July 28, 1925. 1,547,345

E. QUAT

REFRIGERATOR, COUNTER, AND DISPLAY CASE

Filed Oct. 11, 1922

Fig. 1.

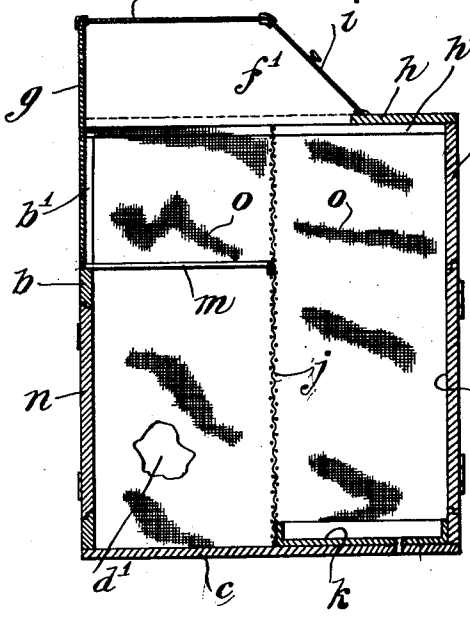



Fig. 2.

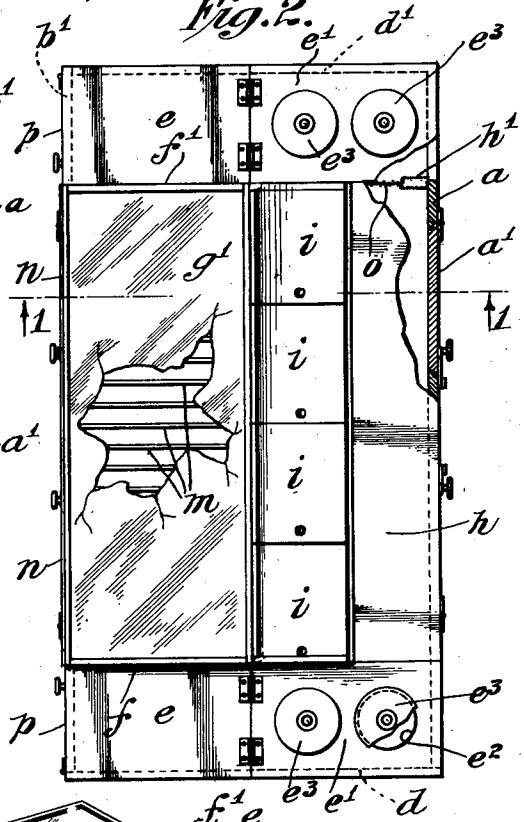
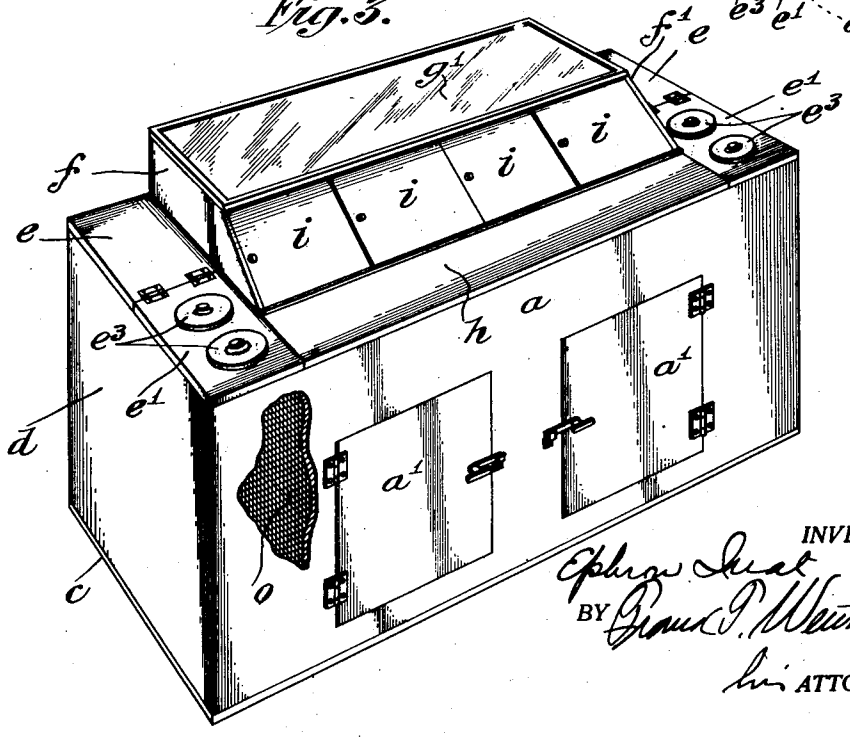



Fig. 3.




