April 12, 1932. H. E. WILLSIE 1,854,089

REFRIGERATING BOX

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Fig. 1

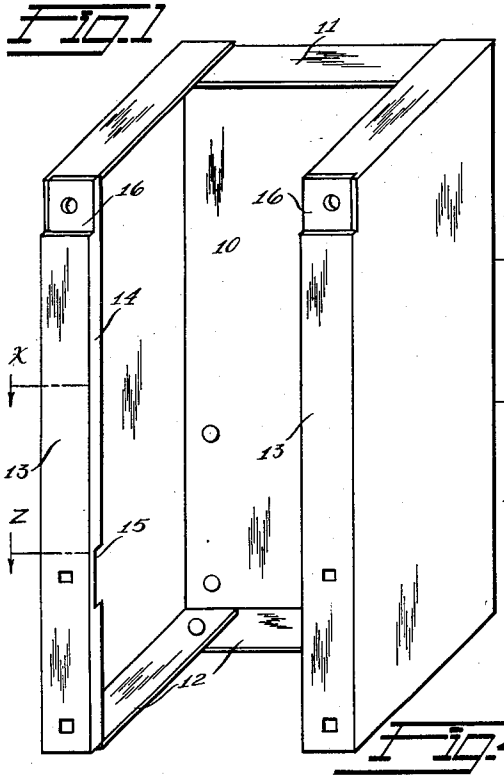


Fig. 4

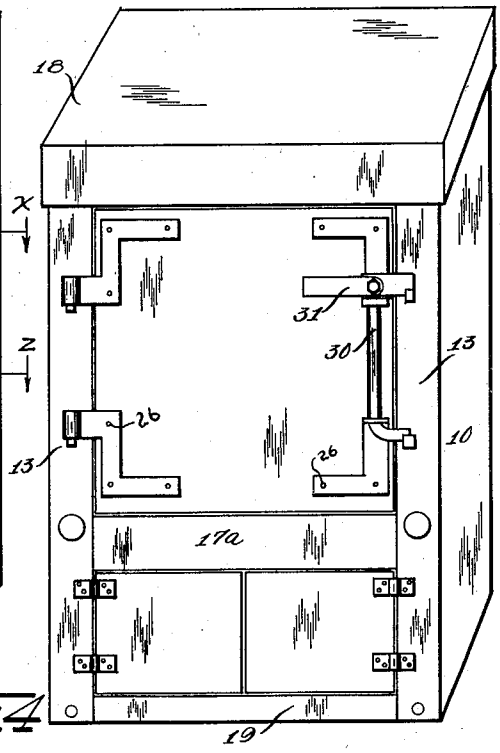


Fig. 2

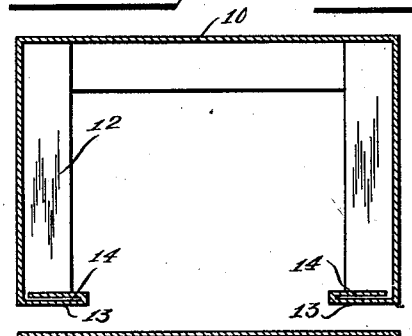


Fig. 5

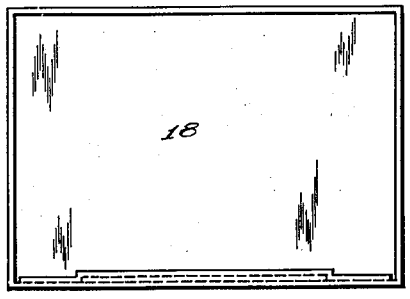


Fig. 6

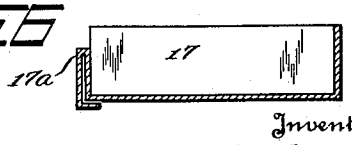
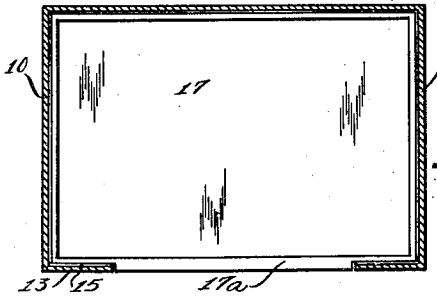


