

L.H. Mace and

F.S. GWYER'S ~~L.H. MACE'S~~ imp'ts in ICE BOTTOMS & REFRIGERATORS.

75175

Fig. 1.

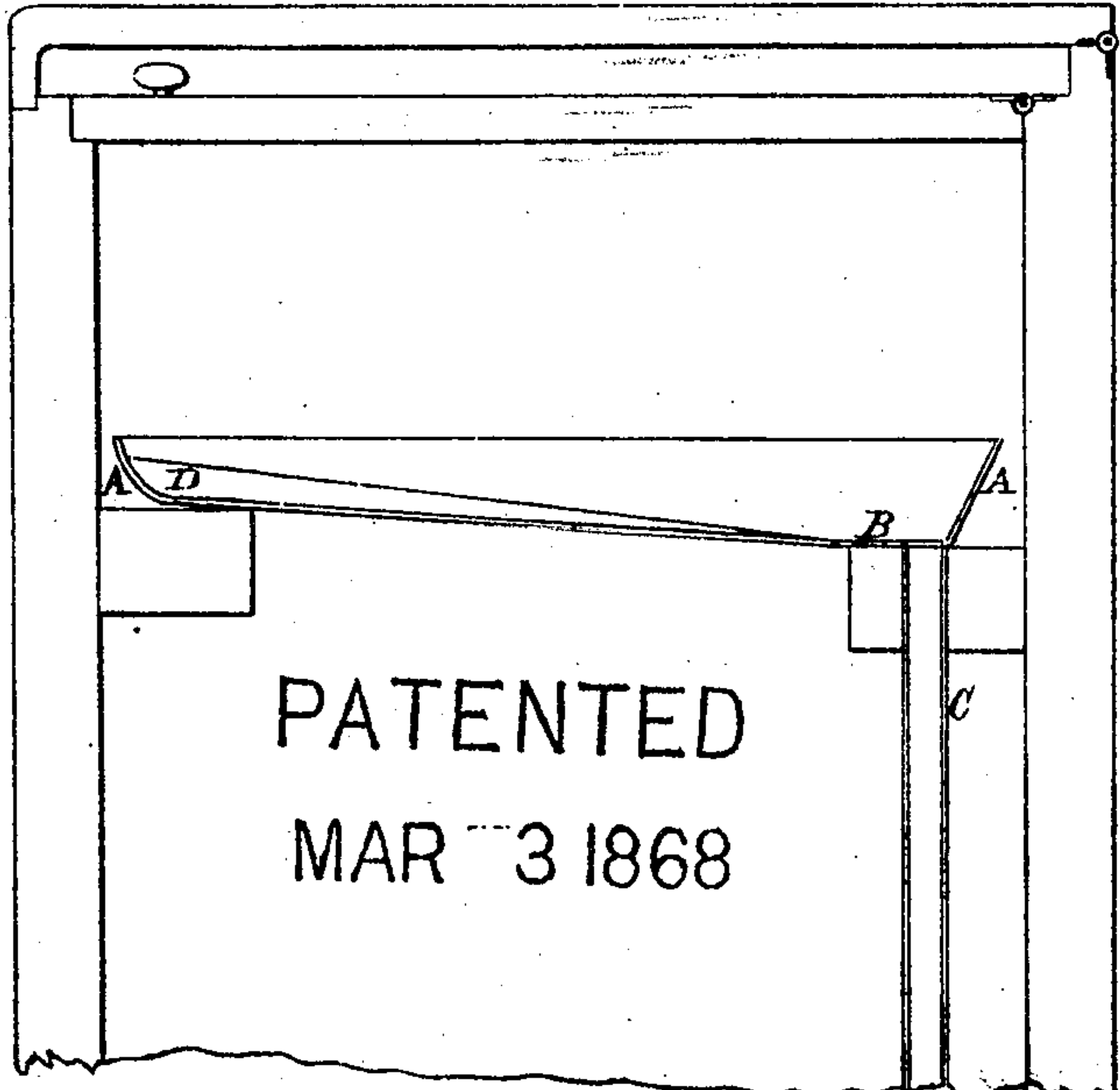
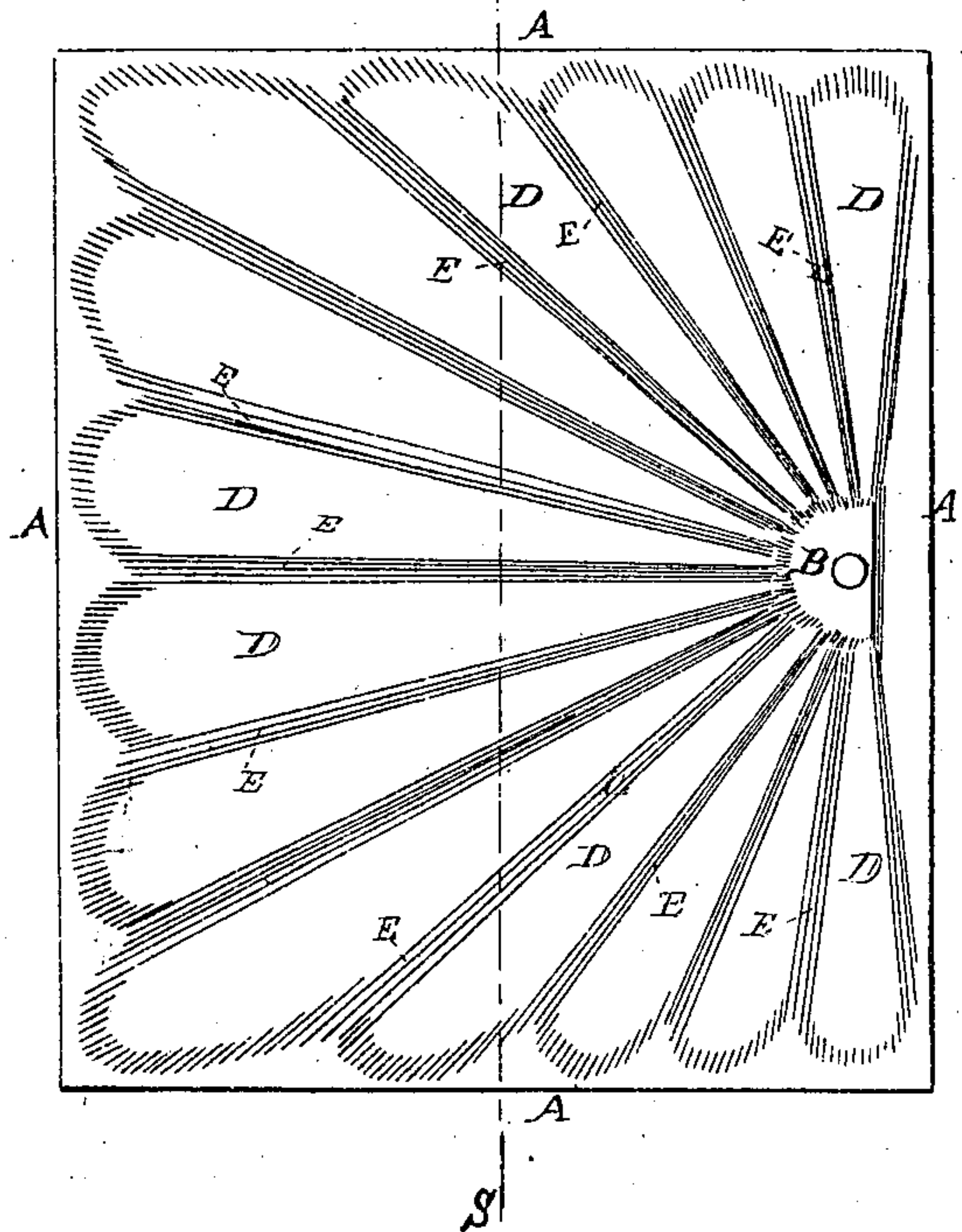


