No. 686,945. Patented Nov. 19, 1901.

E. MADDOX.

REFRIGERATOR.

(Application filed Mar. 11, 1901.)

(No Model.) 2 Sheets—Sheet 1.

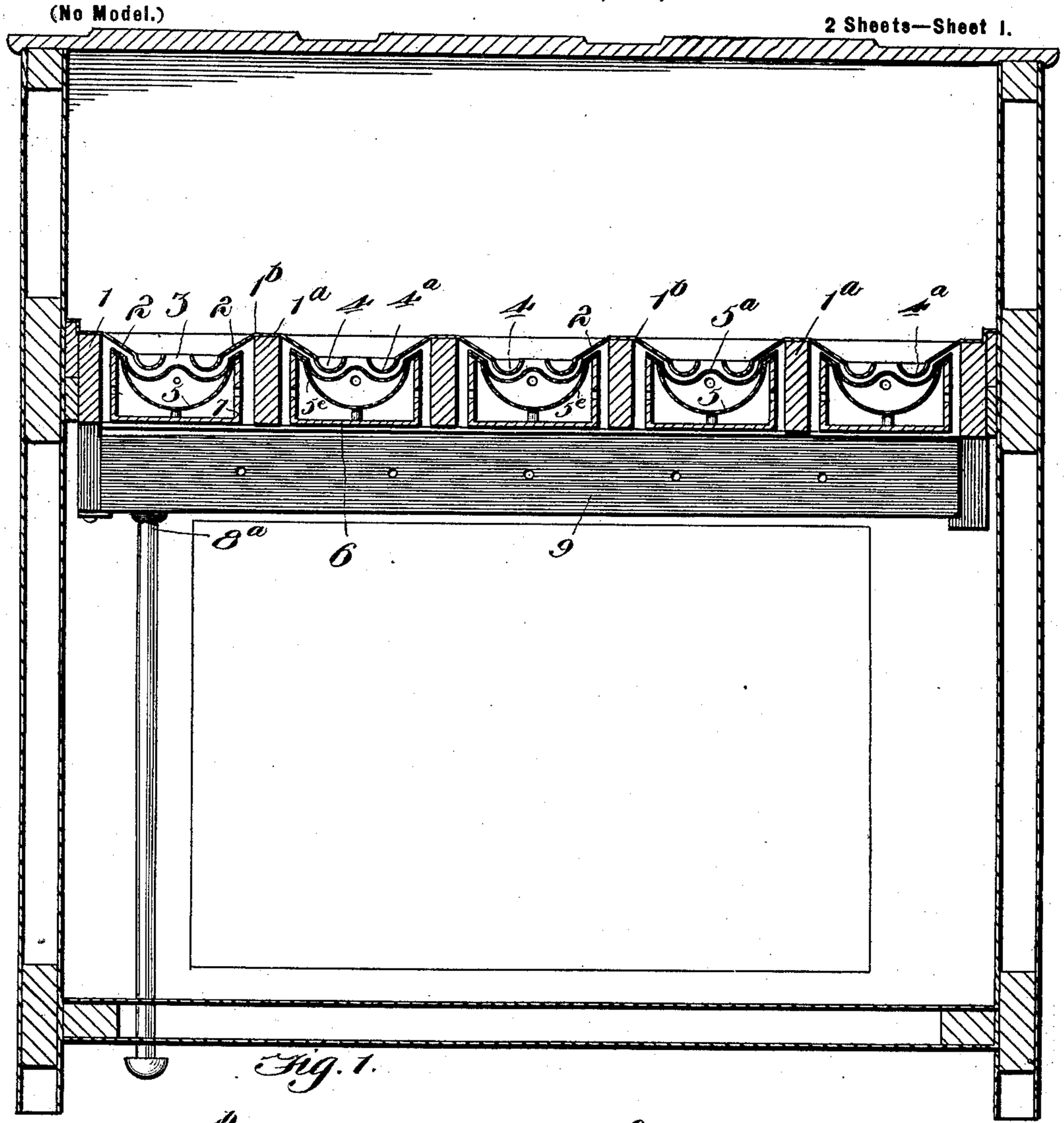

Fig. 1.

