No. 786,810. PATENTED APR. 11, 1905.

F. A. HICKSON.

REFRIGERATOR.

APPLICATION FILED DEC. 21, 1903.

2 SHEETS—SHEET 1.

Fig. 2.

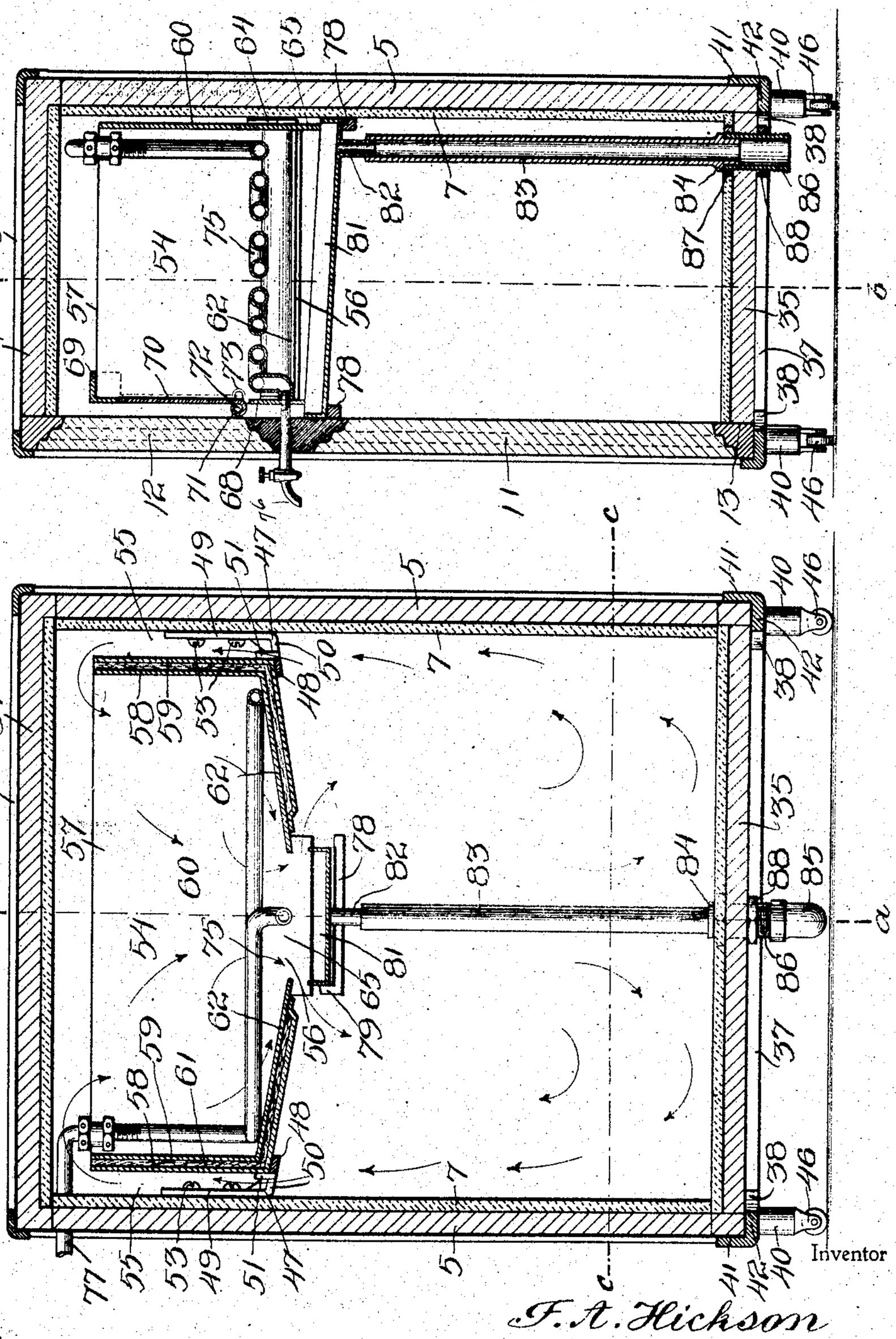

Fig. 1.

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2 SHEETS—SHEET 2.

