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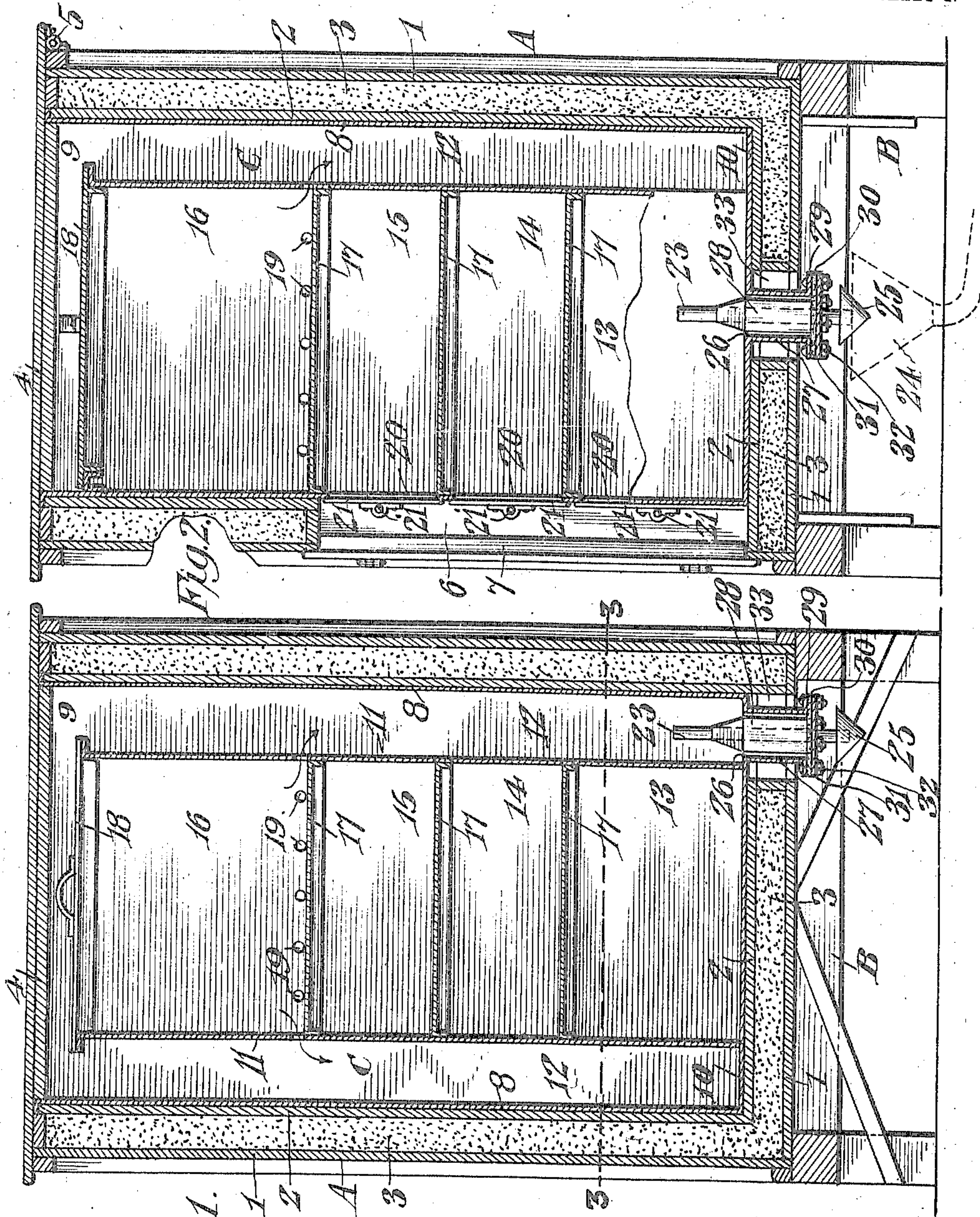
REFRIGERATOR.

APPLICATION FILED SEPT. 20, 1909.

950,763.

Patented Mar. 1, 1910.

