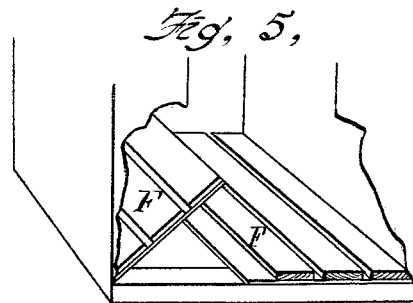
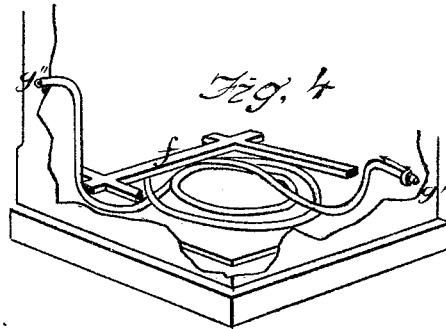
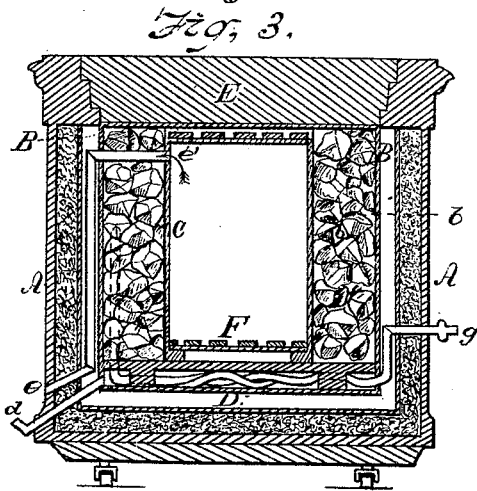
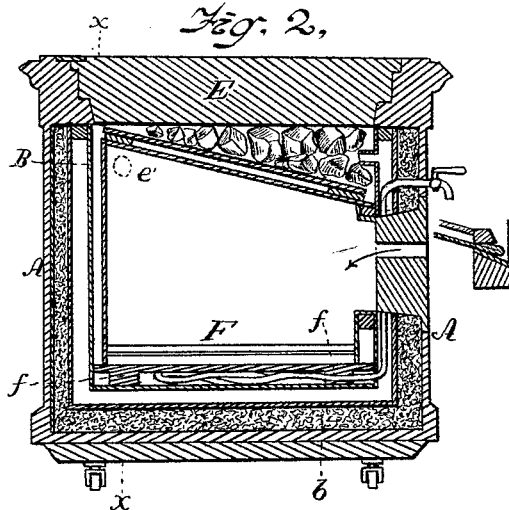
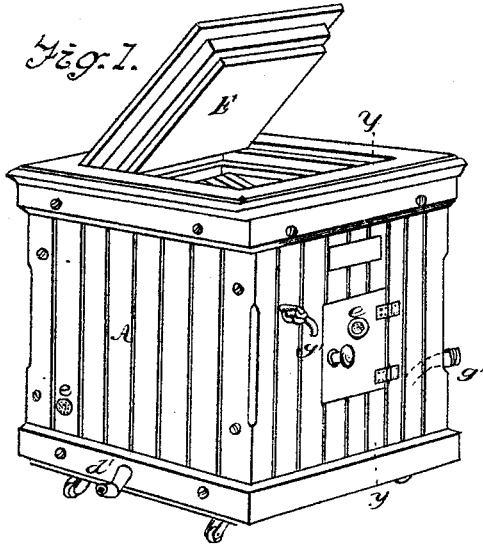


I. ALLEGRETTI.
REFRIGERATOR.

No. 183,102.

Patented Oct. 10. 1876.



Witnesses:
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Inventor:
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UNITED STATES PATENT OFFICE.

IGNAZIO ALLEGRETTI, OF NEW YORK, N. Y.

IMPROVEMENT IN REFRIGERATORS.

Specification forming part of Letters Patent No. **183,102**, dated October 10, 1876; application filed September 17, 1875.

To all whom it may concern:

Be it known that I, **IGNAZIO ALLEGRETTI**, of the city of New York, in the county of New York, 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 thereof, and of their construction and operation, reference being had to the accompanying drawings, and to the letters of reference marked thereon, and making a part of this specification.

The object of my present improvements is to secure an improved construction of refrigerator, and a more complete ventilation of or circulation through the chamber therein, in which is kept the articles to be preserved, and also make the refrigerator available as a means of cooling water for drinking and similar uses.

Figure 1 is a perspective exterior view of the refrigerator, the ice-door being raised. Fig. 2 is a vertical section of Fig. 1, from front to rear, through the door of the preserving-chamber. Fig. 3 is a vertical section of Fig. 1, from side to side, through the line *x x*. Fig. 4 is a detached view of the cold-air space below the preserving-chamber and a water-pipe placed therein. Fig. 5 is a view of the removable bottom of the preserving-chamber.

