Nov. 27, 1928. 1,693,376

H. C. FOLGER

REFRIGERATING CABINET

Filed July 26, 1926 3 Sheets-Sheet 1

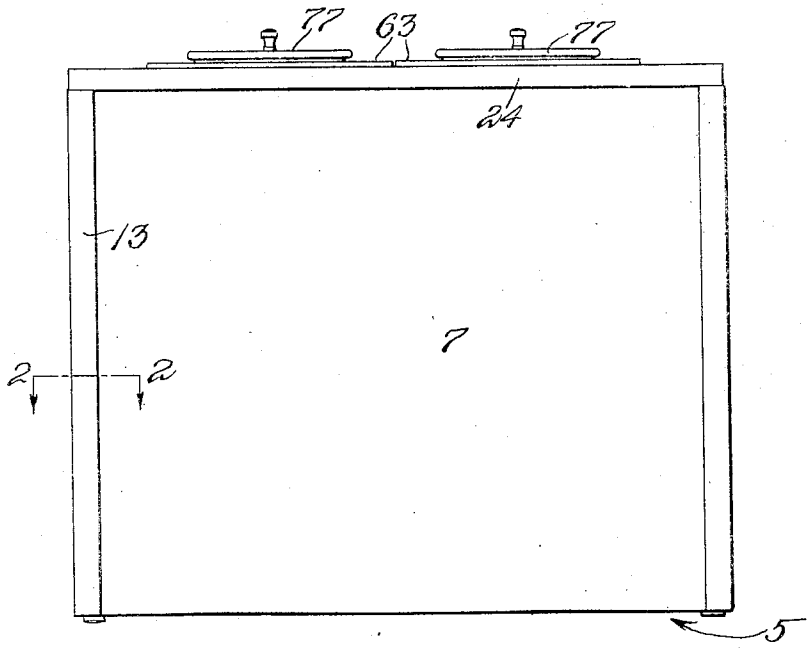


Fig. 1.

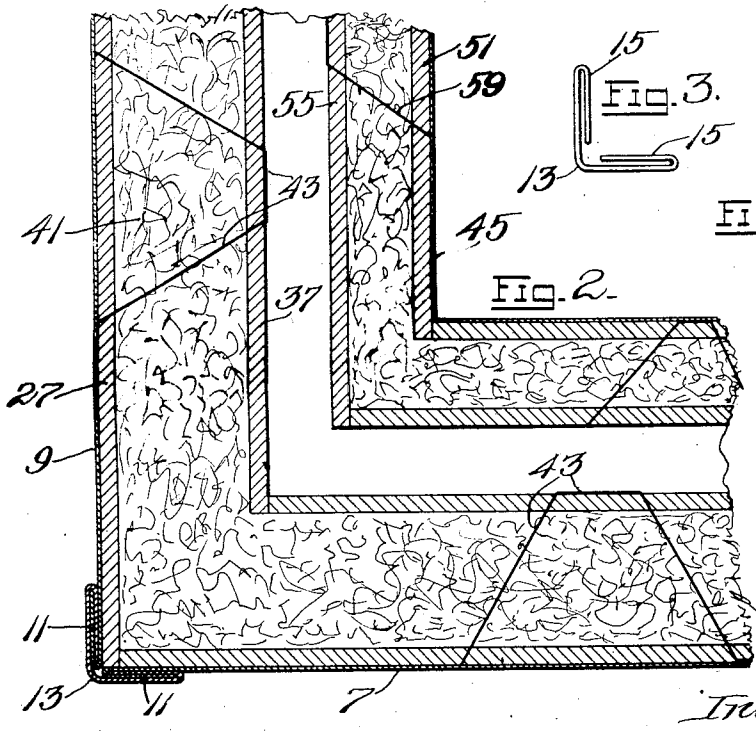


Fig. 2.

Fig. 3.

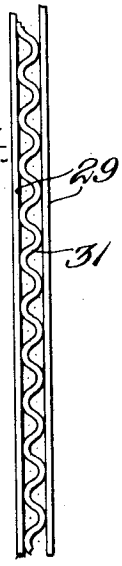


Fig. 4.

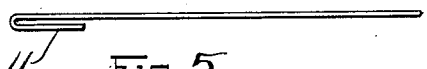


Fig. 5.

