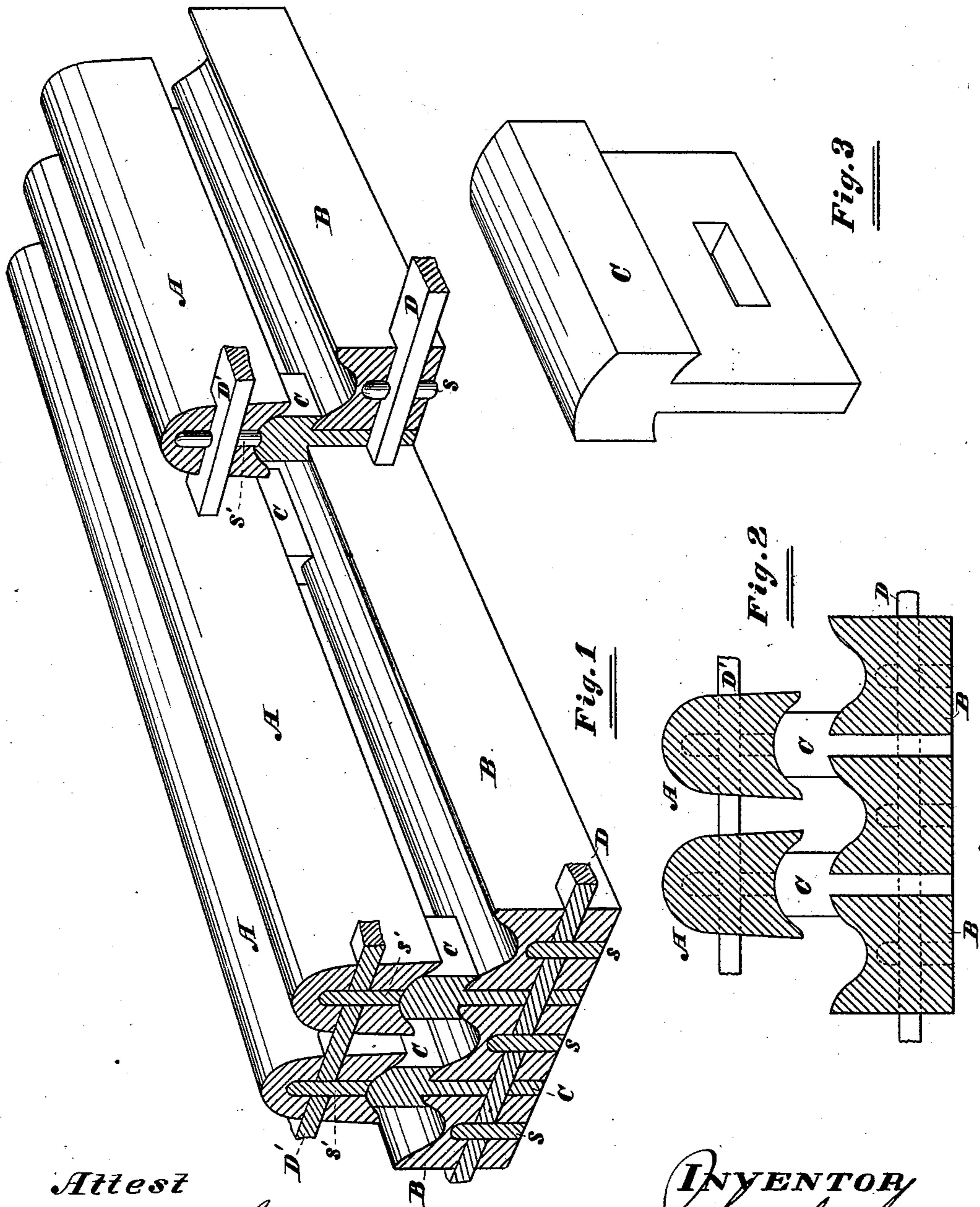


J. M. AYER.
Ice-Grate for Refrigerators.

No. 207,382.

Patented Aug. 27, 1878.



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JOHN M. AYER, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN ICE-GRATES FOR REFRIGERATORS.

Specification forming part of Letters Patent No. **207,382**, dated August 27, 1878; application filed June 22, 1877.

To all whom it may concern:

Be it known that I, JOHN M. AYER, of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Ice-Grates for Refrigerators; and I hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, of which—

Figure 1 is a perspective view, showing certain parts in section; Fig. 2, a transverse section, and Fig. 3 a detail view.