Fig. 3.



Fig. 2.



Witnesses

W. E. Dey.
Thomas L. Nelson.

Signature

L. H. Mace
F. S. Gwyer

United States Patent Office.

LEVI H. MACE, OF WESTCHESTER, AND FREDERICK S. GWYER, OF NEW YORK, N. Y.

Letters Patent No. 75,175, dated March 3, 1868.

IMPROVED BOTTOM FOR ICE-BOXES IN REFRIGERATORS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that we, LEVI H. MACE, of Westchester, in the county of Westchester, State of New York, and FREDERICK S. GWYER, of the city of New York, in the State of New York, have invented certain new and useful Improvements in Ice-Bottoms or Shelves in Refrigerators; and we do hereby declare that the following is a full and exact description thereof.

Our invention is of sheet metal, which is lighter, and is a better conductor of caloric than the thick cast-iron bottoms sometimes employed. It is corrugated in a peculiar manner, the corrugations radiating in all directions from the hole which drains the bottom. It has great strength for the weight of the material. It drains itself perfectly, and is easily cleaned. Corrugated sheet-metal bottoms have been before employed in refrigerators, but we are not aware that the corrugations have been other than parallel, and they have therefore contributed to the strength of the bottom only in one direction. In order to obtain sufficient strength in the other direction, it has been necessary to solder in cross-pieces, which have not only increased the amount of material and the labor employed, but have also increased the difficulty of keeping the bottom perfectly clean. Our radially-corrugated bottom is made, by preference, of galvanized sheet iron, but common iron, copper, brass, bronze, thick tinned iron, or other sheet metal, may be employed, if preferred.