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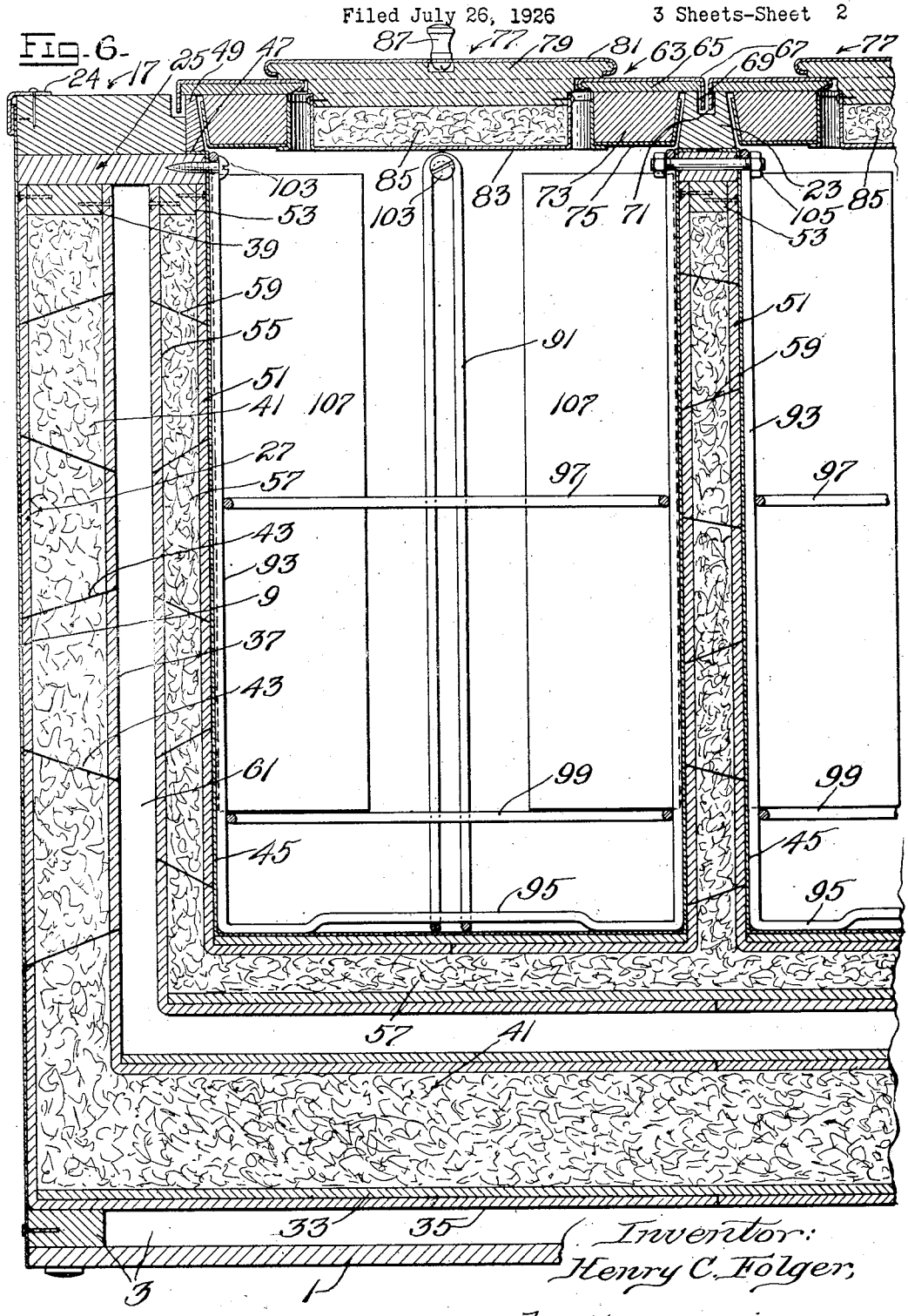
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Fig. 6.