3 SHEETS—SHEET 1.



Witnesses  
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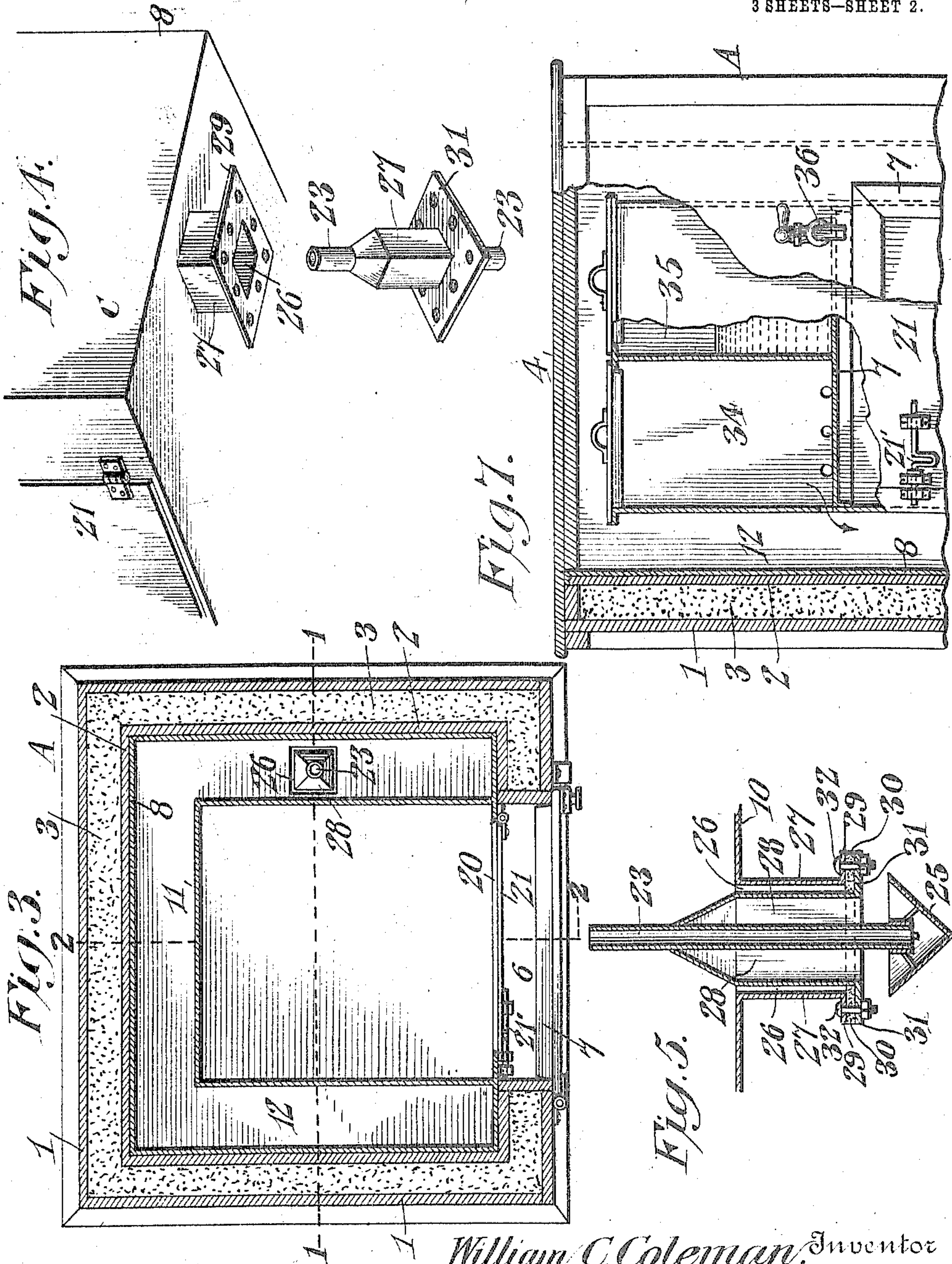
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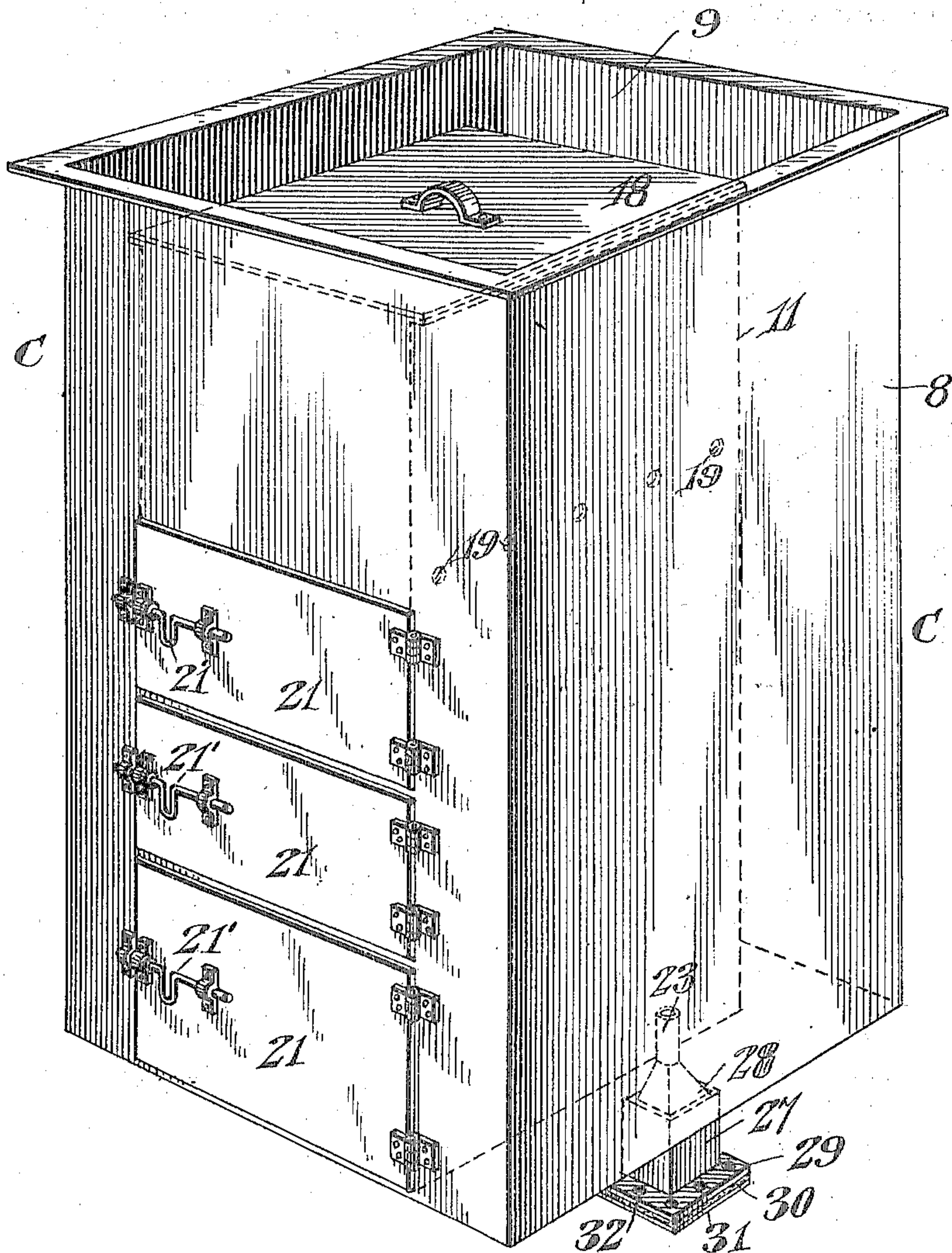
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*Fig. 6.*