INVENTOR

Eplrgm Quat

BY Grant P. Wentworth

his ATTORNEY.

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# UNITED STATES PATENT OFFICE.

EPHRON QUAT, OF NEW YORK, N. Y.

## REFRIGERATOR, COUNTER, AND DISPLAY CASE.

Application filed October 11, 1922. Serial No. 593,808.

*To all whom it may concern:*

Be it known that I, EPHRON QUAT, a citizen of the United States, residing at the borough of Manhattan, in the city, county, and State of New York, have invented certain new and useful Improvements in Refrigerators, Counters, and Display Cases, of which the following is a specification, reference being had therein to the accompanying drawings, which form a part thereof.

My invention relates to an improved refrigerator, counter and display case, and more particularly to a structure of this type especially adapted for use in the marketing of dairy products.

A combined refrigerator, counter and display case embodying my invention is so constructed as to permit the attractive display of different dairy products such as butter, milk, cream, cheese and eggs in a portion of the structure in a position where they are readily accessible, while affording ample storage space for a reserve supply of such products at a point where they will not be visible to prospective customers. The structure also includes storage space for cans of what is generally termed "loose" milk, at a point where they are conveniently accessible to the clerk, there being adjacent the compartment for the cans of "loose" milk in use, storage space for unopened cans of the same product.

The various compartments are all in communication through perforate barriers one with the other and with a common ice compartment adapted to receive ice in cake form or broken ice, as desired, thus permitting the maintenance of the desired low temperature throughout the entire refrigerator, counter and display case, while avoiding direct contact of the products with the ice.

While with most dairy products it is desirable to avoid contact of same with the ice, the structure of my invention is so constructed that bottled milk, if desired, may be placed directly upon the ice, the ice compartment being readily accessible through the same door structure by which access is had to the display case proper.

To ensure an effective display, the display case portion of the structure is positioned centrally of the length of the counter, and the doors by which access is had thereto, are arranged upon an incline, thus affording ample wrapping space rearwardly and at the ends of the display case.

By means of a combined refrigerator, counter and display case embodying my invention, I am enabled to incorporate in a single small counter structure, ample storage and display space for a complete line of dairy products, and to economically and rapidly dispense the same, the entire contents, either on display or in reserve, being at all times maintained at the desired low temperature to preserve same without likelihood of bringing any of the products stored in the display case or the reserve compartments in direct contact with the ice.

The refrigerating medium may be cake ice, or broken ice, as desired.

The invention consists in the novel features of construction and combination of parts hereinafter set forth and described, and more particularly pointed out in the claims hereto appended.

Referring to the drawings,

Fig. 1 is a vertical section through a refrigerator, counter and display case embodying my invention on the line 1—1 of Fig. 2;

Fig. 2 is a plan view thereof with portions broken away; and

Fig. 3 is a perspective view from the rear of the structure, with a portion of the rear wall broken away.

Like letters refer to like parts throughout the several views.

In the embodiment of my invention shown in the drawings, the structure includes therein a suitably insulated back wall $a$ and a front wall having a central portion $b$ of less height than said back wall, each end of the front wall extending upwardly of said central portion to a height coincident with that of the rear wall $a$, as indicated in dotted lines at $b'$ in Fig. 2. The structure is provided with a suitably insulated bottom $c$ and with suitably insulated end walls $d$—$d'$ extending to the same height as the rear wall $a$ and the portion $b$ of the front wall.

Adjacent each end and towards the front of the structure is a fixed top slab $e$ having hinged thereto and towards the back of the structure, a movable top $e'$ provided with suitable openings therein as indicated at $e^2$ adapted to be closed by a slip cover $e^3$, the fixed slab $e$ affording counter space at each end of the structure, and the hinged top $e'$ thereof permitting the removal and inser-

tion of ordinary milk cans in the space or compartment below this hinged top, access being had to said cans through the openings $e^2$, two of which are provided in each movable top.