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REFRIGERATING CABINET

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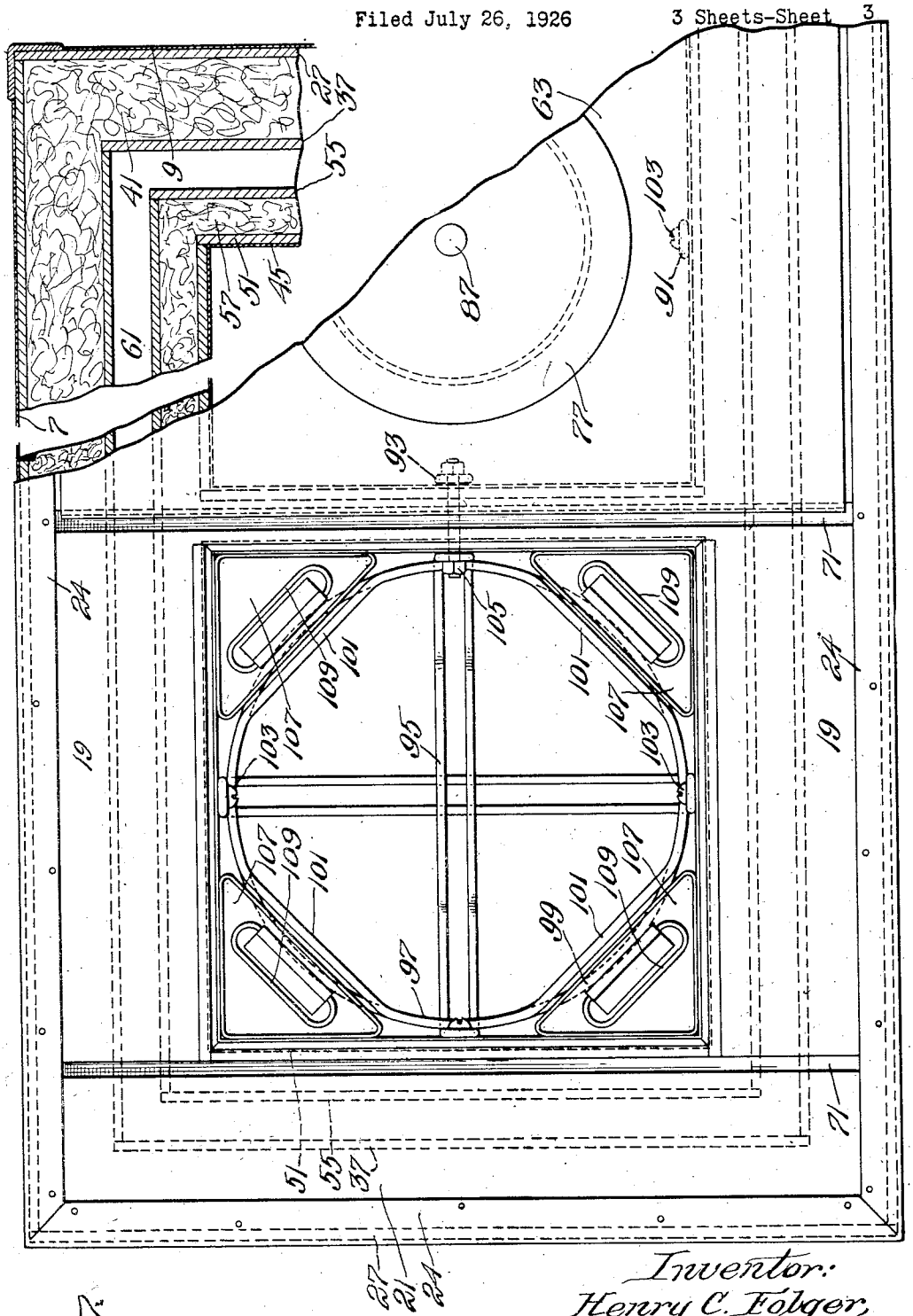


Fig. 2.

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UNITED STATES PATENT OFFICE.

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REFRIGERATING CABINET.

Application filed July 26, 1926. Serial No. 124,796.

The invention to be hereinafter described relates to refrigerating cabinets, and more particularly to cabinets adapted for refrigerating ice cream.

To refrigerate the ice cream in the cabinet, cartridges are employed made of metal and containing a liquid which freezes at a temperature substantially below 32° F. This temperature may desirably be as low as 3° above zero. The cartridges after being nearly filled with such a liquid are closed and are placed in a room having a temperature sufficiently low to freeze the liquid, and then they are ready to be transported to and be placed in the cabinets. The liquid in the cartridges is refrozen from time to time as required.

By the present invention a simple, efficient cabinet is provided which will desirably cooperate with the cartridges in maintaining the ice cream at the proper temperature until the ice cream is entirely dispensed from the ice cream containing cans and filled cans are to be substituted for the empty ones in the cabinet.

