

F. V. DETWILER.
REFRIGERATOR.

APPLICATION FILED SEPT. 3, 1909.

1,105,410.

Patented July 28, 1914.

3 SHEETS-SHEET 1.

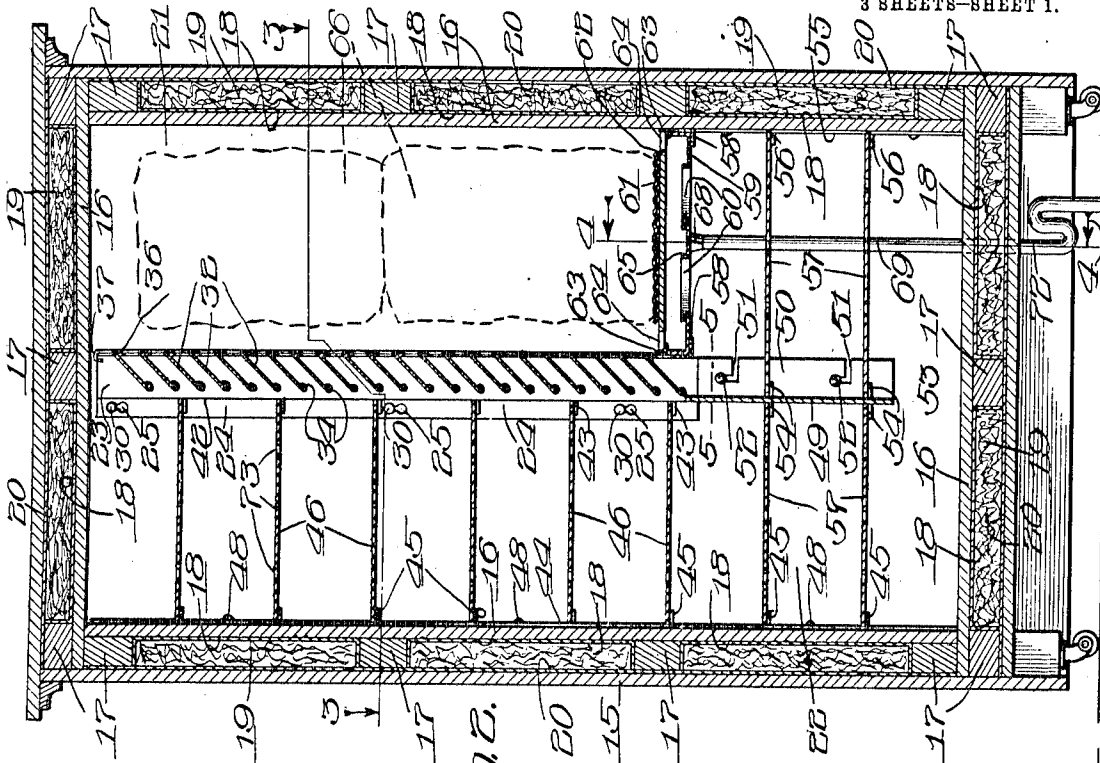


Fig. 2.

