, 1893, in the presence of two subscribing witnesses.

THEODOR SCHOPPE.

Witnesses:

FRITZ SCHROEDER,
SOPHIE NEIGEL.