The character of the invention may be best understood by reference to the following description of one good form thereof shown in the accompanying drawings, wherein:

Fig. 1 is a side elevation of a cabinet embodying the invention;

Fig. 2 on an enlarged scale is a horizontal section taken on line 2—2 of Fig. 1;

Fig. 3 is a detail of one of the corner unions connecting the side plates of the outer casing;

Fig. 4 on an enlarged scale is a detail of the corrugated paper of which the nested boxes are made;

Fig. 5 is a detail showing the marginal hook of one of the plates of the outer casing;

Fig. 6 on an enlarged scale is a vertical longitudinal section through a portion of the cabinet; and

Fig. 7 is a plan of a portion of the cabinet, the cover being removed from one of the refrigerating chambers, and a portion of the cabinet being shown in section.

Referring to the drawings, the refrigerating cabinet shown therein as one good form of the invention, comprises a base 1 (Fig. 6) of wood or other suitable material secured to a frame 3. This base, in the present instance, is of oblong shape and sufficiently large for a cabinet having two refrigerating chambers, although it will be understood that the invention is applicable to cabinets having any desired number of refrigerating chambers.

Rising from the base 1 and secured to the frame 3 is an outer casing 5 of sheet metal, and comprises side plates 7 (Fig. 2) and end plates 9 having marginal hooks 11 at the vertical edges thereof, said marginal hooks being secured together by corner unions 13 (Fig. 3), each having a pair of hooks 15. To connect the unions with the plates, the unions are presented to the upper edges of the plates with the hooks 15 in registration with the side plate hooks 11, and then the unions are slid along the plates until the upper and lower ends of the unions are respectively even with the upper and lower edges of the side plates. The side plate marginal hooks 11 and the unions 13 when assembled constitute stiff corner posts for the outer casing.

The upper edges of the side plates and the corner posts are secured to a top frame 17 (Figs. 6 and 7) comprising side members 19, end member 21, and a transverse member 23 secured to the side members. Extending along and secured to the edges of the top frame and side plates are angle bars 24. An under frame 25 is located beneath and secured to the top frame 17.

The outer casing 5 has a heat insulation lining comprising a box 27 formed of corrugated paper (Fig. 4) consisting of a pair of flat paper layers 29 and an intermediate corrugated layer 31 secured to the flat layers. The bottom of the box 27 has two layers 33 and 35 (Fig. 6) formed by wing extensions of two sides of the box folded over and meeting, and wing extensions of the other two sides of the box folded over and meeting, the lines of juncture of the two layers extending perpendicularly to each other.

Within and spaced from the box 27 is a box 37 of the same material and constructed in a manner similar to the box 27. Between the upper edges of the two boxes is a frame 39 secured to the under frame 25 and secured to the box 37. The two boxes are in nested relation and provide a space between them which may be filled with kapok 41 or other suitable material for resisting conduction of heat from the outside of the cabinet to the interior thereof.

It is desirable that the kapok shall be maintained in open fluffy condition, in order that

more or less air may occupy the space between the two boxes and contribute to the effectiveness of the lining as a heat insulation wall. To accomplish this, through and through stitching 43 is inserted at intervals through the sides of the boxes and the kapok between them, the tacks of said stitching desirably serving to prevent the kapok from settling and compacting in the walls.

Inner casings 45 are provided, each being of sheet metal and having at its upper end outturned flanges 47 overlying marginal portions of the lower frame 25 referred to. Resting on the flanges 47 is a collar 49 secured to the upper frame 17, the construction being such that the inner casing 45 is carried by and depends from the frame at the top of the cabinet, which in turn is supported by the corner posts of the outer casing.

A heat insulation sheath is provided for the inner casings and on each is a box 51 formed of corrugated paper in the manner described for the box 27 and of a size to fit the exterior surface of the inner casing. The box 51 is secured to and depends from a frame 53 secured to the lower frame 25. Spaced from the boxes 51 and in nested relation with respect thereto, is a box 55 of corrugated paper and constructed as described in respect to the box 27, said box 55 having its upper edge secured to the frame 53. The spaces between the boxes 51 and 55 and between the adjacent boxes 51 may be filled with kapok 57 or other suitable heat insulation material, the kapok being prevented from settling in the spaces by through and through stitching 59.

The lining for the outer casing and the sheath for the inner casings have an air containing space 61 between them. The corrugated paper of which the boxes are formed is a cellular structure containing air, and desirably cooperates with the kapok containing walls and the air containing wall in resisting conduction of heat from the air outside of the cabinet into the cabinet.