Fig. 3.

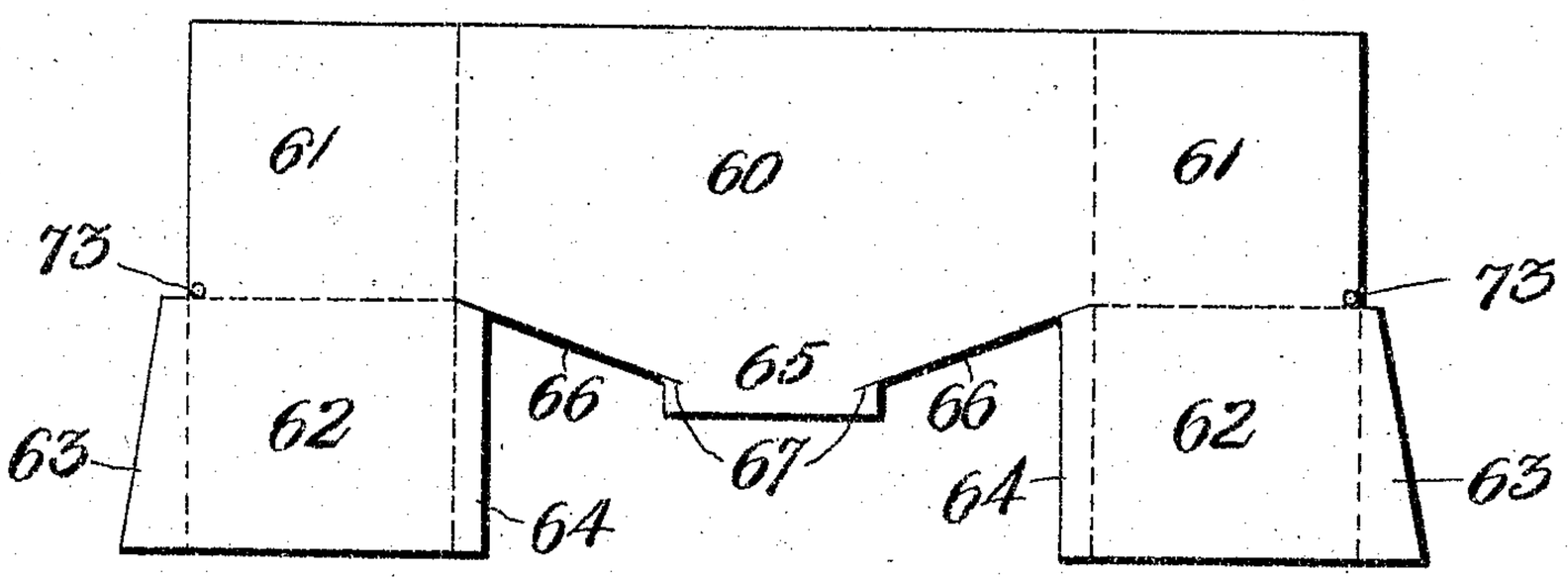


Fig. 4.