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# UNITED STATES PATENT OFFICE.

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## REFRIGERATOR.

950,763.

Specification of Letters Patent.

Patented Mar. 1, 1910.

Application filed September 20, 1909. Serial No. 518,570.

*To all whom it may concern:*

Be it known that I, WILLIAM C. COLEMAN, 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 a refrigerator intended for domestic, hotel, restaurant, bar-room, and other uses, and is of that type in which the refrigerating is obtained by the use of ice.

The invention has for one of its objects to provide an extremely simple, efficient, practical and economical refrigerator, so designed that different degrees of temperature can be obtained for different articles to be preserved, and at the same time, requiring very little attention.

Another object of the invention is the provision of a refrigerator having a combined brine and cracked ice containing chamber which almost wholly surrounds the compartments in which the articles to be cooled are contained, and in the bottom of the chamber is an overflow device for maintaining a constant quantity of brine around the lowermost one of the superimposed cooling apartments, whereby a freezing temperature can be produced in such compartment, there being a packing compartment at the top for receiving such articles as fish, oysters and the like, that are packed in ice, and around the bottom of this compartment are drain openings through which the water resulting from the melting of the ice can trickle down along the walls of the other compartments to contribute in cooling the same.

Another object of the invention is to provide a removable overflow or drainage device for maintaining the cooling brine in the ice chamber of the refrigerator and which is removable for permitting the said chamber to be readily cleaned when required.

With these objects in view and others, as will appear as the description proceeds, the invention comprises the various novel features of construction and arrangement of parts which will be more fully described hereinafter and set forth with particularity in the claims appended hereto.