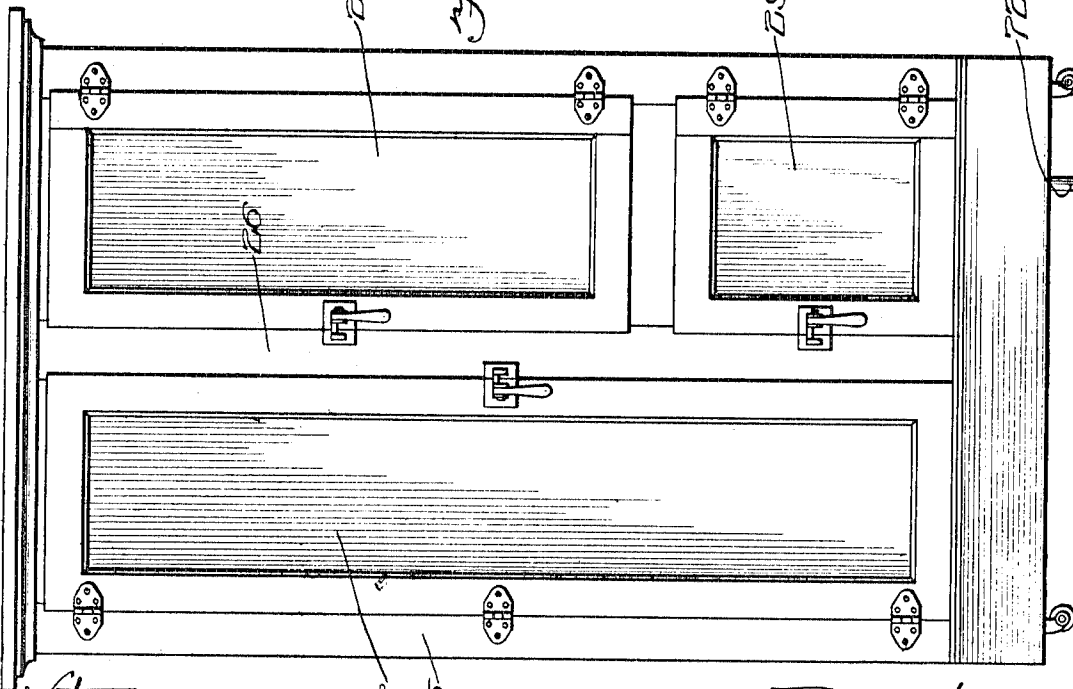


Fig. 1.

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3 SHEETS-SHEET 2.

Fig. 3.

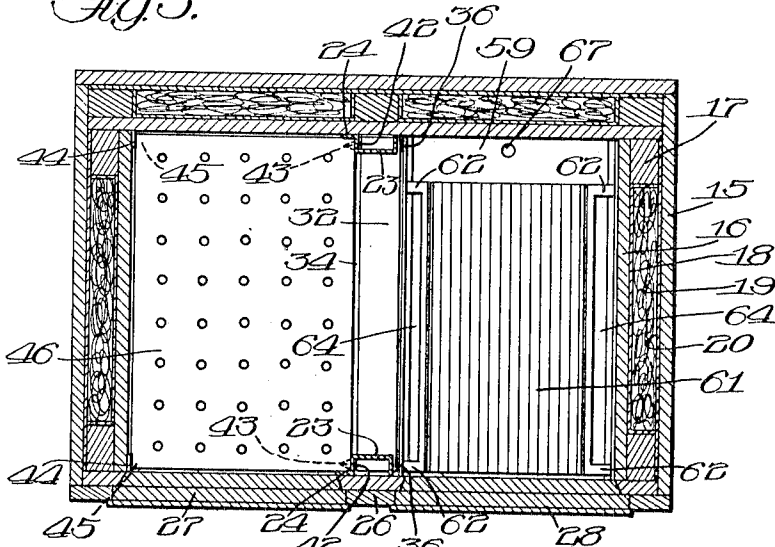


Fig. 4.

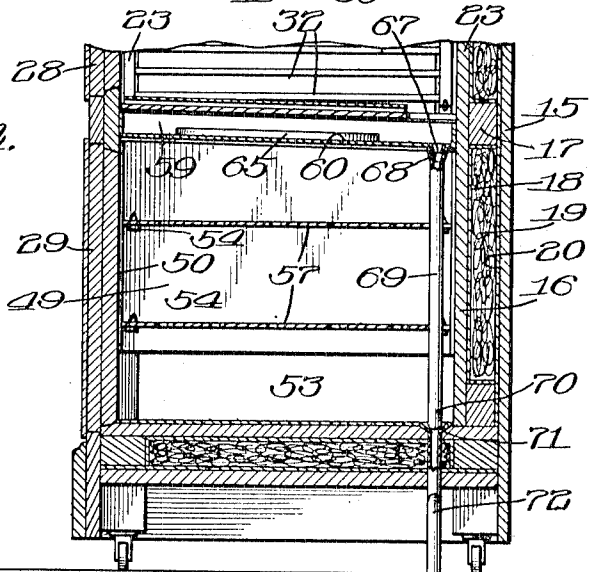
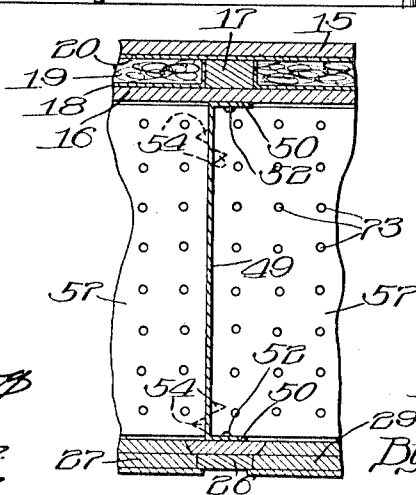


