D. E. SHONGO.

REFRIGERATOR OR LIKE RECEPTACLE.

APPLICATION FILED MAY 12, 1919.

1,343,688. **Patented June 15, 1920.**

2 SHEETS—SHEET 1.

Fig. 1.

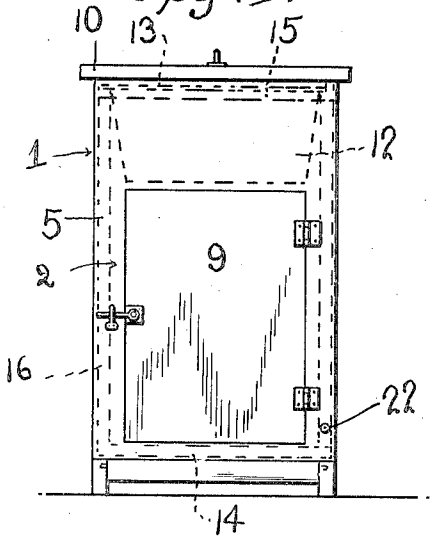


Fig. 2.

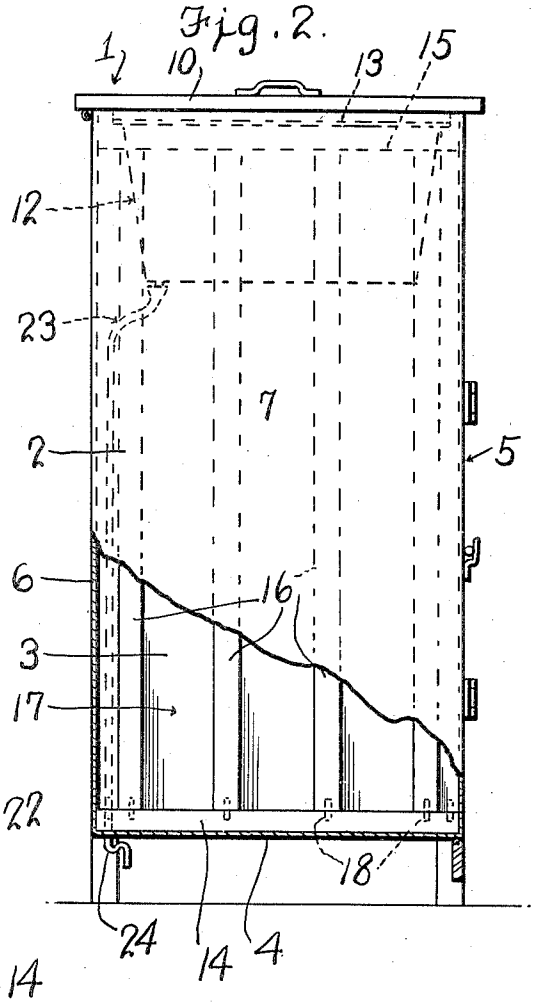
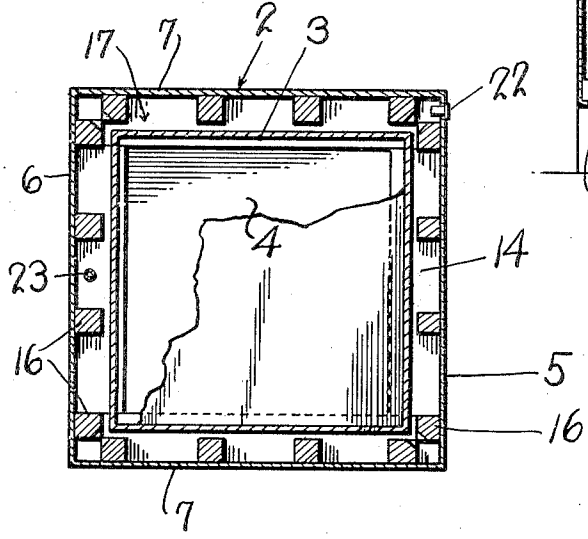


Fig. 5.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 3.