We will proceed to describe what we consider the best means for carrying out our invention, and will afterwards designate the points which we believe to be new.

The accompanying drawings form a part of this specification.

Figure 1 is a central vertical section through our improved bottom, and showing, also, the adjacent parts of the refrigerator.

Figure 2 is a plan view of the bottom; and

Figure 3 is a section on the line S S in fig. 2.

Similar letters of reference indicate like parts in all the figures.

A A, &c., is the turned-up rim or edge of the bottom. B is the flat portion, in which a hole is punched by driving the punch from above downward, thus making a flaring hole, adapted to receive the pipe C, and to form a junction, which shall be smooth and complete, with solder or otherwise. From the plane space B, corrugations D E extend radially in all directions to the rim A. The parts D indicate the ridges, or the elevated parts of the corrugations, and the parts E represent the depressions, or the channels between the ridges D.

We can, in ordinary cases, and small sizes, form the entire bottom of one piece of metal, by striking it between suitably-formed dies. The art of striking metal into forms by dies is well understood, and we do not consider it necessary to explain further than to say that the dies are accurately formed of cast iron, one being carved accurately into the form desired, and a casting taken therefrom, and the other being formed an exact counterpart thereto, by casting it thereon, after washing the previously-cast surface with a thin coating of clay. The entire pan or bottom may be formed, in the absence of such dies, by skillful hammering, but the operation is laborious and the result is less perfect. When the pan is galvanized, we galvanize it, by preference, after the shape is entirely completed, and after the hole is punched to receive the drain-pipe.

To make the bottom of the pan about fifteen by twelve inches, and the depth of the pan or bottom about one and a quarter inch, we employ iron about No. 24. We have represented the plane space B as close to one side of the pan. This arrangement is preferable, in many instances, because it brings the drain-pipe near the wall of the refrigerator below, and, in this case, we make the rim adjacent to the plane surface deeper than the other sides. In short, the plane space B is the lowest point in the bottom, and when it comes close to the side of the pan, it obviously involves the necessity for making a deeper rim on that side; but we can, if preferred, make the plane space B, and, consequently, the connection for the pipe C, at any other point in the bottom. It is frequently preferred to make it in the centre of the bottom. In either position, the corrugations D E radiate therefrom in all directions. It is not absolutely essential that the corrugations be equal in width or depth, each to the other, but we esteem it preferable to so form them.

We have represented in the figures (fig. 1) the upright form of refrigerator, with the ice-bottom above the provisions or articles to be preserved. We propose to apply our improved bottom not only in this form of refrigerator, but in all other forms, and especially in the form of refrigerator known as the chest-refrigerator.

Our drawing shows the edge of the bottom, standing at a little distance off from the zinc lining of the refrigerator. We can use it successfully in this manner, but we prefer, generally, to hold it firmly to the zinc lining. It may be soldered on all sides, or only on two sides, or one, as preferred. It may be partially supported on a board below, in the usual manner, if preferred.

A portion of the advantages due to our invention may be secured by making the corrugations not directly straight, but more or less wavy or serpentine as they lead away from the drain-hole. In other words, the grooves and ridges need not be straight, but may be crooked. We esteem it essential, however, that they shall be in substance radial, that is, leading the water produced by the melting of the ice directly to the hole. We prefer the straight corrugations.

One advantage due to our invention over the plain parallel corrugations, which has been adverted to above, is the keeping the ice in position. Plain corrugations allow the ice to slide down, if, as usual, the bottom is inclined, and, in many instances, the ice so sliding gets directly over the drain-hole and stops it. Sometimes a small piece sinks into the drain-tube and chokes it for a considerable time. But our radial channels and ridges, whether the same be straight or crooked, or even if there be but one continuous corrugation, waved back and forward over the whole surface, gradually growing lower as it approaches the drain-hole, will drain the water effectually, allow of thorough and easy cleaning, &c., as above detailed, and will also, by impressing its form into the piece of ice as it melts, prevent it from sliding across the bottom in any direction. Bottles or other articles may be placed wedgewise between it and the walls, on either side, without danger of their displacing the ice by moving it laterally after the bottom has become shaped.

Having now fully described our invention, what we claim as new, and desire to secure by Letters Patent, is as follows:

We claim the radially-corrugated sheet-metal bottom, formed and adapted for use in refrigerators, substantially as and with the advantages herein specified.

L. H. MACE,
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Witnesses:

THOMAS D. STETSON,
W. C. DEY.