Fig. 5.



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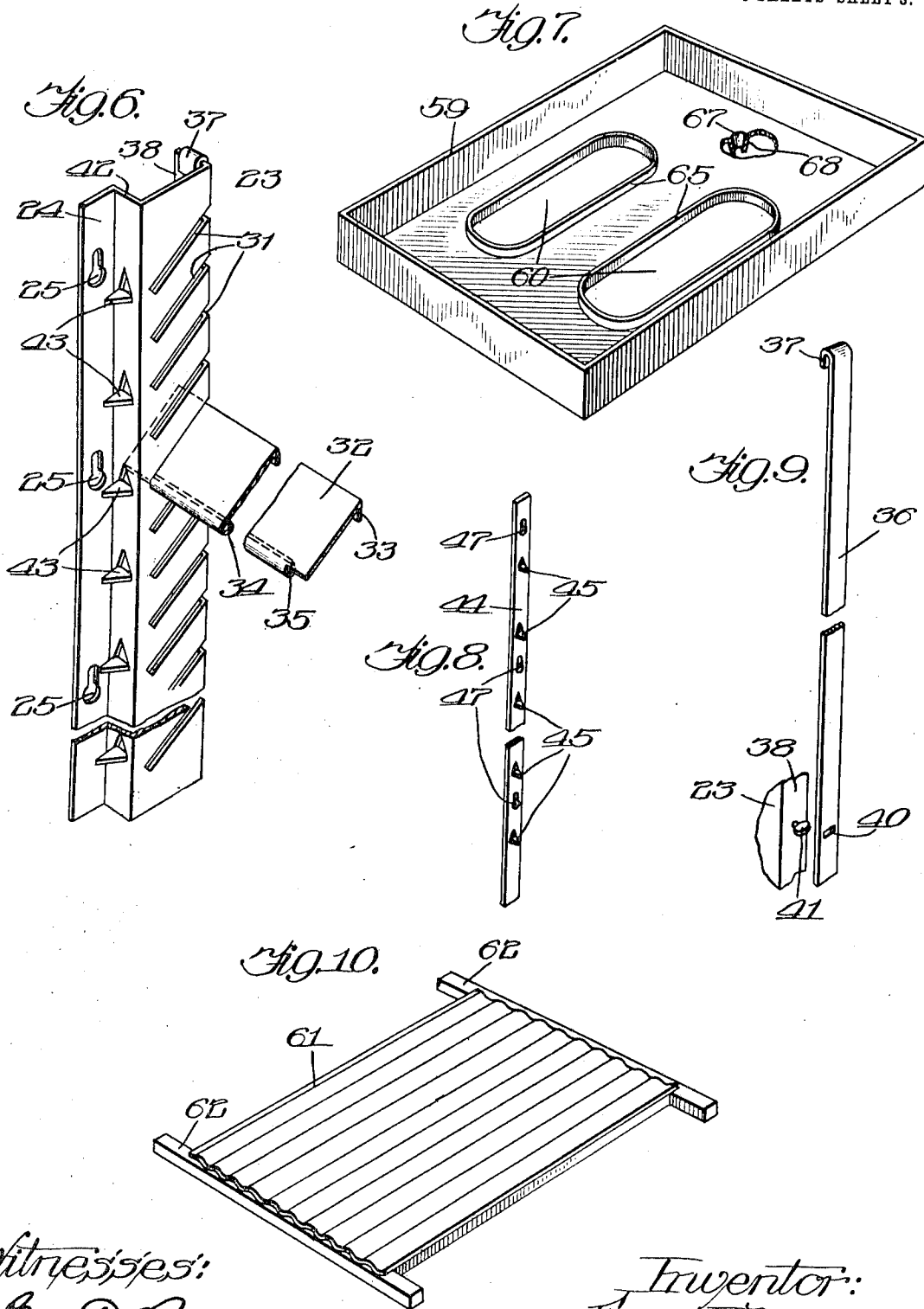
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3 SHEETS-SHEET 3.