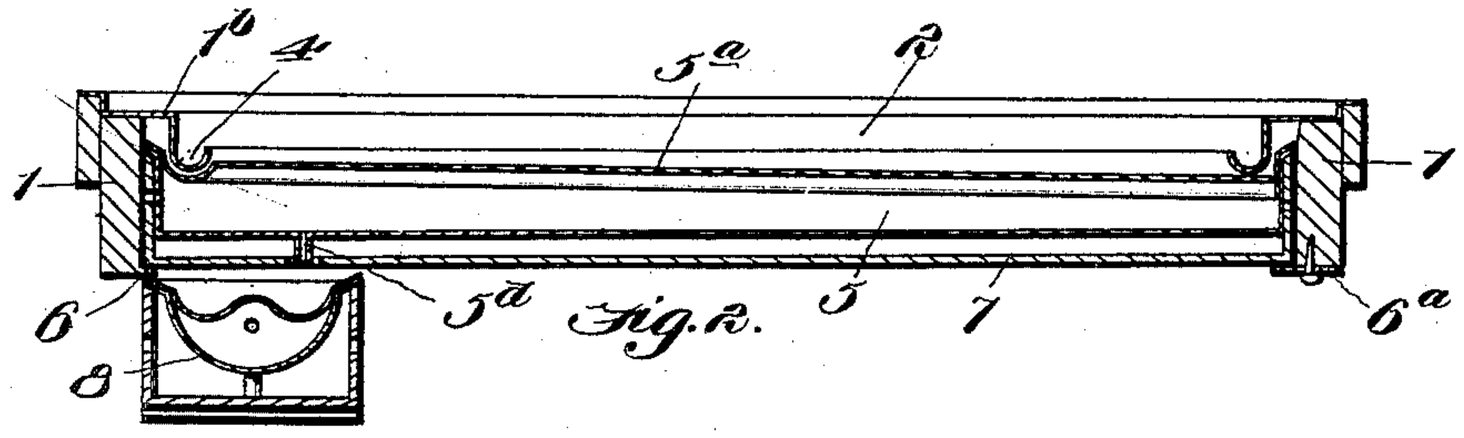

Fig. 2.

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Fig. 3.

