

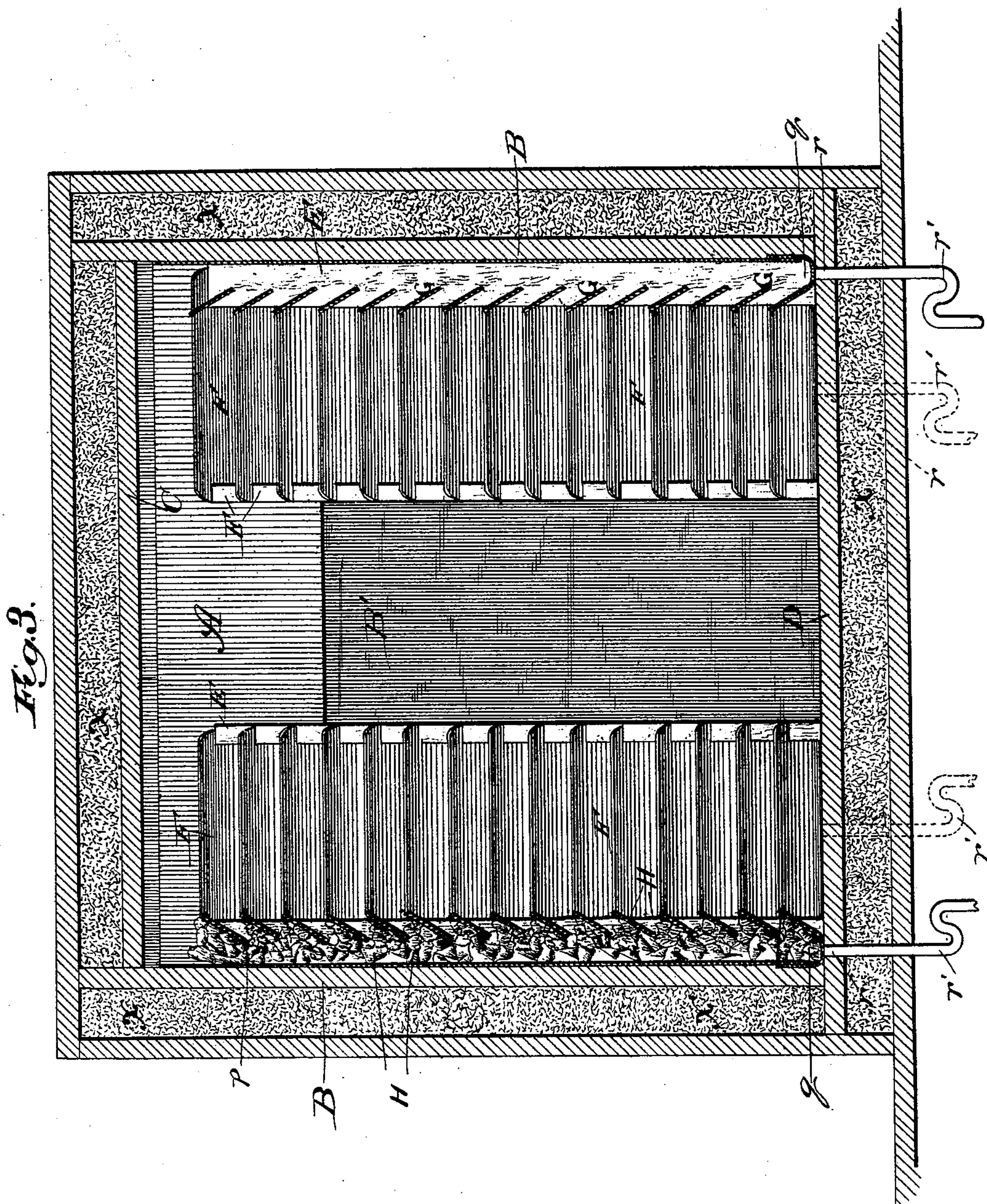
(No Model.)

3 Sheets—Sheet 3.

J. SWETITSCH.
REFRIGERATOR.

No. 403,789.

Patented May 21 1889.



Witnesses:
E. E. Gaylord.
J. H. Dyrenforth.

Inventor:
Josef Swetitsch,
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Attys

(No Model.)