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UNITED STATES PATENT OFFICE.

FOREST V. DETWILER, OF CHICAGO, ILLINOIS.

REFRIGERATOR.

1,105,410.

Specification of Letters Patent.

Patented July 28, 1914.

Original application filed May 28, 1909, Serial No. 498,979. Divided and this application filed September 3, 1909. Serial No. 518,077.

To all whom it may concern:

Be it known that I, FOREST V. DETWILER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Refrigerators, of which the following is a specification.

This invention relates to improvements in refrigerators and particularly to the construction thereof, and one of the objects of the invention is to provide an improved refrigerator so constructed that all of its interior parts may be readily separated and removed from the casing and which may as readily be assembled and again secured in the casing.

A further object is to provide an improved knock-down form of partition wall for dividing the refrigerator into an ice bunker, and a food compartment for increasing the circulation of air through the food compartment whereby the parts may be readily removed for cleaning.

A further object is to provide improved means for locking or securing the portion of the wall or partition against accidental displacement during transportation.

A further object is to provide an improved device of this character which will be simple, durable and cheap in construction and effective and efficient in operation.

To the attainment of these ends and the accomplishment of other new and useful objects, as will appear, the invention consists in the features of novelty in the construction, combination and arrangement of the several parts hereinafter more fully described and claimed and shown in the accompanying drawings illustrating the embodiment of the invention, and in which—

Figure 1 is a front elevation of an improved refrigerator of this character constructed in accordance with the principles of this invention. Fig. 2 is a longitudinal vertical sectional view of the refrigerator. Fig. 3 is a detail sectional view on line 3—3 of Fig. 2. Fig. 4 is a detail sectional view on line 4—4 of Fig. 2. Fig. 5 is a detail sectional view on line 5—5 of Fig. 2. Fig. 6 is a detail perspective view of one of the supports for the partitions between the food compartment and ice bunker showing a portion of one of the partitions in position. Fig. 7 is a detail perspective view partly

broken away of the drip pan for the refrigerator. Fig. 8 is a detail perspective view of one of the supports for the shelves in the food compartment. Fig. 9 is a detail perspective view of the lock for locking the sections of the partition to the support to prevent accidental displacement during transportation. Fig. 10 is a detail perspective view of the ice supporting rack.

This application is a division of application Serial No. 498,979, filed by me in the United States Patent Office May 28, 1909.

Referring more particularly to the drawings and in the present exemplification of the invention, the numeral 15 designates generally a casing which may be constructed of any desired material and may be of any desired size and configuration. In the present exemplification of the invention, however, the casing is preferably rectangular in configuration, comprising front, back and side walls. The casing is provided with an inner wall and each of the sections of this wall is constructed of a body portion 16, shown more clearly in Fig. 2 to which is secured strips 17. The body portion 16 of the back and side walls of the refrigerator proper is of a size to extend throughout the entire height of the casing and each of the walls is constructed as a single unit. After the strips 17 have been secured to one face of the body portion, a suitable heat insulating material 18 is placed upon the body portion between the strips 17, and the space between the strips and above the heat insulating material 18 is filled with suitable heat non-conducting material 19, such as mineral wool, asbestos and the like, and the spaces are filled substantially flush with the exposed faces of the strips. A sheet of asbestos or other suitable heat non-conducting material 20 is then placed across the strips and the packing and secured in any desired or suitable manner. The top and bottom of the compartment is constructed in the same manner. After the walls and bottom have been thus constructed, the bottom is first placed within the outer casing so as to rest upon the bottom thereof with the insulating material 20 in engagement with the bottom of the outer casing, after which the sides and back wall of the compartment are placed in position and adjusted against the walls of the outer casing