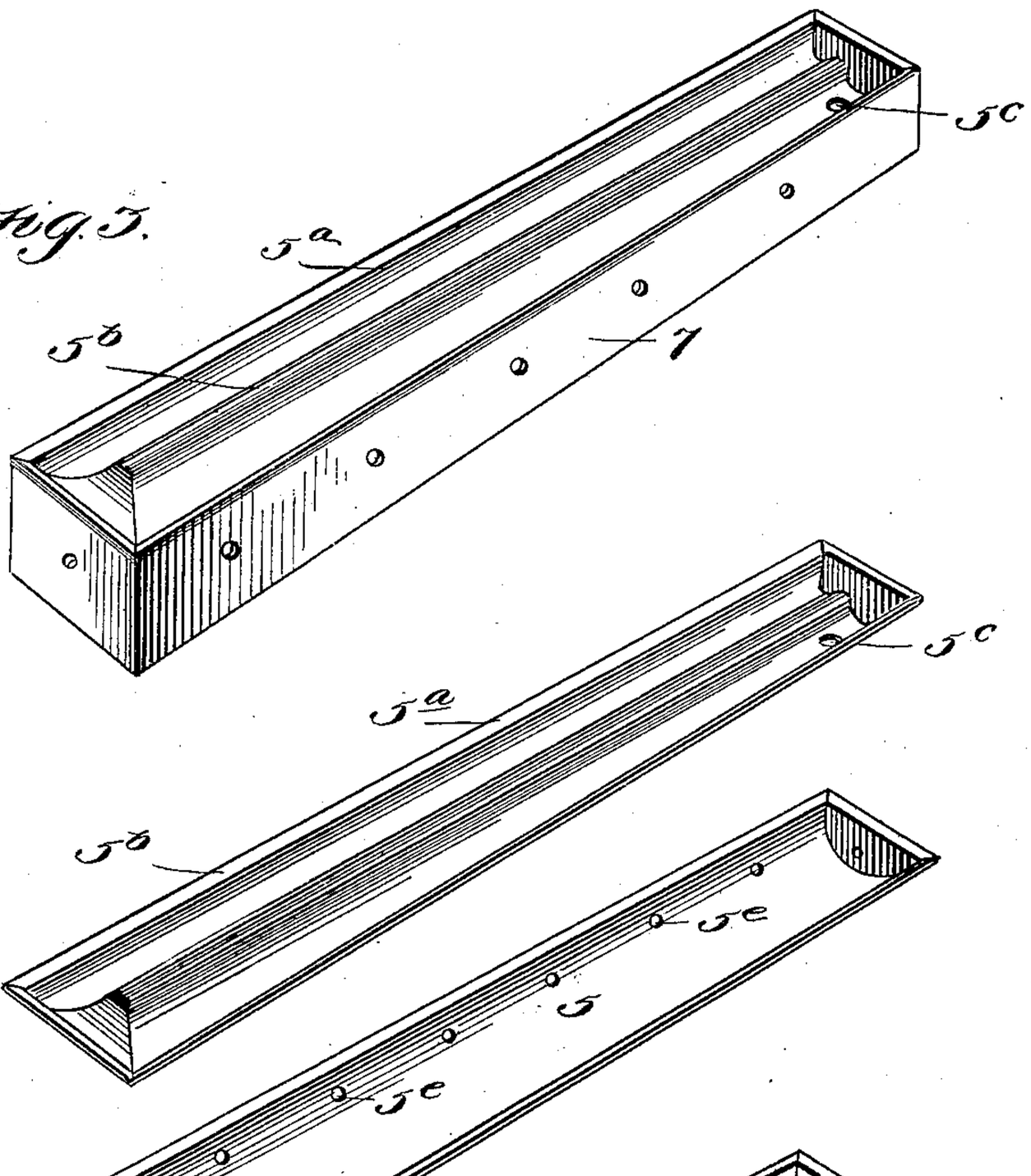

Fig. 4.

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UNITED STATES PATENT OFFICE.

EDWARD MADDOX, OF CLEVELAND, OHIO.

REFRIGERATOR.

SPECIFICATION forming part of Letters Patent No. 686,945, dated November 19, 1901.

Application filed March 11, 1901. Serial No. 50,547. (No model.)

To all whom it may concern:

Be it known that I, EDWARD MADDOX, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Refrigerators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in refrigerators.

It has for its object principally to utilize the "drippings" or drip-water of the ice in the ice-chamber for additionally reducing the temperature of the storage or provision chamber of the refrigerator; also, to provide for passing the cold air or current set up by the drip-water received in the drip-water troughs into the same chamber.

It consists of the peculiar construction, combination, and arrangement of parts, substantially as hereinafter more fully disclosed, and specifically pointed out by the claims.

In the accompanying drawings, illustrating the preferred embodiment of my invention, Figure 1 is a sectional view thereof, shown in connection with the outlines of a refrigerator. Fig. 2 is also a section taken in a plane at right angles to the section of Fig. 1. Fig. 3 is a detached perspective view of one of the troughs, and Fig. 4 is a similar view of the same with its parts disassembled and relatively disposed.

Latitude is allowed herein as to details, as they may be changed at will without departing from the spirit of my invention and the same yet remain intact and be protected.

In carrying out my invention I provide the ice-chamber of the refrigerator with a bottom or ice-rack consisting of a frame 1, having a series of subdividing cross-pieces 1^a 1^a, and of a metal surface or bottom proper 1^b, preferably composed of a number of suitably-shaped pieces soldered or otherwise assembled to conveniently produce said surface or bottom proper, and I form therein a series of double-inclined water-sheds or drains 2 2. The eminence of each water-shed or drain is indirectly formed by each of said cross-pieces, said water-sheds or drains slanting from both sides of said cross-pieces. Around longitudinal or rectangular openings 3 3, provided in said metal surface or bottom proper between said water-sheds or drains for cold-air circulation, are erected end and side walls or guards formed by upwardly extending or bending the metal of said bottom along the longitudinal edges and ends of said openings, preferably as shown. Gutters 4 4 are thus formed at the bases of said water-sheds or drains and so inclined or slanted as to cause the water received therein from said sheds or drains to flow toward one end thereof. These gutters are each formed of a double or return channel with one arm or portion slanting or inclined in one direction and communicating with an oppositely-inclined arm or portion having at its lower end an escape or discharge opening or outlet 4^a to pass the water or drippings from said water-sheds below. Arranged below said gutters and in alinement with said longitudinal or rectangular openings 3 3 are troughs 5 5 to receive the water passing through said outlets from said gutters. These troughs are preferably held in place, as shown, and removably, by supporting their ends upon cleats or flanges 6 of the frame of said bottom, and by buttons 6^a, respectively, at the opposite side or edge of said frame, to permit the ready removal and cleaning of said troughs. Said troughs have each a removable plate 5^a, adapted to rest upon the top edge thereof and formed with a double or return gutter 5^b, with one arm or portion inclined or slanted in one direction and communicating with an oppositely inclined or slanted portion having a waste-water outlet or escape-opening 5^c at its lower end. These troughs are provided with outlets 5^d in their bottoms, near one end, also openings or perforations 5^e in their sides and ends, near their upper edges, to permit cold-air currents produced by the drip-water received in said troughs to pass down into the provision or storage chamber to further aid in lowering the temperature thereof. Below or under each of these troughs 5 5 and longitudinally therewith is arranged an additional trough 7 or boxing, preferably of wood, to counteract the sweating action of the first-named troughs, and thus obviate the necessity of providing means, as would otherwise be required, for conducting away drippings which would result from such sweating. Again, below these troughs is arranged a trough 8, it, however, being disposed transversely or crosswise thereto and so as to receive the drippings or waste water from the

