

J. RING.

Apparatus for Cooling Storage Rooms.

No. 140,792.

Patented July 15, 1873.

Fig. 1.

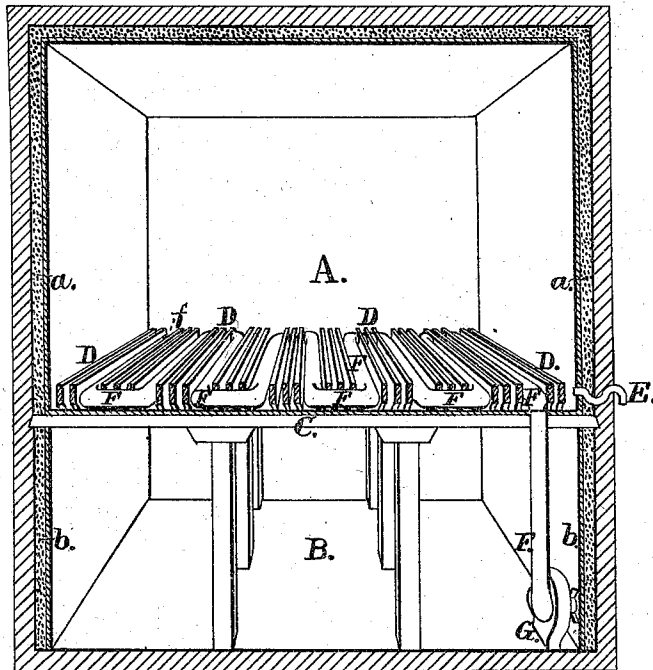
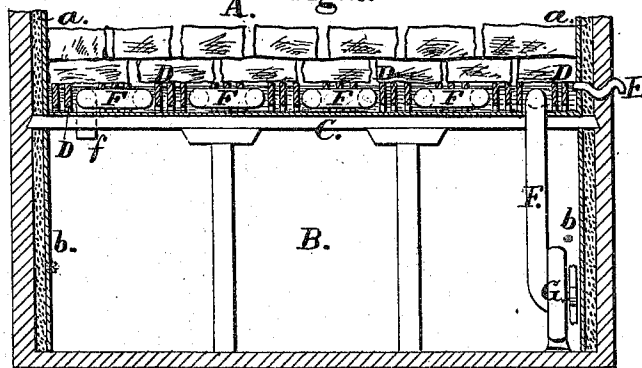


Fig. 2.



ATTEST:

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JOHN RING, OF ST. LOUIS, MISSOURI.

IMPROVEMENT IN APPARATUS FOR COOLING STORAGE-ROOMS.

Specification forming part of Letters Patent No. **140,792**, dated July 15, 1873; application filed May 5, 1873.

To all whom it may concern:

Be it known that I, JOHN RING, of St. Louis, St. Louis county, Missouri, have invented an Improvement in Apparatus for Cooling Storage-Rooms, &c., of which the following is a specification:

My improvement consists in the combination, with a room or chamber, of a cooling apparatus, consisting of an ice-chamber or tank having ice-supporting timbers arranged between the coils of a serpentine pipe communicating with the room or chamber, the ice-tank being provided with an overflow-pipe located above the level of the top of the serpentine pipe and below the level of the top of the ice-supporting timbers, so that the serpentine pipe or air-tube is kept immersed in cold water, while the ice is kept from contact with the water, and thereby prevented from melting too rapidly.

In the drawings, Figure 1 is an interior perspective view of the ice and storage rooms, one wall being removed to exhibit the improvement. Fig. 2 is a vertical section transverse to the main lengths of the cooling-pipe.

A is the ice-room. B is the storage-room. The walls of these rooms may have a lining, *a* and *b*, of saw-dust or other substance to check the passage of heat from without. The room or tank A has a water-tight floor, C, above which are shown timbers D, between which and the floor the water has free flow, so as to reach the outflow-pipe E, which is below the level of the top of the timbers D. The timbers D are for the purpose of supporting a quantity of ice, which, by melting, supplies the cold water in which is immersed the continuous serpentine pipe F, laid backward and forward from side to side of the room between or beneath the supporting-timbers D. One end of the pipe F is connected with a blower, G, in the room B or elsewhere, and the other end, *f*, of the pipe has free communication with the room B, preferably in such a position as to cause a circulation in the room, by causing the entering air to traverse the room before again entering the blower G.

The blower may be arranged to cause a

current of air in either direction, either by suction or by pressure. It is preferable that the outflowing air should be taken from the upper part of the room B, as the warmer air would seek that position. The ice-room or tank may be located directly above the room B, as shown, or at a distance therefrom, and the blower may be placed in the room B or elsewhere, if more convenient for motive power, the connection with the room B and serpentine pipe being made by inlet and outlet pipes from the blower.

The operation of the apparatus is as follows: A quantity of ice being placed on the supports D in the room A, soon causes the pipe F to be surrounded by cold air, and as the ice melts water takes the place of the air until it reaches the level of the overflow-pipe E, which is above the level of the top of the pipe, and below that of the top of the supports D. The blower causes a current of air to pass through the pipe F, the air being cooled in its passage through the pipe, and being carried back to the chamber B, from whence it had been drawn or forced.

The fan may act by suction upon the air in the pipe, or be arranged to force the air through it by pressure, the end gained being the same, to cause air from the room B to flow through the cooling-pipe and return to the room B.

In hot weather there are certain industrial pursuits which cannot be carried on without artificial cooling of the rooms where the goods are manipulated or stored; but to cool air at the normal temperature down to the required degree consumes so large an amount of ice as to render the operation very expensive; but by taking the air from the cold room and extracting from it a small amount of heat, it is reduced to the required temperature without much expenditure of ice, or of power in inducing the air-current, and without the use of any great length of cooling-pipe, such as would be required in cooling a considerable body of air—say 50° Fahrenheit—the air, from the nature of the case, being brought to a lower temperature every circuit it makes from the

room B through the cooling-pipes and back again into the room B, from whence the blower takes it.

I claim as my invention—

In combination with the chamber B, the cooling apparatus, consisting of the ice-chamber or tank A, having ice-supporting timbers D arranged between the coils of the serpentine pipe F, and provided with the overflow-pipe E, located above the level of the top of the pipe F, and below the level of the top of the

timbers D, so that the pipe F is kept immersed in the cold water dripping from the ice as it melts, while the ice is kept from contact with the water, and thereby prevented from melting too rapidly, all as herein shown and described.

JOHN RING.

Witnesses:

SAML. KNIGHT,
ROBERT BURNS.