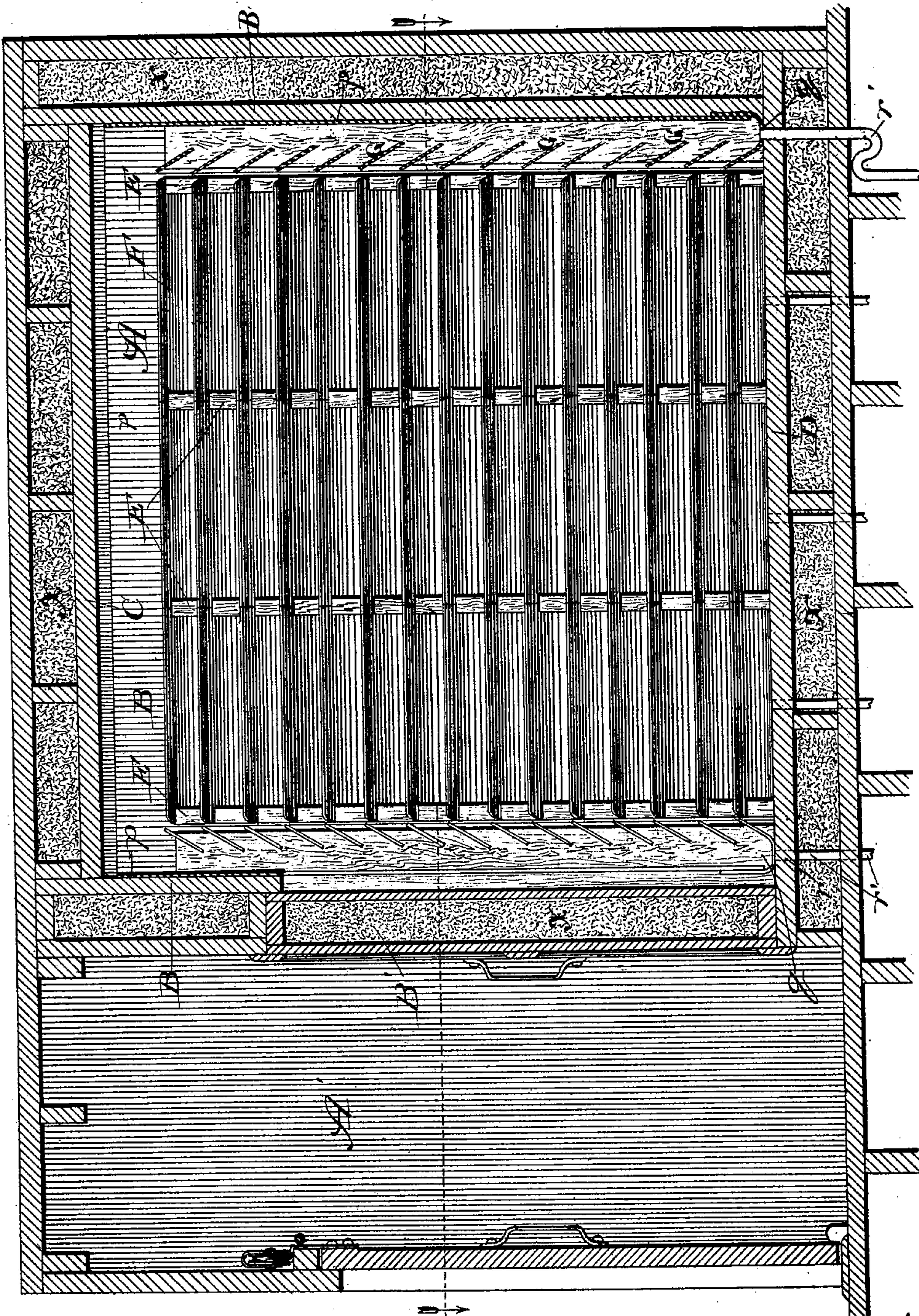
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Fig. 2.