Projecting upwardly from the inner edge of each slab $e$ and the top $e'$ hinged thereto, are walls $f$—$f'$ of any suitable material forming the ends of a raised or elevated display section, the front of which is closed by a glass plate $g$ and the top of which is similarly closed by a horizontal glass plate $g'$, said plates being secured in relation to the low portion of the front wall $b$, the sides of the portion $b'$ of said front wall and the end walls $f$—$f'$, and the top glass plate $g'$ being secured in relation to said side walls $f$—$f'$ and said front plate $g$ in any desired or approved manner commonly used in the art of making display cases.

Secured to the rear wall $a$ and extending between the movable portions $e'$—$e'$ is a fixed counter top $h$, the side walls $f$—$f'$ extending upwardly at an angle from this counter top $h$ to the glass plate $g'$ so as to permit free access to the space exposed through the glass plate $g$ and also to a portion of the structure adjacent the rear wall $a$ thereof.

Braces, as $h'$, are located adjacent each end of the fixed counter top $h$ for the purpose of supporting same and forming a sill for the movable counter top portions $e'$.

Mounted in suitable slides adjacent the forward edge of the counter top $h$ and the fitting for the rear edge of the top plate $g'$ are suitable overlaying laterally slidable doors $i$ for permitting access to any portion of the display compartment exposed to the front plate $g$.

Extending lengthwise of the structure substantially midway between the walls $a$ and $b$, is a perforate partition $j$, which, as shown in the drawings, is formed of stiff wire mesh, the space rearwardly of this partition $j$ forming an ice compartment having a drip pan $k$, access to which compartment is had through the doors $a'$ in the rear wall $a$.

Supported from adjacent the top of the front wall $b$ and the partition $j$ is a shelf $m$ forming the bottom of the display compartment, this shelf preferably being in the form of spaced bars so as to permit a free circulation of air through the compartment.

Access is had to the space forwardly of the partition $j$ and below the shelf $m$ by means of a door or doors $n$, thus permitting the utilization of this compartment for storing a reserve stock of merchandise.

Adjacent each end of the partition $j$ is a perforated partition $o$ separating the space below the top portions $e$—$e'$ from the ice comparement, the display compartment and the storage compartment below the shelf $m$.

In each front wall portion $b'$ is a door $p$ permitting access to the compartment below each top slab $e$, which compartment is designed for use when storing extra cans of "loose" milk.

The device as shown in the accompanying drawings embodies in a single structure and in compact form ample space for storing, displaying and distributing practically all dairy products handled by a store, the arrangement being such that whether the merchandise is on display or in stock it will be maintained at the desired low temperature to ensure preservation of the products.

The structure shown in the drawings is approximately 12 feet from the wall $d$ to the wall $d'$, and approximately 3 feet from the wall $a$ to the wall $b$—$b'$. From the bottom $c$ to the plate $g'$ the height is approximately 40 inches. The width of the counter top $h$ is about 9 inches and the distance from the bottom $c$ to the shelf $m$ about 21 inches. The distance between the plate $g$ and the partition $j$ is approximately 18 inches.

The ice compartment between the partition $j$ and the rear wall $a$ has sufficient capacity to hold a half ton of ice, in cake form, thus ensuring the desired refrigerating action with economy in the maintenance of the counter.

By using perforated partitions and shelves, air is permitted to circulate freely throughout all of the compartments within the structure, the reserve supply of dairy products being nearer the bottom of the structure and subjected to a lower temperature than the merchandise in the display compartment, which merchandise however, is sold over the counter so that under normal circumstances it will be stored in the structure for a sufficiently short interval so that the slightly higher temperature and the frequent opening of the doors $i$ will not result in deterioration thereof.

By having the doors $a'$ close to the floor, standard sized cakes of ice may be readily filled into the ice compartment, such cakes of ice normally extending above the plane of all merchandise within the different compartments of the structure so as to ensure the desired chilling thereof. In most dairy refrigerators as employed to-day, the ice compartment is of necessity elevated, thus making the handling of ice very difficult when charging the ice compartment.

By employing sliding doors arranged upon an incline as shown, not only may access be readily had to any portion of the shelf $m$ forming the bottom of the display compartment, but if desired merchandise which would not be affected by contact with the ice, such as bottled milk and cream, may be passed through these doors between the partition $j$ and the back wall $a$ into direct contact with the ice.