with the insulating material 20 in engagement therewith. These walls may then be secured in position in any desired or suitable manner not necessary to illustrate but in a manner to permit the walls to be readily removed when desired, and at the same time hold them in position when adjusted. The top of the inner casing may then be placed in position so as to be supported by the sides and back walls.

The casing is divided by an upright partition into two compartments to form an ice bunker designated generally by the reference numeral 21, and a food compartment designated generally by the reference numeral 22 in Fig. 2. The partition between the ice bunker and the food compartment is of a knock-down construction and is preferably constructed of metal comprising two or more uprights 23, the body portions of which are preferably of channel formation, as shown more clearly in Figs. 3 and 6, and projecting laterally beyond the free edge of one of the sides of the channel is a flange 24 which is provided with a series of key-hole slots 25 at intervals throughout its length. The flange 24 is arranged adjacent the open edge of the channel and is adapted to rest against one of the inner walls of the compartment. One of these uprights is preferably arranged adjacent the rear and one adjacent the front wall of the compartment. The support adjacent the front wall of the refrigerator compartment is preferably arranged adjacent the stile 26 (see Fig. 1) between the doors 27, 28 and 29, which open through the front wall of the refrigerator and through which access may be had respectively to the food compartment, the ice bunker and the portion of the food compartment below the ice bunker. The walls to which these uprights are secured are provided with pins or projecting lugs 30 which are provided with heads of a size to pass through the openings 25 so that the uprights may be lowered to cause the shanks of the pins or projections to enter the smaller portions of the slots to support and secure the uprights in position so that the body portion of the upright will be held spaced from the wall by means of the sides of the channel. These uprights are provided with slots 31 which pass through one edge thereof, preferably the edge opposite to the edge upon which the flange 24 is arranged, and incline downwardly. Any number of these slots 31 may be provided throughout the length of the uprights 23. A series of members or partitions 32 are provided and each is preferably constructed of a strip of sheet material of a thickness substantially equal to the width of the slots 31 and of a height substantially equal to the length of the slots. One edge of the members 32 is deflected to form a depending

flange 33 along one edge. The other edge of the members 32 is rolled as at 34 to form a reinforce for the edge and this rolled portion terminates short of the extremities of the members 32 as at 35 a distance equal to the width of the sides of the body portion 23 of the upright. The extremities of these members or partitions 32 are inserted in the respective slots 31 in the uprights 23 with the rolled portions 34 preferably located adjacent the lower extremities of the slots and with the deflected portions 33 adjacent the outer edges of the slots. When these members or sections 32 are arranged in position and supported by the uprights, they will form ports or passages which extend downwardly from the ice bunker 21 into the food compartment 22. By constructing the partition in this manner it will be apparent that the partition may be knocked down or separated for the purpose of cleaning the same. In order to prevent accidental displacement of these members or partitions 32 during transportation, a suitable lock may be provided. A simple and efficient means for accomplishing this purpose comprises a member 36 (see Figs. 2 and 9) which is preferably constructed of a strip of metal having a curved or bent end 37, which is adapted to engage over the top edge of one of the sides 38 of the upright 23. This member 36 is of any suitable length but is of a length substantially equal to the length of the side 38 of the upright so that the body portion of the member 36 will extend over the edge of the partitions or members 32 adjacent the open portions of the slots 31. The member 36 may be provided with a slot 40 adapted to receive a fastening device 41, such as a turn button or the like, which is supported by the side 38 of the upright and when this member 36 is thus locked in position, it will be apparent that the partitions or members 32 will be held against displacement. One of these members 36 is preferably provided for each of the uprights 23. By constructing the upright 23 of channel formation, it will be apparent that the extremities of the members or partitions 32 will enter the slots 31 a sufficient distance to project beyond the sides thereof to form an adequate support for the members or partitions. The other side 42 of the uprights is cut out and the cut out portions 43 are deflected to form laterally projecting portions extending beyond the side. Secured to the opposite wall of the food compartment and adjacent the corners thereof, are uprights 44 which are also provided with cut out portions deflected as at 45 to form lateral projections cooperating with the projections 43, and these cooperating projections 43, 45, form supports for the shelves 46 in the food compartment. The members 44 are also pro-