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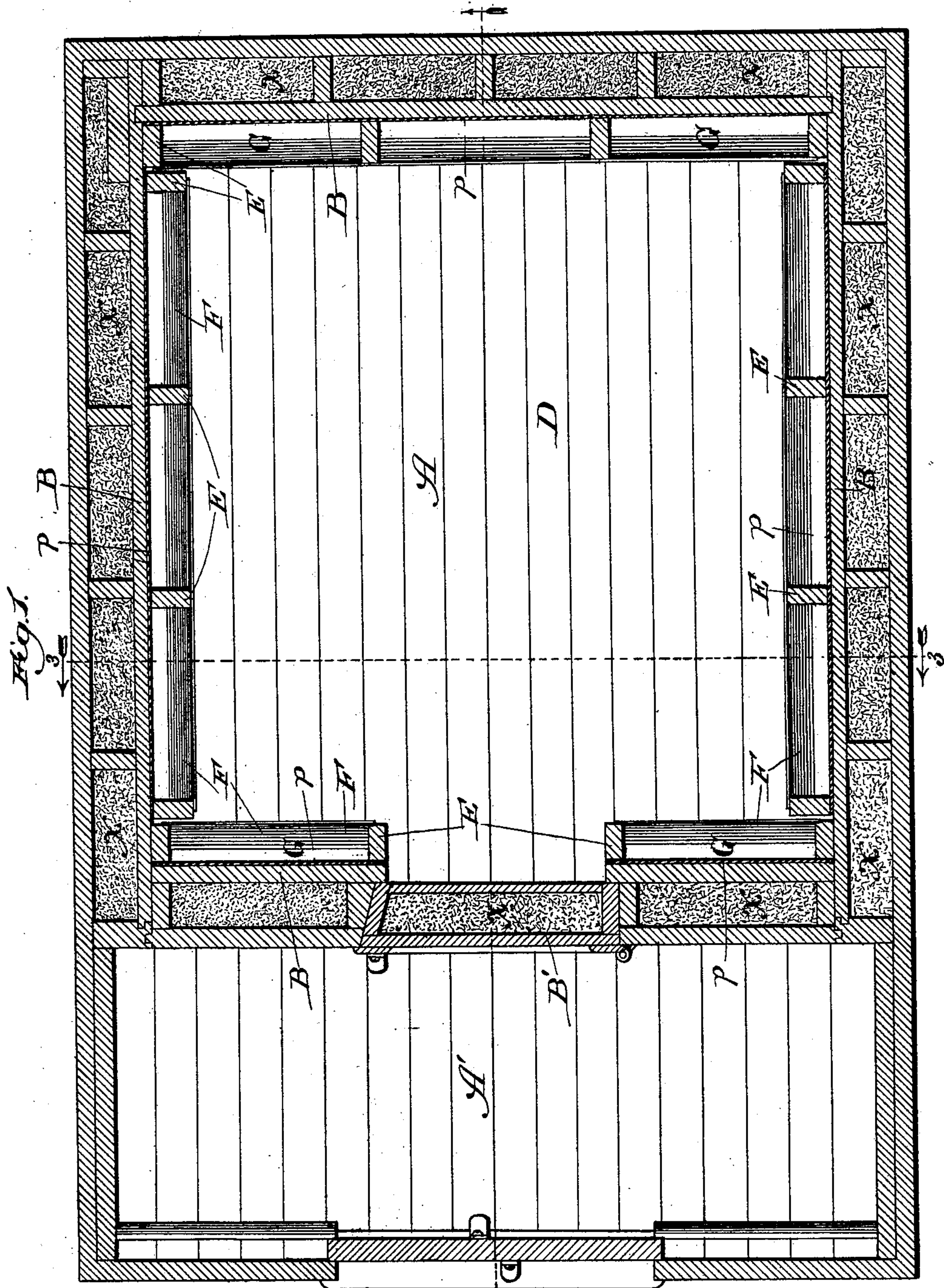
(No Model.)

3 Sheets—Sheet 1.

J. SWETITSCH.
REFRIGERATOR.

No. 403,789.

Patented May 21 1889.



Witnesses:
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 J. W. Greenforth.)

Inventor:
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UNITED STATES PATENT OFFICE.

JOSEF SWETITSCH, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO
JOHN H. RAAP, OF SAME PLACE.

REFRIGERATOR.

SPECIFICATION forming part of Letters Patent No. 403,789, dated May 21, 1889.

Application filed May 1, 1888. Serial No. 272,487. (No model.)

To all whom it may concern:

Be it known that I, JOSEF SWETITSCH, a subject of the Emperor of Austria-Hungary, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Refrigerators, of which the following is a specification.

My invention relates to improved means for cooling the atmosphere in inclosures for containing perishable articles requiring for their preservation to be subjected to the influence of refrigeration.

The main object of my improvement is to provide in the inclosure to be cooled the largest surface for cooling the atmosphere in the smallest possible space, whereby the dimensions of the inclosure are least encroached upon by the room taken up by the apparatus and a comparatively small extent of surface of the ice employed as the refrigerating medium is exposed to the atmosphere.

To this end my invention consists in the construction hereinafter described and claimed.

In the drawings, Figure 1 is a sectional plan view of a room and vestibule provided with my improvement, the section being taken on the line 1 of Fig. 2 and viewed in the direction of the arrows; Fig. 2, a vertical longitudinal section of the same, taken on the line 2 of Fig. 1 and viewed in the direction of the arrows; and Fig. 3, a vertical longitudinal section of the same, taken on the line 3 3 of Fig. 1 and viewed in the direction of the arrows.

A is an inclosure in the form of a room having its walls B, ceiling C, and floor D hollow and divided into spaces, which are filled with material, *x*, non-conductive of heat—such as tan-bark, sawdust, or the like—to protect the interior of the inclosure against influence from the external atmosphere; and the entrance to the room A is by way of a vestibule or compartment, A', separated from the refrigerating-room by a partition or wall, B, having a door, B', whereby entrance to the refrigerating-room directly from the external atmosphere is avoided and its temperature accordingly the less affected on opening the door B'.