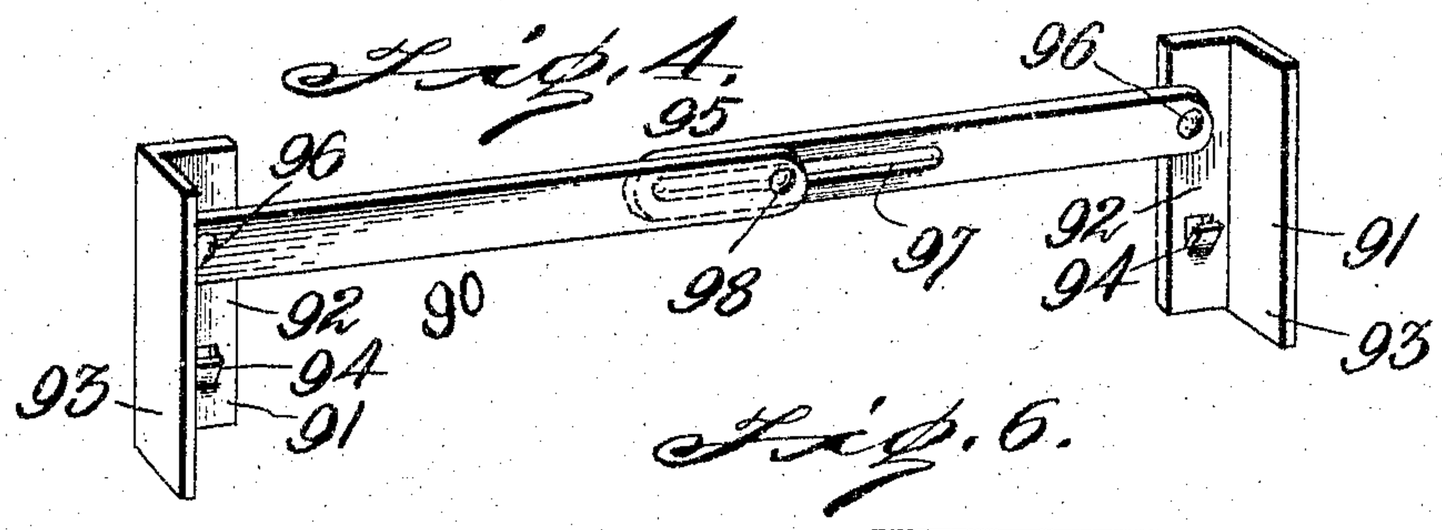


Fig. 6.

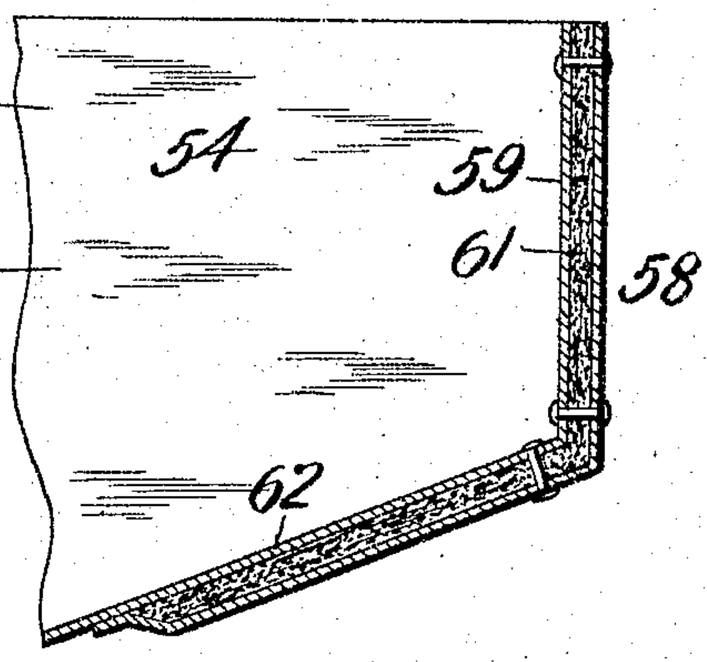


Fig. 5

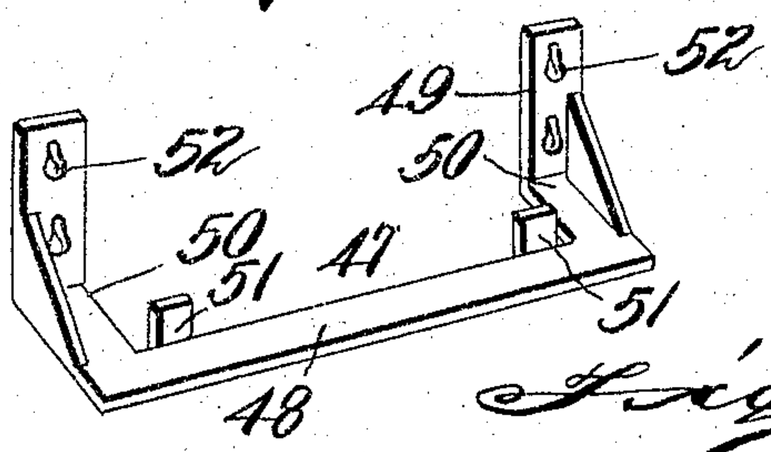
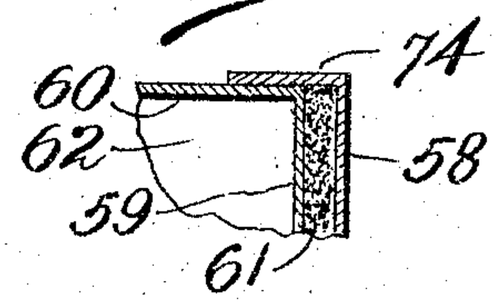


Fig. 7.