The compartment below the shelf $m$ af-

fords storage space for a large reserve supply of different products such as butter, cheese, eggs and bottled cream and milk, at a point conveniently accessible to the salesman, from which the supply of merchandise within the display compartment may be replenished from time to time.

A structure such as is shown in the accompanying drawings is adapted to accommodate eight large cans of so called "loose" milk, four of which are always accessible for sales purposes, and four of which are stored as a reserve supply, it being possible, if desired, to use broken ice about the cans of milk in the end compartments towards the wall *a* and formed by the partitions *o* and *j*, it being possible to fill these compartments through the openings $e^2$ or by raising the movable tops $e'$.

The top slabs *e*—$e'$ and *h* permit ample counter space for wrapping merchandise, the arrangement of parts being such that a clerk behind the counter may readily serve a customer with any of the merchandise contained in the structure, thus greatly facilitating the handling of the merchandise, as well as permitting the utilization of the structure for the handling of merchandise other than dairy products, as when the combined refrigerator, counter and display case is positioned in front of ordinary shelving.

The front, back and side walls of the structure are of insulating material such as is ordinarily used in refrigerators, and it is possible to vary the dimensions of the structure in its entirety and the various compartments therein without departing from the essential characteristics of the invention.

Having described the invention, what I claim as new and desire to have protected by Letters Patent, is:—

1. A refrigerator, counter and display case embodying therein a bottom, back, front and end walls of heat insulating material, a portion of said front wall being of less height than the back wall, a perforate partition extending lengthwise of the structure forming an ice compartment adjacent said back wall, a door in said back wall by means of which said ice compartment may be charged, a perforate shelving extending from said partition to the front wall throughout the portion thereof which is of less height than said back wall, top slabs above said back wall and at one side of the low portion of the front wall, forming respectively a back counter and an end counter, end walls extending above said counter space upon opposite ends of the portion of the front wall which is of less height than the back wall, whereby an elevated display section is formed above said shelf, a glass plate closing the front of said display section, a second glass plate closing the top of said display section, and movable closure means extending from said last named plate to said back counter.

2. A refrigerator, counter and display case embodying therein a bottom, back, front and end walls of heat insulating material, a portion of said front wall being of less height than the back wall, a perforate partition extending lengthwise of the structure forming an ice compartment adjacent said back wall, a door in said back wall by means of which said ice compartment may be charged, a perforate shelving extending from said partition to the front wall throughout the portion thereof which is of less height than said back wall, a fixed top slab at an end and towards the front of the structure, a movable top having an opening therethrough adjacent said fixed top slab, said fixed top slab and movable top forming an end counter, movable closing means for said opening, a door in said front wall permitting access to the space below said fixed top slab, means forming a fixed counter top adjacent said back wall, end walls extending above said end and said rear counter tops upon opposite ends of the portion of the front wall of less height than the back wall, whereby an elevated display section is formed above said shelf, a glass plate closing the front of said display section, a second glass plate closing the top of said display section, and movable closure means extending from said last named plate to said back counter.

3. A refrigerator, counter and display case embodying therein a bottom, back, front and end walls of heat insulating material, a portion of said front wall being of less height than the back wall, a perforate partition extending lengthwise of the structure forming an ice compartment adjacent said back wall, a door in said back wall by means of which said ice compartment may be charged, a perforate shelving extending from said partition to the front wall throughout the portion thereof which is of less height than said back wall, top slabs above said back wall and at one side of the low portion of the front wall, forming respectively a back counter and an end counter, end walls extending above said counter space upon opposite ends of the portion of the front wall which is of less height than the back wall, whereby an elevated display section is formed above said shelf, the rear edges of said end walls projecting at an angle upwardly from said back counter space, a glass plate closing the front of said display section, a second glass plate closing the top of said display section, and inclined movable closure means extending from said last named plate to said back counter.