The walls, which are by preference covered

with sheet metal, as zinc, *p*, are provided with upright timbers E, or analogous supports, preferably six inches wide—that is, in the direction of a line at a right angle to the wall—extending from the floor to or nearly to the ceiling and preferably about two feet apart, and the supports E are slotted obliquely downward from their outer surfaces toward the walls, preferably at an angle of about from fifty to sixty degrees at intervals of about six inches in vertical line, the slots being parallel, as shown, both in vertical series in each support and in horizontal series in the different supports, and six inches deep.

Plates F, sufficiently long to extend from about the longitudinal center of an oblique slot in one upright to that of the coincident slot in an adjacent upright, and comprising a material readily conductive of cold—as glass or sheet metal, and preferably sheet-zinc—are inserted near their ends into the coincident slots of adjacent uprights. Each plate may be thus about two feet in length; and it is also, by preference, about six inches in width if the angle of the slots be fifty degrees, and seven inches wide if the angle of the slots be sixty degrees. The plates F, which extend into the oblique slots short of the zinc-covered walls B—the oblique slots being formed only part way through the upright E—thus form compartments G, having vertical backs and oblique or upwardly-flaring front sides, the bases of which are open for about two inches transversely, and thus afford communication between all the compartments in each tier along the zinc-covered wall-surface, which forms the back for all the compartments upon it. The space in a horizontal line across the flaring top of each compartment is, according to the preferred dimensions given with the plates at an angle of sixty degrees and six inches wide, about six inches, while if the angle of the plates be fifty degrees such space would be four and one-half inches.

The refrigerating agent H (ice broken into pieces sufficiently small to pass through the open bases of the compartments G, and having salt mixed with it) is introduced into each tier of the compartments from the uppermost one until all in the tier are filled by

the ice extending to or about to the flaring edge of each, whereby in each compartment a surface of ice about two feet long and four and one-half or six inches wide only is exposed to the atmosphere of the room, while the cooling-surface afforded by each compartment would be equal to the width of the exposed surface of the plate plus that of the exposed ice-surface multiplied by the sum of the length of the said surfaces.

The base of each tier of angular compartments G is in the form of a trough, *q*, provided with an outlet, *r*, leading into a suitable trap, *r'*, in the floor D, to carry off water as it accumulates in the trough *q* from the melting of the ice, which becomes more or less solidly packed, and as the quantity of the ice decreases by melting, it may be replenished in the manner already described in explaining a manner of introducing the original supply.

In case the ice in introducing the supply does not pass readily from one compartment to the other, gently striking the edge of the plates F will jar it sufficiently to force the passage.

The construction thus described affords, as will be readily seen, for the amount of space taken up by the apparatus in the room or inclosure, a very large refrigerating-surface, being the aggregate of the exposed surfaces of the plates F and ice H, and at the same time it affords great economy in the refrigerating agent employed, owing to the comparatively small surface thereof exposed.

While the dimensions herein stated are those preferred as producing (so far as my use of the apparatus, which has been extensive, has shown) the best results and firmness of construction, I do not wish to be understood as confining myself to any particular dimensions, and while I have described what I believe to be the preferred construction of my improvement, I do not confine myself to the exact details thereof as described.

Where a room to be cooled by my improved apparatus is too large to be thoroughly re-

frigerated by the extent of apparatus applicable to the extent of wall-surface, it may be subdivided by suitable walls or partitions to increase the wall-surface. By means of my apparatus an exceedingly low temperature is maintainable with a very small consumption of ice, and, owing to the steadiness of the temperature, without producing moisture in the atmosphere, which would have an objectionable effect upon articles to be refrigerated with which it would come into contact.

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

1. In a refrigerator, the combination of an inclosure and a series of plates, F, supported in oblique position with reference to the wall, one above the other adjacent to the wall-surface and out of contact with the same along their lower edges and each plate extending at its upper edge to or beyond the lower edge of the plate above it, the plates affording with their support and the wall-surface upwardly-flaring compartments G, to contain ice H, and intercommunicating vertically along the wall, thereby permitting the ice to be supplied to all the said compartments through the uppermost compartment, substantially as described.

2. In a refrigerator, the combination of an inclosure and a series of plates, F, removably supported in oblique position with reference to the wall, one above the other adjacent to the wall-surface and out of contact with the same along their lower edges, and each plate extending at its upper edge to or beyond the lower edge of the plate above it, the plates affording, with their support and the wall-surface, upwardly-flaring compartments G, to contain ice H, and intercommunicating vertically along the wall, thereby permitting the ice to be supplied to all the said compartments through the uppermost compartment, substantially as described.

JOSEF SWETITSCH.

In presence of—

JOHN H. RAAP,

J. W. DYRENFORTH.