My invention relates to the construction of an ice-grate for the support of the ice in refrigerators of all descriptions, embracing refrigerating buildings, rooms, commodore, and cars, howsoever constructed; but it is designed most particularly to be used in refrigerator-cars constructed in accordance with certain Letters Patent granted to me, wherein air from the body of the car passes in a current into the upper part of the ice-chamber, and thence, upon becoming chilled, downward through the ice into the body of the car again.

The object of my invention is, first, to secure to the air thus circulating free passage through the grate by avoiding the use of all obstructing agents, such as a drip-pan underneath, and to provide in lieu of such drip-pan simple and more effective means for collecting and carrying off the drip, and preventing the same from entering the cooling-apartment; and, secondly, to construct a grate capable of fulfilling the above purposes, and capable also of sustaining any weight that may be imposed upon it without the aid of metals, which are objectionable on account of their high heat-conducting properties and tendency to produce condensation of moisture.

To the above ends my said invention consists, first, in constructing such ice-grate of bars rounded along their tops and hollowed or channeled longitudinally on their under sides, which bars are superposed upon supports of peculiar construction over troughs not in contact with each other, extending in the same direction with the said bars, the parts named being arranged in such relative position to one another that each lower edge of the same grate-bar projects over a separate trough, and

the space between each two troughs falls beneath a grate-bar midway of its breadth; and, secondly, in the manner of constructing and combining the several parts, whereby wood only need be employed throughout, all as hereinafter more fully set forth.

Referring to the drawings, A A are the grate-bars, which may be of any required number and strength; B B, the troughs, the number of which, it is obvious, will always be one in excess of the number of grate-bars; and C C, the supports, placed at suitable intervals, for sustaining the grate-bars in position above the troughs. These supports are formed as shown in Fig. 3, the upper and broader part being rounded at the top to coincide with the hollow in the grate-bar, and suitably cut away underneath to conform to the beveled edges of the troughs on which it rests. The lower and narrower part passes downward between the troughs, thus separating the same from each other exactly to the required degree, the thickness of the said separating part being gaged accordingly. Tie-bars D D pass from side to side through mortises cut through the trough-timbers and the separating parts above referred to, thus binding the parts firmly together; and the whole is still further strengthened by the wooden pins s, which are driven upward into the troughs through the tie-bars D.

The grate-bars A are in like manner firmly connected together by means of the tie-bars D', which pass through mortises in the said grate-bars, preferably immediately above those in the troughs, and are secured by the wooden pins s'.

By having the grate-bars hollowed out on their under sides, and those parts of the supports C which rest upon the edges of the troughs cut away so as exactly to conform to the bevel, all leakage into the body of the car is effectually prevented, for when the water which runs down either side of a grate-bar reaches the lower edge it has attained its lowest point on the bar, and must of necessity fall into the trough, whereas if the bottoms were flat instead of hollowed, the wet would spread inward from each edge, and, meeting along the center, would drip through the spaces between the troughs. The same is true of any wet

which might collect on the sides of the supports C, though the object of cutting them upward, as shown, is also to give a more distributed bearing. The conformation of the channels to the rounded tops of the supports also insures the ready adjustment of the grate-bars into exactly the right position.

When adjusted for use the grate should be caused slightly to incline toward a common transverse trough or other suitable receptacle at one end, from which the waste-water may be carried off by a suitable educt.

If preferred, this matter of incline for the shedding of the drip may constitute a feature of the construction of the grate itself. The whole may be constructed with an incline both ways from the center toward a common receptacle at each end, or else with a syncline to a common receptacle at the center; or if, for any reason, it shall be deemed desirable that the grate-bars remain horizontal, the troughs only may be caused to incline in any of the manners referred to above by simply graduating the heights of the supports C; or the same effects may be produced with the timbers all horizontal by having the gutters gradually deepen from one end to the other, or each way

from the center, or from each end toward the center.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the grate-bars A, troughs B, and supports C, the latter having their upper parts broad, as shown, so as to rest upon the edges of the troughs, and cut away underneath to conform to the bevel of the same, and their lower parts narrow, so that they may pass down between the troughs and separate them to the required degree, substantially as described.

2. The mortised troughs B, mortised supports C, tie-bars D, and pins s, constructed and combined substantially as described.

3. The mortised grate-bars A, tie-bars D', and pins s', constructed and combined substantially as described.

4. The combination of the grate-bars A, tie-bars D', pins s', supports C, troughs B, tie-bars D, and pins s, substantially as described, for the purposes set forth.

JOHN M. AYER.

In presence of—

DANIEL P. HATHAWAY,
CHARLES DOWST.