Fig. 3



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REFRIGERATING BOX

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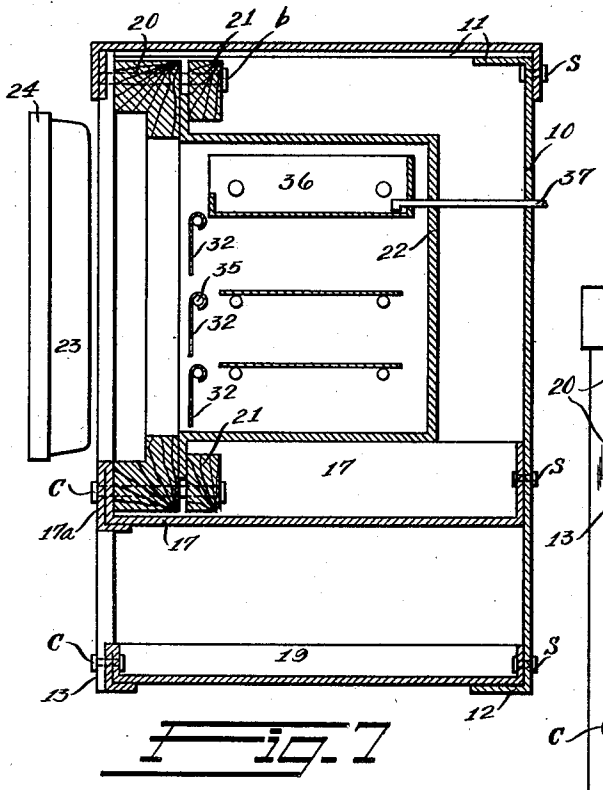