vided with key-hole slots 47 adapted to co-operate with suitable pins or projections 48 on the wall of the compartment in a manner similar to that in which the slots 25 in the uprights 23 coöperate with the pins or projections 30 for removably and securely holding them in position.

Arranged below the partition formed by the uprights 23 and the members 32 is a partition 49 (see Figs. 2 and 5). This partition is preferably constructed of sheet material and the opposite edges 50 thereof are deflected to form lateral projecting portions and each of these deflected portions 50 is provided with bayonet slots 51 opening through the edges thereof, which coöperate with pins or projections 52 on opposite walls of the compartment. This partition 49 is of a length to extend across the refrigerator compartment so that the deflected portions 50 thereof will rest against the opposite walls and when secured in position by the bayonet slots 51 and pins or projections 52 the partition 49 will substantially form a continuation or depending portion of the partition formed by the uprights 23 and the members 32. This section 49 of the partition preferably terminates some distance above the bottom of the compartment to form an air circulation passage 53 and the body portion of the partition is cut-out and the cut-out portions are deflected as at 54 to form shelf supports similar to the supports 43, 45. A support 55, similar to the support 44 is provided with laterally deflected portions 56 and is secured to the wall of the refrigerator compartment on the opposite side of the partition 49 so that shelves 57 may be supported on each side of the partition 49, the shelves 57 on one side of the partition extending below the ice bunker 21.

Supported in any desired or suitable manner, preferably by means of angle irons 58 adjacent the base of the uprights 23 is a pan 59, shown more clearly in Figs. 2 and 7, which is provided with elongated apertures 60 in its bottom. This pan serves to form the bottom of the ice bunker 21 and an ice supporting rack 61 having end members 62 is supported in any desired or suitable manner, either by means of the ends of the members 62 nesting upon the edges of the pan 59 or by means of suitable angle irons 63 provided for the purpose. The extremities of the end members 62 project for some distance beyond the sides of the body 61 to form air circulation openings 64. The bottom of the pan preferably inclines downwardly and toward the rear, as shown more clearly in Fig. 4, and arranged around the apertures 60 are flanges 65. The pan receives the drip water from the ice 66 and the flanges 65 prevent the water from passing through the apertures 60. The pan is provided with a discharge outlet opening

67 at the rear thereof, around which opening is arranged a flange 68 adapted to telescope into the upper extremity of an overflow pipe 69, which is supported in any desired or suitable manner. The lower extremity 70 of the overflow pipe telescopes with the upper extremity 71 of a pipe 72 which leads to the sewer or any other point of discharge.

With this improved construction of refrigerator compartment, the air currents will pass from the ice bunker downwardly into the portions of the food compartment below the ice bunker to be discharged through the opening 53 to the other side of the partition 49 and will rise in the portion of the food compartment on the other side of the partition toward the top of the compartment. During this rising movement, the air currents will pass into the ports or passages formed by the members or partitions 32 and will be drawn therethrough into the ice bunker where they will contact with the ice, causing the temperature of the air currents to be lowered. As the temperature is lowered the air will continue to circulate from the ice bunker and through the food compartments.

The door 27 in the outer casing 15 is arranged so as to close the food compartment on one side of the ice bunker and the partition 49, through which access may be had to that portion of the food compartment. The door 29 is arranged to close the portion of the food compartment below the ice bunker and the door 28 is arranged to close the opening in the casing through which access may be had to the ice bunker so that ice may be supplied to the ice bunker without opening the closures 27 and 29.