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No. 786,810. Patented April 11, 1905.

UNITED STATES PATENT OFFICE.

FREDERICK A. HICKSON, OF ATLANTA, GEORGIA.

REFRIGERATOR.

SPECIFICATION forming part of Letters Patent No. 786,810, dated April 11, 1905.

Application filed December 21, 1903. Serial No. 186,085.

To all whom it may concern:

Be it known that I, FREDERICK A. HICKSON, a citizen of the United States, residing at Atlanta, in the county of Fulton and State of Georgia, have invented certain new and useful Improvements in Refrigerators; and I do 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 is an improved refrigerator which is of simple construction, is economical in the use of ice, provides a circulation of air which promotes the preservation of perishable articles in the refrigerator, and prevents their flavors from becoming commingled and prevents one article from becoming tainted by another, my refrigerator being so constructed as to enable it to be thoroughly cleansed.

A further object is to provide a removable ice-pan and to effect improvements in the construction thereof.

A further object is to provide removable supporting-brackets for the removable ice-pan and to effect improvements in the construction of the said brackets and the means for removably supporting them in place in the body of the refrigerator.

A further object is to provide in connection with the removable ice-pan a removable drip-pan having a removable discharge-pipe to discharge the water that results from the melting of the ice in the ice-pan.

A further object is to effect improvements in the construction of the removable frame which is disposed in the provision-chamber for supporting the removable shelves.

With these and other objects in view my invention consists in the construction, combination, and arrangement of devices hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a vertical longitudinal sectional view of a refrigerator constructed in accordance with my invention, taken on a plane indicated by the line *b b* of Fig. 2. Fig. 2 is a vertical transverse sectional view of the same, taken on the plane indicated by the line *a a* of Fig. 1. Fig. 3 is a detail plan view showing the blank from which the inner shell of the ice-pan is formed. Fig. 4 is a detail perspective view of the shell-supporting frame or rack which is used in the provision-chamber of the refrigerator. Fig. 5 is a similar view showing one of the shelves or brackets which are employed to removably secure the ice-pan in the refrigerator and which are removable from the refrigerator. Fig. 6 is a detail sectional view showing the construction of the removable ice-pan. Fig. 7 is a horizontal detail sectional view of one corner thereof.

In the upper portion of the body of the refrigerator, on the inner sides of the end walls thereof, are detachable or removable brackets 47, which are employed for supporting the removable ice-pan hereinafter described. Each of these supporting-brackets 47 is made of a single piece of metal, which may be either struck up from sheet or plate metal or cast or wrought, as may be preferred. Each of these brackets is substantially U-shaped to provide a yoke 48, which is disposed at an angle of about forty-five degrees, and vertical arms 49 to bear against the inner sides of the end walls of the refrigerator. The lower portions 50 of the said arms are bent in planes which coincide with those of the yokes 48 and form lateral extensions of the lower portions of the said arms, which serve to space the said yokes from the end walls of the refrigerators, as shown. These yokes are provided on their upper sides at their inner edges with upstanding legs 51. The arms 49 are provided with inverted keyhole-openings 52, which receive headed studs 53, that project from the inner surfaces of the refrigerator end walls, said openings and said headed studs providing means for detachably supporting the said supporting-brackets, the latter being adapted thereby to be removed from the refrigerator end walls by first lifting them a slight distance, so as to cause the heads of the studs to coincide with the enlarged lower end portions of the openings 52. By thus enabling these supporting-brackets to be removed from the refrigerator they are adapted to be very readily and thoroughly cleansed, and hence they afford no place for the lodgment of mold or other deleterious substance.