first-named troughs, itself also being in all respects substantially the same in construction as the aforesaid troughs and having also an additional trough or boxing 9, of wood, thereunder to counteract the sweating action thereof. The drippings or waste water is conducted away by a suitable waste-pipe connecting with the outlet 8ª of the trough 8.

It will be seen that the above arrangement of parts permits of the detention or circuitous passage of the waste water or drippings resulting from the melting ice, so as to utilize the cooling action thereof to the maximum in effecting the additional reduction of the temperature of the storage or provision chamber of the refrigerator.

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

1. In a refrigerator, the ice-chamber having a water-shed, a gutter having a double or return water-channel arranged at and in the same plane with the base of said water-shed, and a trough below, in the provision or storage chamber of the refrigerator, in communication with said gutter, substantially as set forth.

2. In a refrigerator, the ice-chamber bottom having a water-shed, a double or return gutter arranged at and in the same plane with the base of said water-shed and a double or return gutter arranged in the provision or storage chamber and in communication with the aforesaid gutter, substantially as set forth.

3. In a refrigerator, the ice-chamber bottom having opposite water-sheds, and a double or return gutter intermediate thereof, with one arm or portion of its channel arranged at the base of one water-shed and the other arm or portion of its channel arranged at the base of the other water-shed, said arms or portions of channel slanting in opposite directions and having a common discharge, substantially as set forth.

4. In a refrigerator, the ice-chamber bottom having opposite water-sheds, and a double or return gutter intermediate of said water-sheds, with one arm or portion of its channel at the base of one water-shed and the other arm or portion of said channel opposite the base of the other water-shed, said arms or portions of channel slanting in opposite directions and having a common discharge, and a double or return gutter arranged in the provision or storage chamber, and having the arms or portions of its channel slanting or inclining in opposite directions, with the upper end of its channel adapted to receive the discharge from the lower end of the channel of the first-named gutter, substantially as specified.

5. In a refrigerator, the ice-chamber bottom having a water-shed, and a double or return gutter arranged at and in the same plane with the base of said water-shed, a trough in the provision or storage chamber having a return or double gutter in communication with the first-named gutter, and a transverse gutter arranged below said second-named gutter, and in communication therewith, substantially as set forth.

6. In a refrigerator, the ice-chamber bottom having a water-shed, and a double or return gutter at the base of said water-shed, a trough in the provision-chamber, having a double or return gutter in communication with the first-named gutter, and a transverse trough having a double or return gutter in communication with said first-named trough, substantially as set forth.

7. In a refrigerator, the ice-chamber bottom having a water-shed, and a double or return gutter at the base of said water-shed, a trough in communication with said gutter and arranged in the provision or storage chamber and having a double or return gutter in its upper part and an additional trough or boxing arranged thereunder and adapted to counteract the sweating action of the first-named trough, a transverse trough having a double or return gutter in its upper part and an additional trough or boxing of the same general character as the first-referred-to boxing arranged upon its under side, said troughs being in communication one with the other, substantially as set forth.

8. In a refrigerator, the ice-chamber bottom having a water-shed, and a double or return gutter at the base of said water-shed, a trough in communication with said gutter and arranged in the provision or storage chamber and having a double or return gutter in its upper part and an additional trough or boxing arranged thereunder and adapted to counteract the sweating action of the first-named trough, substantially as set forth.

9. In a refrigerator, the ice-chamber bottom having opposite water-sheds and a double or return gutter intermediate of said water-sheds and in substantial continuation thereof, with one arm or portion of its channel at the base of one water-shed and the other arm or portion of said channel at the base of the other water-shed, said channel arms or portions slanting in opposite directions and having a common discharge, substantially as set forth.

10. In a refrigerator, the ice-chamber bottom having opposite water-sheds, and a double or return gutter, intermediate of said water-sheds and in substantial continuation thereof, with one arm or portion of its channel at the base of the other water-shed, said channel arms or portions slanting in opposite directions and having a common discharge, and a trough having an outlet and a series of lateral air-openings in communication with the storage or provision chamber, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD MADDOX.

Witnesses:

B. LILLIG,

J. DE KAISER.