With this improved construction of refrigerator it will be apparent that the entire inside of the refrigerator may be removed including the inner walls and partitions and the partitions or members 32 which form the air passages from the food compartment to the ice bunker may be removed and thoroughly cleaned and after being cleaned may as readily be replaced.

Obviously the shelves 46 and 57 may be provided with apertures or openings 73 therethrough so as not to impede the circulation of air through the food compartment.

In order that the invention might be fully understood, the details of the foregoing embodiment thereof have been thus specifically described, but

What I claim as new is:

1. In a refrigerator, the combination with an outer casing, of opposite flange members removably secured to the casing with a continuous offset portion having parallel inclined slots open at the upper edge, and other members adapted to be inserted and removably held in the slots and forming a

partition to separate the casing into parallel compartments with inclined passages between them.

2. In a refrigerator, the combination of a casing having a chamber therein, a removable metallic partition dividing the chamber into communicating compartments, portions of said partition being cut out and deflected beyond the body portion of the partition, removable supports arranged within the chamber and also provided with portions cut out and deflected beyond the plane of the body portion and cooperating with the deflected portions of the partition, and shelves resting upon the said cooperating portions.

3. In a refrigerator, comprising in combination a food chamber, an ice bunker, and a wall separating the chamber and bunker, said wall comprising spaced uprights removably secured to opposite walls and with portions of their bodies spaced from the adjacent walls, said portions being provided with spaced downwardly inclined recess openings through one edge, and partitions supported by and extending between the uprights, the extremities of the partitions being seated in the respective recesses and projecting into the spaces between the uprights and the adjacent walls of the casing, said partitions being also removable from the casing independently with respect to the uprights and to each other.

4. A refrigerator comprising in combination a food chamber, an ice bunker, a wall separating the chamber and bunker, said wall comprising uprights and spaced parallel partitions removably engaging the uprights, and means for locking the partitions against displacement.

5. A refrigerator comprising in combination a food chamber, an ice bunker, a wall separating the chamber and bunker, said wall comprising spaced uprights removably secured to opposite walls and with portions of their bodies spaced from the adjacent walls, said portions being provided with spaced downwardly inclined recess openings through one edge, and partitions supported by and extending between the uprights, the extremities of the partitions being seated in the respective recesses, and means for locking the partitions against displacement.

6. A refrigerator comprising in combination a food chamber, an ice bunker, a wall separating the chamber and bunker, said wall comprising spaced uprights removably secured to opposite walls and with portions of their bodies spaced from the adjacent walls, said portions being provided with

spaced downwardly inclined recess openings through one edge, and partitions supported by and extending between the uprights, the extremities of the partitions being seated in the respective recesses, and means supported by the uprights and extending across the partitions adjacent the open ends of the recesses for locking the partitions against removal.

7. A refrigerator comprising in combination a food chamber, an ice bunker, a wall separating the chamber and bunker, said wall comprising spaced uprights removably secured to opposite walls and with portions of their bodies spaced from the adjacent walls, said portions being provided with spaced downwardly inclined recess openings through one edge, and partitions supported by and extending between the uprights, the extremities of the partitions being seated in the respective recesses, a locking member removably supported by the uprights and extending across the partitions adjacent the open ends of the recess for locking the partitions against removal, and means for securing the said members in position.

8. In a refrigerator, the combination of partition members, and upright removable supports therefor, said supports comprising flanged channel members with keyhole perforations in the flanged portions, and with inclined slots in the web of the channel member opening from one edge thereof.

9. In a refrigerator, the combination of upright removable lateral supports, having inclined slots in the faces thereof, and partition members therefor of a thickness to be inserted in the slots, said members being formed at one side with an inclined flange which is adapted to engage the upright supports to position the members in the slots.

10. In a refrigerator, the combination of upright lateral supports comprising channel members with inclined slots through one side thereof and extending in the web of the channel, and partition members of a thickness to be inserted in the slots each having a depending flange on one side which engages the side of the channel members when the partition member is inserted in the slots.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 24th day of August A. D. 1909.

FOREST V. DETWILER.

Witnesses:

J. H. JOCHUM, Jr.,
H. M. TELLER.