The ice box or pan 54 is removable from

the refrigerator and is supported in the upper portion thereof by the brackets 48. The lugs 51 of the said brackets bear against the ends of the ice-pan, so that the ends of the latter are spaced from the end walls of the refrigerator, and thereby air-passages 55 are formed at the ends of the ice-pan, which air-passages connect the provision chamber or spaces in the lower portion of the refrigerator with the spaces above and within the ice-pan. The bottom of the latter is formed by oppositely-inclined portions which facilitate drainage therefrom, and the ice-pan is provided in the bottom with a centrally-disposed opening 56, which is practically midway between the end walls of the refrigerator. It will be understood that cold air which descends from the ice in the ice-pan through the opening 56 will displace warmer air in the lower portion of the refrigerator and will hence cause the warmer air to pass upwardly through the air-passages at the ends of the ice-pan. Thereby a continuous circulation of air is caused within the refrigerator, which serves to greatly promote the preservation and refrigeration of the articles therein.

The ice-pan comprises an inner shell 57, an outer shell 58, and a non-conducting lining 59 between said shells. The said shells are each made in practice of sheet metal, and the said lining is preferably asbestos, which is a poor conductor of heat and serves also to prevent sweating of the outer lining-shell of the ice-pan. The inner shell is formed from a single sheet of metal. From the end portions of its rear wall 60 are bent its vertical end walls 61, from the lower edges of which are bent the inclined bottom portions 62. These inclined bottom portions are formed at their edges with outwardly-extending flanges 63 64. At the center of the rear wall 60 is a depending extension 65, at the ends of which in planes which coincide with those of the downwardly-inclined edges 66 of said rear wall are notches 67. The rear inner edges of the bottom portion 62 are inserted in the said notches, and the flanges 64 are bent upwardly to bear against the rear side of the wall 60 and is secured thereto by rabbeting, soldering, or any other suitable means. A piece 68, which corresponds in shape with the lower portion of the rear wall 60 of the inner shell, forms the lower front portion thereof and is secured to the upturned flanges 63. A piece 69, which is bent angularly, as shown, connects the front upper corners of the end wall 61 of the said inner shell. The space between the end walls of the inner shell and the pieces 68 69 forms a door-opening which is coincident with the upper door 12 of the refrigerator. This door-opening is adapted to be closed by a door 70, which is hinged at its lower side. This door is preferably made of sheet metal. Its lower edge is rolled in cylindrical form on its front side, as at 71, to receive a piece of tubing 72, which forms the pintle or hinge for the said door and the ends of which are secured in recesses 73, which are struck up in the lower front corners of the end walls 61. The outer shell of the ice-pan is similar in construction to the inner shell thereof, excepting that it is formed at the front edges of its end walls with flanges 74, which overlap the front edges of the wall 61 of the inner shell.

It will be understood that by the provision of the extension 65, notches 67, and the insertion of the lower edges of the inclined bottom portions of the ice-pan in the said notches said bottom portions are so firmly supported that there is no possibility of their giving way under ordinary conditions.

In the ice-pan is a removable water-coil 75, which is provided with a draw-off faucet 76, which may be connected to a water system, as at 77. The ice in the ice-pan is placed on this water-coil, the latter thereby serving both as a support for the ice and as a means for providing a supply of cold water, which may be drawn therefrom at will.

At a considerable distance below the central discharge portion of the ice-pan in the front and rear walls of the refrigerator are supporting-cleats 78, that in the front wall being higher than that in the rear wall. Each of these cleats is provided at one end with a stop 79, and in connection with the cleat in the front wall of the refrigerator I employ a pivoted button or catch 80.