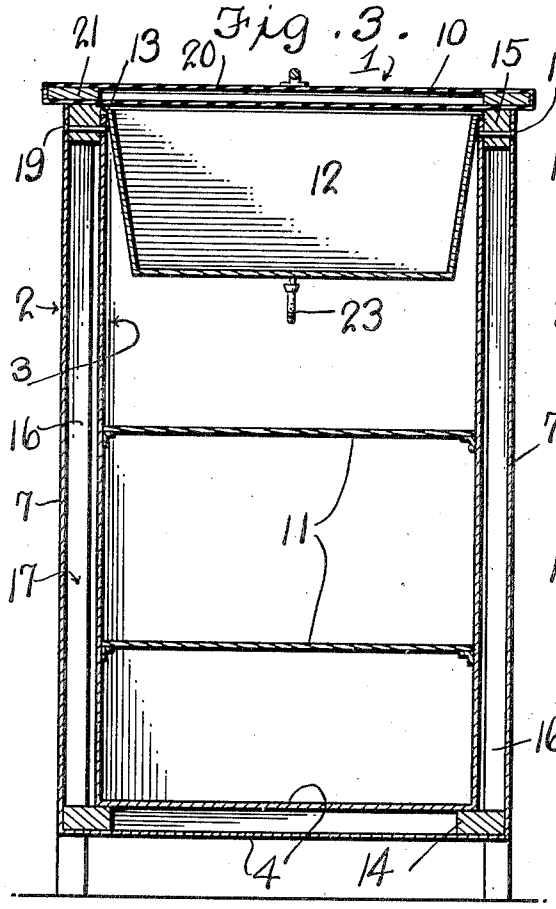


Fig. 4.

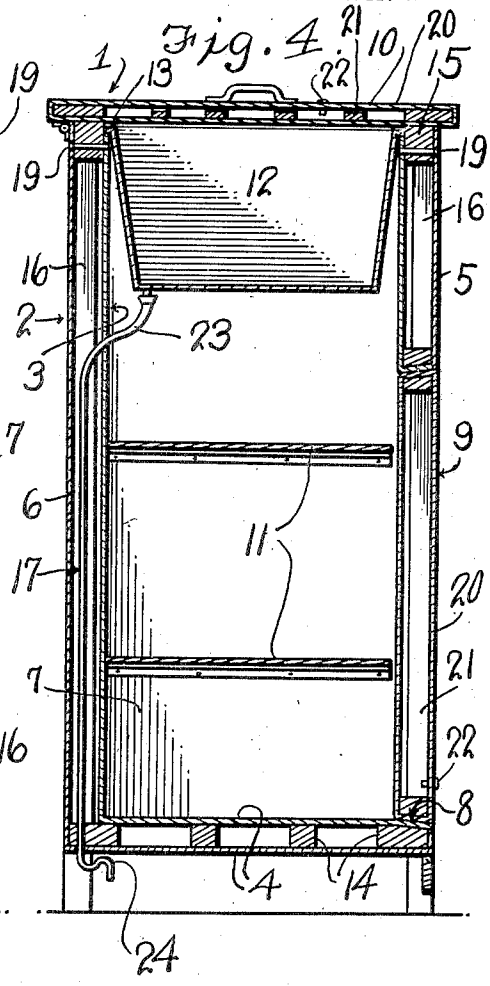
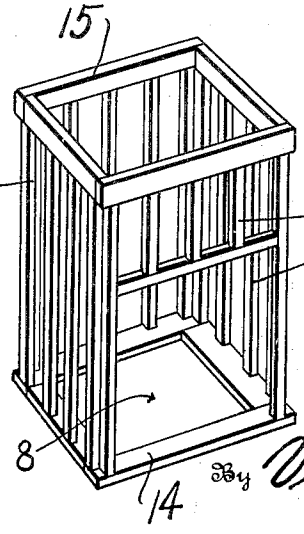


Fig. 6.



Witnesses

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UNITED STATES PATENT OFFICE.

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REFRIGERATOR OR LIKE RECEPTACLE.

1,343,688. Specification of Letters Patent. Patented June 15, 1920.

Application filed May 12, 1919. Serial No. 296,335.

To all whom it may concern:

Be it known that I, DANIEL E. SHONGO, a citizen of the United States, residing at Lake Katrine, in the county of Ulster and State of New York, have invented new and useful Improvements in Refrigerators or like Receptacles, of which the following is a specification.

This invention relates to refrigerators, ice boxes, lunch boxes, milk cans, and other receptacles of like character designed for the storage of goods or articles of food and which are liable to deteriorate by exposure to the atmosphere or fluctuations of temperature, the primary object of the invention being to provide a refrigerator or other like receptacle which is composed of a double-walled body having an intervening vacuum space, whereby the interior of the receptacle will be kept at a substantially uniform temperature for long periods, or constantly in the use of a refrigerant, and sudden temperature changes avoided.

A further object of the invention is to provide a refrigerator or like receptacle composed of inner and outer shells and a novel construction of intervening framing to which the shells are secured to form the vacuum space, the construction being such as to protect the shells from collapse or other similar injuries and providing a receptacle of maximum strength, and further to provide a receptacle which may be manufactured and sold at a comparatively low cost and wherein efficient provision for the discharge of water from the melting ice without breaking the vacuum is insured.

The invention consists of the features of construction, combination and arrangement of parts herein fully described and claimed, reference being had to the accompanying drawings in which:

Figure 1 is a front elevation showing the application of the invention to a refrigerator.