In certain improvements heretofore made by me in refrigerating structures, and for which Letters Patent of the United States were granted to me on the 26th day of July, 1870, (reissued October 8, 1872,) the structure was constructed with an inner metallic chamber for containing the articles to be preserved, placed within an inclosing-case, the two so arranged that there was an ice space or chamber above and around the inner metallic chamber, and cold-air space below it. Further and more extended tests and trials of such a refrigerator have demonstrated that it is not necessary to have ice-space above and entirely around the preserving-chamber, but that it is sufficient to have ice only above and on one or two sides, or even only on one or more sides of the inner preserving-chamber, with cold-air space upon the other sides of such preserving-chamber. The refrigerator is thereby more simple and cheap in construction without being rendered less effective for the purposes for which designed.

The drawings show a refrigerator the inclosing-case A of which has a metallic lining, B, with an intervening space, *a*, between the two, which may be filled with any non-conducting material or left as an air-space, or partially so filled and partially air-space, as represented in the drawings. Within such inclosing-case is the metallic preserving-chamber C, between which and the metallic lining B of the outer case are ice-spaces *b* and cold-air space *b'*. As shown in the drawings, Fig. 2, such preserving-chamber extends backward, from front to rear, nearly across from one metallic surface B to the opposite one, but is narrower in the other direction, as seen in Fig. 3, so as to leave considerable ice-space on each side of it. Such chamber C has also its upper side inclined, as shown in Fig. 2, over which is also placed ice. The ice thus covers the upper surface of such chamber, and is also upon the two sides thereof, while its ends and bottom are subjected to the influence of cold air. The water is prevented from dripping down the front side of such chamber, at the door-space D, by a framing, surrounding the door-space, fitted at top with a metallic upwardly-projecting lip, *d*, shown on an enlarged scale, which conducts all such water down the sides of the door-frame to the bottom of the space in which the chamber C is placed, and all such water is discharged through a tube, *d*, Fig. 3.

The ventilation of the preserving-chamber C is effected by means of a tube or opening, *e*, Fig. 2, through the door or side of the refrigerator, preferably through the former, and which may be provided with a rotating or movable valve, to regulate the quantity of air allowed to enter such opening and chamber, and by means of a pipe, *e'*, which extends from near the top of such chamber, through the ice-chamber, Fig. 3, and then passes downward in contact with or close proximity to one of the metallic sides B, and through the case A, at or near its bottom.

By placing such pipe *e* against or in near proximity to one of the metallic surfaces B, the air passing from the chamber C is cooled and condensed, and thus caused to descend such pipe, and continually be discharged therefrom, thereby creating or causing a constant inward current through the pipe *e*. Constant

circulation through and effective ventilation of the chamber C is thus secured.

In the cold-air space or chamber underneath the chamber C, and which may be made of any required height by varying the size of the sills *f* which support the frame upon which the chamber C rests, may be placed a water-pipe, *g*, supplied with water through one end, *g'*, which is adapted to be connected with a hydrant or other water-supply, and fitted with a cock for drawing, *g''*, at the other end. The low temperature of the air in such cold-air chamber cools the water in the pipe sufficiently for drinking and other purposes, without impairing its action as a cooling-medium for the chamber C.

To facilitate the cleaning of the chamber C, (which is, however, so arranged within the inclosing-case that it can be entirely removed through the door E,) its bottom F is made in sections, so that they can readily be lifted and taken out through the door D, and when washed and cleaned again be put in position. Such bottom is made of metal, with slats fixed upon its upper surface to support any articles placed upon the bottom, and the metal sections are so made as to lap upon each other, substantially as represented.

The ice is put around the preserving-chamber through the door E, which is opened only for such purpose, and which may be on any side of the structure, and access to the preserving-chamber C does not expose the cooling-medium to the external air.

Such construction and arrangement of a refrigerating structure may also be applied to

permanent buildings—as packing-houses—and also to cars and to vessels and boats of any description.

The tube *e'* need not necessarily extend toward the bottom of the refrigerator, as far as shown in the drawings, it only being required that it should be or extend downward in the ice or cold-air chamber sufficiently far to secure condensation or cooling of the air within it, and thus cause a downward current of such air.

What is claimed is—

1. In combination with the provision-chamber, the ventilating-tubes *e e'*, the induction-tube entering directly from the external air, and the eduction-tube leading from the provision-chamber through the ice-chamber, and then downwardly by the side of the ice-chamber, and communicating with the external air, for the purpose of establishing a current of air through the provision-chamber, substantially as set forth.

2. In a refrigerator, the combination of an inner metallic chamber for containing provisions, one or more chambers above or at the sides of the same for containing ice, a surrounding air-space, and inclosing-case, with the tubes for ventilating the provision-chamber, and coiled pipe for cooling water, the whole constructed and arranged as herein set forth.

IGNAZIO ALLEGRETTI.

Witnesses:

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