4. A refrigerator, counter and display case embodying therein a bottom, back, front and end walls of heat insulating material, a por-

tion of said front wall being of less height than the back wall, a perforate partition extending lengthwise of the structure forming an ice compartment adjacent said back wall, a door in said back wall by means of which said ice compartment may be charged, a perforate shelving extending from said partition to the front wall throughout the portion thereof which is of less height than said back wall, a fixed top slab at an end and towards the front of the structure, a movable top having an opening therethrough adjacent said fixed top slab, said fixed top slab and movable top forming an end counter, movable closing means for said opening, a door in said front wall permitting access to the space below said fixed top slab, means forming a fixed counter top adjacent said back wall, end walls extending above said end and said rear counter tops upon opposite ends of the portion of the front wall of less height than the back wall, whereby an elevated display section is formed above said shelf, the rear edges of said end walls projecting at an angle upwardly from said back counter space, a glass plate closing the front of said display section, a second glass plate closing the top of said display section, and inclined movable closure means extending from said last named plate to said back counter.

5. A refrigerator, counter and display case embodying therein a bottom, back, front and end walls of heat insulating material, a portion of said front wall being of less height than the back wall, a perforate partition extending lengthwise of the structure forming an ice compartment adjacent said back wall, a door in said back wall by means of which said ice compartment may be charged, a perforate shelving extending from said partition to the front wall throughout the portion thereof which is of less height than said back wall, top slabs above said back wall and at one side of the low portion of the front wall, forming respectively a back counter and an end counter, end walls extending above said counter space upon opposite ends of the portion of the front wall which is of less height than the back wall, whereby an elevated display section is formed above said shelf, a glass plate closing the front of said display section, a second glass plate closing the top of said display section, movable closure means extending from said last named plate to said back counter, and a door in said front wall below said shelving whereby access may be had to the compartment below said display section.

6. A refrigerator, counter and display case embodying therein a bottom, back, front and end walls of heat insulating material, a portion of said front wall being of less height than the back wall, a perforate partition extending lengthwise of the structure forming an ice compartment adjacent said back wall, a door in said back wall by means of which said ice compartment may be charged, a perforate shelving extending from said partition to the front wall throughout the portion thereof which is of less height than said back wall, top slabs above said back wall and at one side of the low portion of the front wall, forming respectively a back counter and an end counter, end walls extending above said counter space upon opposite ends of the portion of the front wall which is of less height than the back wall, whereby an elevated display section is formed above said shelf, a glass plate closing the front of said display section, a second glass plate closing the top of said display section, inclined movable closure means extending from said last named plate to said back counter, and a door in said front wall below said shelving whereby access may be had to the compartment below said display section.

7. A refrigerator, counter and display case embodying therein a bottom, back, front and end walls of heat insulating material, a portion of said front wall being of less height than the back wall, a perforate partition extending lengthwise of the structure forming an ice compartment adjacent said back wall, a door in said back wall by means of which said ice compartment may be charged, a perforate shelving extending from said partition to the front wall throughout the portion thereof which is of less height than said back wall, fixed top slaps at opposite ends and towards the front of the structure, a movable top having an opening therethrough adjacent each of said fixed top slabs whereby end counters are formed, movable closure means for said openings respectively, doors in said front wall permitting access to the space below said fixed top slabs respectively, end walls extending above said end and said rear counter tops upon opposite ends of the portion of the front wall of less height than the back wall, whereby an elevated display section is formed above said shelf, a glass plate closing the front of said display section, a second glass plate closing the top of said display section, and movable closure means extending from said last named plate to said back counter.

8. A refrigerator, counter and display case embodying therein a bottom, back, front and end walls of heat insulating material, a portion of said front wall being of less height than the back wall, a perforate partition extending lengthwise of the structure forming an ice compartment adjacent said back wall, a door in said back wall by means of which said ice compartment may be charged, a perforate shelving extending

from said partition to the front wall throughout the portion thereof which is of less height than said back wall, fixed top slabs at opposite ends and towards the front of the structure, a movable top having an opening therethrough adjacent each of said fixed top slabs whereby end counters are formed, movable closure means for said openings respectively, doors in said front wall permitting access to the space below said fixed top slabs respectively, end walls extending above said end and said rear counter tops upon opposite ends of the portion of the front wall of less height than the back wall, whereby an elevated display section is formed above said shelf, a glass plate closing the front of said display section, a second glass plate closing the top of said display section, movable closure means extending from said last named plate to said back counter, and a door in said front wall below said shelving whereby access may be had to the compartment below said display section.

In witness whereof I have hereunto affixed my signature in the presence of two subscribing witnesses, this 9th day of October, 1922.

EPHRON QUAT.

Witnesses:
FRIEDA KOEHLER,
SOPHIE M. BAEDER.