Fig. 2 is a side elevation of the same, partly broken away.

Fig. 3 is a vertical transverse section.

Fig. 4 is a vertical front to rear section.

Fig. 5 is a horizontal section.

Fig. 6 is a perspective view of the interior frame.

Referring to the drawings, 1 designates a refrigerator or other like receptacle, which comprises a pair of inner and outer vessels or box-like receptacles 2 and 3, made of sheet metal or other suitable material and each including a bottom wall 4, front and rear walls 5 and 6 and side walls 7, the said vessels being open at the top and arranged in spaced relationship. The front wall of the refrigerator body is provided with a doorway 8 closed by a door 9, and the top of the refrigerator body is closed by a lid or cover 10. The door 9 and cover 10 may be, and preferably are, of the same general construction as the body of the refrigerator with the exception hereinafter noted.

The inner shell or receptacle 3 provides a chamber or compartment to receive the goods to be stored and may be provided with any suitable type and arrangement of removable shelves 11, and the top of said shell or receptacle receives the bottom portion of an ice pan 12, which is provided at its upper edge with a supporting flange 13, said pan being insertible and removable through the open top of the refrigerator and being supported by the flange 13 from the framework thereof, as hereinafter fully set forth. This pan is so arranged as to be freely and easily applied and removed, when removably mounted, without interfering with the contents of the refrigerator or without liability of straining or otherwise injuring the body of the refrigerator in such a way as to be liable to cause leakage at the joints and admission of air to the vacuum space.

Each shell 2 and 3, when made of sheet metal, will have the joints thereof securely riveted and sealed airtight in any secure manner, as by the use of cement. For the purpose of supporting the inner shell within the outer shell, and rigidly sustaining and bracing the shells, an interior framework, preferably of wood or other light and suitably elastic material, is employed. This framework comprises a horizontal rectangular frame member 14, an upper horizontal rectangular frame member 15 and a series of uprights 16 extending between and connecting said frame members entirely around the inner shell, the said uprights, however, being of less width or thickness than the bars composing the lower and upper frame members so as to leave just sufficient space to permit of the extraction of air from the vacuum space or chamber 17, as hereinafter described. The two shells are free from connection with the frame except at the top where said shells are rigidly secured by fastenings 19 to the bars of the

upper frame member 15 in such a manner as to be connected as a unit by said frame member, and also in such a way as to cause said frame member to form a closure to seat the upper portion of the vacuum space 17 in an airtight manner.

By the described construction of metallic shells and the resilient wooden frame, the shells are held rigidly and firmly together to form the vacuum chamber or space, and to prevent collapse thereof or undue denting of either shell if accidentally struck, the frame also connecting said shells in sealing relation so as to close the vacuum space in an effective manner. Of course it will be understood that where the shells are secured to the upper frame piece cement or other material may be employed to secure an airtight joint, thus avoiding any possibility of leakage of air into the vacuum space.

In practice, the front door and top lid or cover are made each of an outer shell 20 and an inner frame 21, these shells being exhausted of air and sealed to form an intervening vacuum space, and each vacuum space is preferably connected with the outer atmosphere by a check valve 22 which is normally closed against the admission of air to the vacuum space but is adapted to be opened through the action of a pump to allow air to be withdrawn from the vacuum space for the production of a vacuum at the outset and at other times when, through possibly slight leakage, it is necessary to withdraw admitted air to secure a higher degree of vacuum.

It will be evident from the foregoing description that the invention provides a refrigerator or other like receptacle which possesses the advantages of being simple of construction, inexpensive of production, and light in weight and strong, durable and rigid; and which will protect the interior chamber against sudden temperature changes. The invention may be embodied in refrigerators and all other receptacles designed to retain perishable or other matter which is affected by climatic variations, so that the contents may be preserved at an even temperature for a longer period. In order to provide for the discharge of the water from the melting of the ice, a discharge pipe 23 is employed, which extends to the exterior through the vacuum space, the points of perforation being suitably sealed against air leakage, and which is provided with a trap 24 of a character adapted to permit the water to escape while sealing the pipe against the admission of air.

I claim:—

A refrigerator comprising a frame consisting of a bottom frame member, an upper frame member and uprights connecting the members together, an outer receptacle inclosing said frame and having an open top the edge of which being secured to the outer edge of said upper member, an inner receptacle supported by and spaced from the outer receptacle by said frame and having an open top the edge of which is secured to the inner edge of the upper member, an ice pan supported by and completely closing the open top of the inner receptacle and a cover for the pan.

In testimony whereof I affix my signature in presence of two witnesses.

DANIEL E. SHONGO.

Witnesses:
AUGUST C. FRIEDRICH,
GEORGE B. HALWICK.