In the accompanying drawings, which illustrate one embodiment of the invention,

Figures 1 and 2 are vertical sections taken, respectively, on lines 1—1 and 2—2, Fig. 3. Fig. 3 is a horizontal section on line 3—3, Fig. 1. Fig. 4 is a fragmentary bottom perspective view of the internal metal structure of the refrigerator, showing the drainage and the combined plug and overflow device adapted to be fitted in the opening but removed therefrom. Fig. 5 is an enlarged sectional view of the combined plug and overflow device. Fig. 6 is a perspective view of the inner sheet metal structure of the refrigerator removed from its protecting box. Fig. 7 is a fragmentary sectional view of a modified form of the refrigerator.

Similar reference characters are employed to designate corresponding parts throughout the views.

Referring to the drawings, A designates the box of the refrigerator which is mounted on a base B of any suitable construction, and contains a removable sheet metal structure C, the latter being shown in Fig. 6 removed from the box. The box is constructed in any suitable manner to afford protection for the inner section C, and also to insulate the cool walls of the latter from atmospheric temperature. The box is constructed of inner and outer shells 1 and 2 of wood or other suitable material and separated from each other by a chamber that is filled with sawdust or other non-heat-conducting material 3. The box, which is open at its top for permitting the ice to be supplied thereto, is closed by a cover 4 adapted to swing open on hinges 5. The front of the box has an opening 6 for affording access to the cooling compartments for the articles to be preserved, and this opening is normally closed by a door 7 for preventing the outside air from coming into contact with the walls of the compartments.

The internal structure C of the refrigerator comprises, as clearly shown in Fig. 6, a casing 8 which is of such dimensions as to removably fit in the box A, and this casing is open at its top 9 and closed at its lower end by a bottom 10. Within the casing 8 is an internal casing 11, the front wall of which is formed by the front wall of the outer casing, and surrounding the three sides of the inner casing is a brine and cracked ice chamber 12 whereby the air in the inner casing 11 is kept cool. The cas-



ing 11 is divided into a plurality of superimposed compartments 13, 14, 15 and 16, by horizontal partitions 17. Any desired number of compartments may be employed and they may be subdivided into smaller chambers, if found necessary. The upper compartment 16 is used for the purpose of packing such articles as fish, oysters and the like, together with cracked ice. This compartment is open at its top for permitting the packing of the fish or oysters, and a lid 18 is provided for closing the compartment. In the sides of the compartment 16, adjacent its bottom, are drainage openings 19 through which the water from the melted ice can flow down the walls of the lower compartments to assist in cooling the same. The opening 6 extends from the bottom of the box to a point adjacent the bottom of the upper compartment, and the compartments 13, 14 and 15, each have a front opening 20 closed by a hinged door 21 which swings outwardly through the opening 6 of the box when the door 7 thereof is open, the doors 21 having any suitable locking devices 21' for keeping them closed. It will thus be seen that the compartments are entirely independent of each other so that they can be kept at different temperatures and certain classes of foods can be stored in one compartment, another class in another compartment, and so on, without danger of the more delicate foods being contaminated by food that is odorous.

The chamber 12 is water-tight so that a certain quantity of ice water or brine can be held therein, together with cracked ice, and at the bottom of the chamber 12 is a means for maintaining the constant quantity of the brine therein. For this purpose, a vertical overflow tube 23 is arranged in the chamber adjacent one side of the box and projects four or five inches upwardly into the chamber and extends downwardly through the bottom of the box where it discharges into a suitable receptacle or drain pipe 24. On the bottom of the overflow tube 23 is a trap 25 in the form of an inverted cone or cup which becomes filled with water and seals the lower end of the tube. The bottom of the casing 8 has an opening 26 large enough to permit of the insertion of the arm in order to clean out the chamber 12, and extending downwardly from the bottom 10 is a drain spout or neck 27 which is closed by a thimble or plug 28 that forms a support for the overflow tube 23. The neck 28 has a peripheral flange 29 at its bottom against which bears a gasket or packing ring 30 that is clamped between the flange 29 and flange 31 on the thimble or plug 28, there being bolts 32 or equivalent means passing through the ring and flanges for tightly holding the parts together to prevent leakage. The thimble 29 fits loosely in the neck of the

spout 27 so that danger of sticking is overcome. The spout or neck extends downwardly through an opening 33 in the bottom of the box, which opening is large enough to permit the spout to freely pass there-through in removing or replacing the inner metallic part of the refrigerator.

In Fig. 7, a modified form of the refrigerator is shown wherein the upper compartment is divided into two chambers 34 and 35. The chamber 34 is used in the same manner as the chamber 16 in the other form of the invention, while the chamber 35 is used for holding drinking water, there being a faucet 36 which extends outwardly through the front wall of the box above the door thereof, as clearly shown in Fig. 7.