Fig. 7

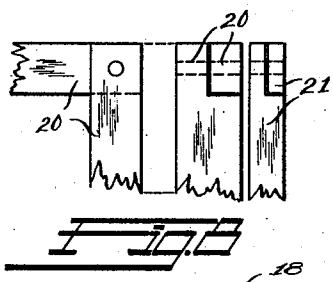

Fig. 8

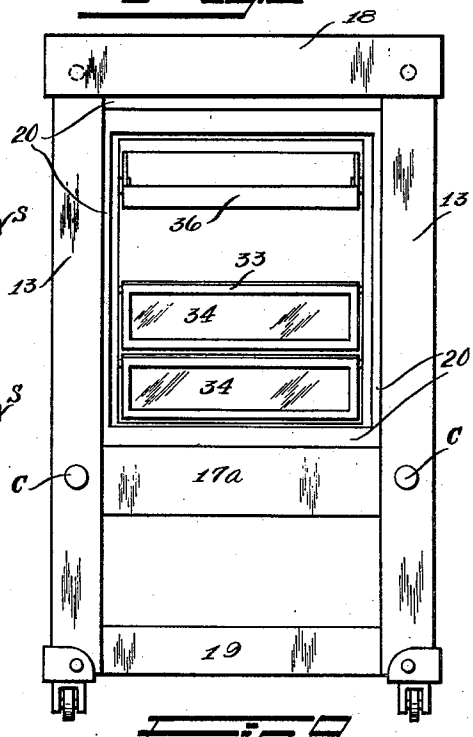

Fig. 9

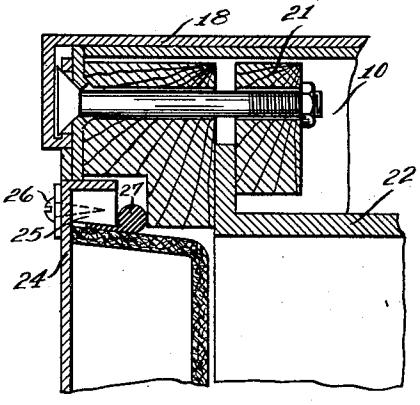

Fig. 10

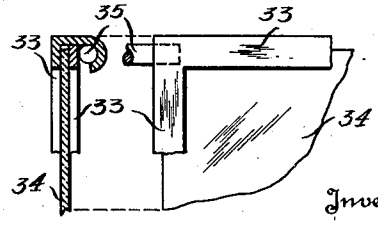

Fig. 11

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Patented Apr. 12, 1932 1,854,089

UNITED STATES PATENT OFFICE

HENRY ELMER WILLSIE, OF NEW YORK, N. Y.

REFRIGERATING BOX

Application filed September 2, 1927. Serial No. 217,143.

My invention relates to heat insulated boxes or safes in which food may be stored in temperatures lower than that of the surrounding atmosphere, and which may be cooled by ice or machines.

The objects of my invention are to provide a construction by which such a box can be quickly and cheaply fabricated and assembled; to provide a simple and cheap case; to provide means for securing the lining and the door frame to the case; to provide a door construction having a fiber lining with angles for bracing the door corners and for securing the lining to the door case; to provide latches holding the door near top and bottom; and to provide transparent doors in front of the food chamber to retard the escape of cold air.

I attain these objects by the means shown in the accompanying drawings, in which Fig. 1 is a perspective view of the sides and back of the case; Fig. 2, a cross section through the case shown in Figure 1 on the line *x*—*x*; Fig. 3, a similar cross section on the line *z*—*z* of Figure 1 with the middle pan in place; Fig. 4, a perspective view of the assembled box; Fig. 5, an inside plan view of the top cover; Fig. 6, a vertical section through the middle pan; Fig. 7, a vertical section through the assembled box; Fig. 8, plan and edge views of a corner of the wood door frame; Fig. 9, a vertical front view of the box without the door; Fig. 10, a vertical section through a corner of the box and a part of the door; and Fig. 11, edge and plan views showing the construction of the transparent doors. Similar characters refer to similar parts.

To construct the box, the case 10 is made by turning the top flanges 11, the bottom flanges 12, and the front flanges 13 on a metal sheet and then folding on the back vertical edges. A part 14 of the front flange is folded to give a double thickness of metal on the front flange, except where it is cut away at 15 to receive the middle pan 17 and at 16 to receive the top cover 18. At 16 the front part of the flange is cut away, and at 15 the back part of the flange is cut away. The middle pan 17 is made by bending flanges on the four edges of a metal sheet so as to fit snugly within the case 10. Its front flange is doubled on itself to form a facing 17*a*. The bottom pan 19 is made in a like manner. The front flange of the top 18 is pressed closely on the infold to receive the flanges 13, and on the remainder folded on itself loosely to leave a space the thickness of the metal. This construction gives a flush front except at the top and bottom, and flush flanges to receive the wood door frame 20. This frame consists of four wood strips 20, having the section shown in Fig. 10, and with lap corners as shown in Fig. 8. A lining frame consists of four wood strips 21 of the section shown in Fig. 10 and with lap corners as in Fig. 8.

To assemble the box the bottom pan 19 and the middle pan 17 are placed and secured. Then the door frame 20, the lining 22 and the lining frame 21 are placed and secured by bolts. After the insulation is inserted between the lining and the case, the top is placed and bolted. Stove bolts are used at S; carriage bolts at C, and special bolts *b* with heads to engage holes in the front flange of the top.