The drip-pan 81, which is disposed under the discharge-opening of the ice-pan, is preferably made of sheet metal and is supported in an inclined position on the cleats 78. One side of the drip-pan bears against the stop 89 and the other side is engaged by the pivoted button or catch 80. Hence the said drip-pan is adapted to be very readily removed from the interior of the refrigerator by disengaging the button or catch therefrom and lifting the pan from its supporting-cleats. At the lower end of the pan 81 is a short depending discharge-pipe section 82. The same telescopes in and is removable from the upper end of a discharge-pipe section 83, which is disposed near the rear wall of the refrigerator and is provided at a suitable distance from its lower end with a check-flange 84. In the bottom of the refrigerator is a discharge-trap 85 for the waste water which results from the melting of the ice. This trap is preferably of the form here shown and has an extended vertical leg 86, which is exteriorly screw-threaded, passes through an opening in the bottom of the refrigerator, and is provided with an upper nut 87 and a lower nut 88, which respectively engage the upper and lower sides of the refrigerator-bottom and serve to firmly secure the trap thereto and effect air-tight connections therewith. The lower end of the discharge-pipe section 83 is telescopically fitted in the upper end of the leg 86 of

the trap and may be removed therefrom to facilitate the removal of the drip-pan 81 from the refrigerator.

I will now describe the frame, which is removable from the provision-chamber of the refrigerator and which serves to support the shelves in the said provision-chamber. This frame, which is indicated at 90, is provided with vertical corner portions 91, each of which is made of angle metal, providing the rear flanges 92 and the side or end flanges 93. The flanges 92 of the end posts 91, which bear against the end walls of the refrigerator, are provided on their inner sides with projections 94, which are struck up therefrom and serve to support the shelves in the provision-chamber. The corner-posts 91 are connected together in pairs in the ends of the provision-chamber by cross-bars 95, pivotally connected thereto, as at 96, each of which cross-bars comprises a pair of slidably-related sections, one of which has an adjusting-slot 97, and the other has a stud 98 engaging said slot. This enables the frames which support the shelves to be readily placed in and taken from the provision-chamber of the refrigerator. By thus making the said shelf-supporting frames removable from the refrigerator the same may be thoroughly cleaned and access to all portions of the inner surfaces of the walls of the refrigerator is provided.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without a more extended explanation.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

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

1. A refrigerator having supporting devices detachably secured on the inner sides of its walls, each of said supporting devices comprising a yoke portion, upstanding lugs thereon and angularly-bent arms extending outwardly and upwardly from the ends of the yoke portion, laterally spaced apart and detachably secured to the said walls of the refrigerator, and an ice-pan in the refrigerator resting on the yoke portions of the supporting devices and bearing against the upstanding lugs thereon, said ice-pan being thereby detachably and removably supported in the refrigerator and out of contact with the walls thereof.

2. A refrigerator having removable shelf-supporting devices disposed interiorly thereof, said shelf-supporting devices comprising corner-posts having projections to support the shelves, and extensible cross-bars connected to the corner-posts in pairs.

3. In a refrigerator, a removable ice-pan, the length of which is less than the space between the end walls of the refrigerator, and supporting-brackets for the ice-pan having their supporting members which engage the ice-pan spaced from the end walls of the refrigerator, said brackets having devices to engage the ice-pan and maintain it spaced from the refrigerator-walls.

4. A supporting-bracket for the removable ice-pan of a refrigerator, comprising a yoke portion, upstanding lugs thereon, and angularly-bent arms extending outwardly and upwardly from the ends of the yoke portion and laterally spaced apart.

5. A supporting-bracket for the removable ice-pan of the refrigerator, struck up from a single piece of metal and comprising a yoke portion, upstanding lugs thereon and angularly-bent arms extending from the ends of the yoke portion and laterally spaced apart.

6. An ice-pan for refrigerators, comprising a shell having a side wall, provided at its lower edge with a centrally-disposed depending extension having end notches, end walls and bottom sections formed integrally with said side wall, said bottom sections being inserted in said notches and supported thereby, and a door forming the opposite side of the pan and secured between the end walls, substantially as described.

7. An ice-pan for refrigerators, comprising a shell having a side wall, provided at its lower edge with a centrally-disposed depending extension having end notches, end walls and bottom sections formed integrally with said side wall, said bottom sections being inserted in said notches and supported thereby, and having upturned flanges at their sides, said flanges at one side of the bottom sections partly forming a wall opposite the said side wall, and a door coacting with said side sections to form the opposite side of the pan, when said door is closed, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

FREDERICK A. HICKSON.

Witnesses:
J. A. WILLSON,
JNO. T. MEANY.