In the practical operation of the refrigerator, the chamber 12 is filled with cracked ice, which preferably because of economy, is the salted ice left from ice cream freezers, which, in hotels, restaurants or the like, is usually thrown away and wasted. Since the cooling or refrigerating compartments are entirely closed, there is no danger of the food being contaminated if old waste ice of this character is used, and the salt used with the ice has a beneficial result in producing an extremely low temperature, especially at the bottom compartment, where four or five inches of brine is maintained. It has been found, in practice, that with the use of salted ice, the temperature in the lower compartment reaches several degrees below freezing, so that those articles that require extreme cold can be stored therein. Since the freezing brine does not reach the other compartments, they will not be as cold as the lower one, and other articles that do not require as low a temperature can be stored in them. In emptying the ice from the freezers into the chamber 12, the surplus water poured in with the ice will overflow through the tube 23, so that the supply of brine will be automatically maintained at a constant volume. The quantity of ice in the chamber 12 can always be ascertained by opening the cover 18 and looking into the chamber, since such a relatively small quantity of brine is obtained that the mass of broken ice does not float, but falls bodily as it melts away from the bottom. By operating a freezer in this manner, hotel, restaurant and other proprietors, can run the refrigerator at very little expense, since simply ice that is ordinarily wasted because of its containing salt, is employed.

From the foregoing description, taken in connection with the accompanying drawings, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention appertains, and while I have described the principle of operation of the invention, together with the apparatus which



I now consider to be the best embodiment thereof, I desire to have it understood that the apparatus shown is merely illustrative, and that such changes may be made when desired as are within the scope of the claims appended hereto.

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

1. In a refrigerator, the combination of a pair of casings arranged one within the other to provide an ice-receiving chamber around the inner casing, the bottom wall of said chamber having an opening, a tubular spout extending from the said bottom at the opening, a plug of less cross-sectional area than the spout and disposed therein, a liquid-tight joint between the lower ends of the plug and spout, and a drain pipe extending vertically through the plug and projecting above the upper end of the latter to maintain a constant level of cooling water in the bottom of the chamber.

2. In a refrigerator, the combination of a provision receptacle, a chamber outside the receptacle for receiving ice, the bottom wall of said chamber having an opening, a tubular spout depending from the opening and having a surrounding flange at its bottom, a plug disposed in the opening and having a flange at its bottom, a packing clamped between the said flanges, a drain tube extending vertically through the plug and projecting out of both ends thereof, the upper end of the tube being open and disposed above the bottom of the chamber to maintain a constant level of cooling water in the latter, and a cap secured to the lower end of the tube for holding water to seal the latter.

3. In a refrigerator, the combination of an ice-receiving receptacle having an opening in its bottom, a protecting box having an opening in its bottom, a tubular spout passing through the opening of the box and depending from the bottom of the receptacle at the opening thereof, a peripheral flange on the bottom of the spout, a plug of less diameter than the spout to loosely fit

therein, a flange on the plug, a packing between the flanges, means for clamping the flanges against the packing and for removably holding the plug in the spout, a tube extending longitudinally of the plug and of greater length than the same to project beyond both ends, the upper end of the tube being disposed above the bottom of the receptacle to maintain a constant level of water therein, and a cap disposed over the lower end of the tube and carried thereby to form a seal, the opening in the box being of such size as to permit the spout to pass freely through the opening upon removal or insertion of the receptacle from or into the box.

4. A refrigerator comprising a protecting box having an opening in its bottom, a sheet metal structure within the box formed with a brine and cracked ice chamber, the bottom wall of said chamber having an opening, a drain spout extending from the opening and passing through the opening in the bottom of the box, an overflow tube extending into the chamber through the spout, and a plug forming a support for the tube and a closure for the opening.

5. The combination of a protecting box, a sheet metal structure in the box formed with a chamber adapted to receive cracked ice, a spout extending downwardly from the bottom of the structure and passing through the bottom of the box, a peripheral flange on the spout, a plug or thimble disposed within the spout and having a peripheral flange, a packing between the flanges, means for clamping the packing and flanges together, an overflow tube passing longitudinally through the plug or thimble and terminating above the bottom of the structure to maintain a constant volume of ice water therein, and a cup on the bottom of the tube for holding water to seal the latter.

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

WILLIAM C. COLEMAN

Witnesses:

JOHN H. SIGGERS,  
EDITH L. BROWN.