The construction of the door is shown in Fig. 10. A fibre door lining 23 is held to the metal door case 24 by the wood strips 25 and the screws 26. A gasket 27 is held between the strips 25 and the door lining 23. The screws 26 also secure the angles of the hinges and the angles of the latches to the door case and strips 25, thus increasing the rigidity of the door. The latch, securing the door near the top and near the bottom, comprises a bar 30, as shown in Figure 4, formed at the ends to engage hooks in the case, sliding within holes in the raised ends of the angles and raised and lowered by a cam device in its handle 31.

Transparent doors 32, hung in front of the food chambers to retard the outflow of cold air and yet to permit a view of the food contents, consist of a metal frame 33 holding a sheet of glass 34 or a sheet of celluloid. These doors swing on the pins 35. A tray 36, secured to the lining 22, is adapted to hold ice. Water from the melting ice drains through pipe 37.

If it is desired to finish the case with porcelain instead of paint, it would be advisable

to make separate pans of the sides and back and assemble them together at the back vertical edges.

What I claim is:

1. A refrigerating box comprising a case consisting of a unitary sheet of metal bent to form the back and sides of the case, the extremities of the sides being bent toward each other in substantial parallelism with said back to form portions of the front of the case and being rebent backwardly to stiffen said extremities, a metal top provided with flanges surrounding its edges, the flanges of said top being telescoped on said case and a lining supported solely from said stiffened extremities in spaced relation to said sides and back.

2. A refrigerating box comprising a case, the sides and back of which are formed of sheet metal, the edges of the sheet metal sides being bent toward each other to form portions of the front of the case and defining the sides of a door opening between them, and a lining constituting a unitary chamber secured solely to said edges with its walls in completely spaced relation to the walls of said case.

3. A refrigerating box comprising a case the sides and back of which are formed of sheet metal, the edges of the sheet metal sides being bent toward each other to form portions of the front of the case and defining the sides of a door opening between them, strips of insulating material secured to the inner faces of said portions and a lining constituting a unitary chamber secured to said insulating material in such manner that said chamber is supported solely from said portion in spaced relation to the walls of said case.

4. The combination defined in claim 3 in which the sheet metal edges constituting said front portions are rebent so that said portions are composed of sheet metal of double thickness providing stiffened supports for said insulating material and lining.

5. A refrigerating box comprising a case the sides and back of which are formed of sheet metal, the edges of the sheet metal sides being bent toward each other and then rebent toward the sides of said case to form portions of the front of the case of a double thickness of sheet metal, a top having flanged edges, a middle pan having flanged edges, said top and middle pan being secured to said casing with their flanges disposed in recesses in said front portions formed by cutting away one thickness of sheet metal to receive said flange and a lining constituting a chamber secured to said front portions in spaced relation to the walls of said case, said cover and said middle pan.

6. A refrigerating box comprising a case having sheet metal sides and back and a sheet metal front having a door opening formed therein, a door frame of insulating material disposed against the inner face of said front portion and secured thereto, a lining constituting a unitary chamber provided with flanges extending laterally from the edges thereof, said flanges being secured against the inner face of said door frame, and means to clamp said flanges against said door frame whereby said lining is held in spaced relation to the side walls and back of said chamber and insulated from said front portions.

7. The combination defined in claim 6 in which said insulating material projects partly into the door opening and is rabbeted to receive a portion of the door.

8. A refrigerating box comprising a case formed of sheet metal, the front of said case being provided with a door opening, a door frame made of insulating material secured to the inner surface of the front portions of the sheet metal case and projecting into said door opening, said insulating material being rabbeted to receive a portion of a door, a door hinged to said case adjacent said frame, said door having a sheet metal face and a portion secured thereto that extends in the rabbet in said frame and another portion that extends into the opening in said door frame, and a unitary lining constituting a chamber having an open side secured to the inner surface of said door frame in such manner that its walls are spaced from said case and so that its open side registers substantially with the opening in said door frame.

Signed at Cleveland, in the county of Cuyahoga and State of Ohio, this 31st day of August, A. D. 1927.

HENRY ELMER WILLSIE.