The interiors of the inner casings 45 constitute refrigerating chambers adapted to receive ice cream or other materials to be refrigerated. Each of these chambers is normally closed by a cover 63 (Figs. 6 and 7) comprising a back 65 covered by a sheet metal top 67 having down-turned flanges 69 projecting into grooves 71. Secured to the back 65 is a lining 73 of wood or other suitable material covered by sheet metal 75. The cover 63 has a circular hole therein sufficiently large to permit ice cream or other materials to be introduced into or removed from the refrigerating chamber. This opening is normally closed by a cap 77 having a back 79 covered by sheet steel 81. Projecting down from the back is a metal cup 83 which may contain kapok 85 or other suitable heat insulation material. Secured to the cap is a handle 87 which may be grasped in removing the cap from the cover or applying the same thereto.

It is desirable that the inner casings 45 shall be relieved of the weight of the ice cream cans and refrigerating cartridges in the refrigerating chambers. To accomplish this, each is provided with a rack which may be formed of wire and have U-shaped loops 91 and 93 extending transversely to each other, the bottom 95 of the loop 93 being offset to allow space for the bottom of the loop 91 beneath it.

An upper ring 97 and a lower ring 99 are secured to the loops 91 and 93, the upper ring 97 having straight portions 101 (Fig. 7). The upper ends of the loops 91 and 93 hang on screws 103 and a bolt 105 carried by the under frame 25. Thus the racks are carried by the frame independently of the inner casing.

The refrigerating cartridges are similar in construction, and therefore a description of one will suffice for all. This cartridge 107 is formed of sheet metal and preferably is triangular in cross section, and is provided at its upper end with a handle 109. The cartridge is filled with a liquid which freezes at a temperature substantially lower than 32° F. The cartridges are of a size suitable to enable them to set in the corner spaces between the straight portions 101 of the ring 97 and the side walls of the inner casing, and the lower ends of the cartridges are adapted to rest upon and receive support from the lower ring 99 of the rack. The refrigerating chamber is adapted to receive four of such cartridges, as shown in Fig. 7.

Since the cartridges are of triangular prism form and fit the angles of the refrigerating chamber, they present to the ice cream can and the spaces enclosed by them, sides which in the aggregate approximate concentricity with the vertical axis of the chamber.

Ice cream is usually transported in five gallon cans, and the space in the refrigerating chamber in from the cartridges may be of a size conveniently to accommodate one of such cans. This can may be introduced into the chamber and rest upon the bottom of the rack. When it is desired to dispense ice cream from the can in the chamber, the cover cap 77 may be removed, and when it is desired to take cartridges out of or put cartridges into the chamber, the cover 63 may be removed.

An important feature of the invention is the nested arrangement of the boxes and the supporting of them by the frame at the top of the cabinet, the construction being such that the boxes are supported independently of one another and they cannot sink down and compress the light fluffy kapok fibre between the bottoms of the boxes. The corrugated paper boxes are cheap and in com-

bination with the kapok provide walls which are very effective in resisting conduction of heat from the outside air to the refrigerating chambers.

It will be understood that the invention is not limited to the specific embodiment shown, and that various deviations may be made therefrom without departing from the spirit and scope of the appended claims.

What is claimed is:

1. A refrigerating cabinet comprising, in combination, outer and inner casings, a heat insulation lining for the outer casing comprising nested, spaced corrugated paper boxes and kapok in the space between said boxes; and a heat insulation sheath for the inner casing comprising nested, spaced corrugated paper boxes and kapok in the space between said boxes; said lining and sheath being in nested relation and having a substantial air space between them.

2. A refrigerating cabinet comprising, in combination, outer and inner spaced casings having respectively a lining and a sheath, each comprising spaced nested paper boxes and fibrous heat insulation material in the space between the boxes, said lining and sheath having an air space between them, and the inner casing being adapted to receive materials for refrigeration.

3. A refrigerating cabinet comprising outer and inner casings, nested boxes between them in spaced relation providing nested walls including an air containing wall and kapok containing walls at opposite sides of the air containing wall, and tacks distributed through the kapok containing walls to prevent the kapok from compacting therein.

4. A refrigerating cabinet comprising, in combination, an outer casing, a frame at the top of said casing; a heat insulation lining for said casing comprising nested, spaced corrugated paper boxes depending from and carried by said frame, and fibrous material between said boxes; an inner casing within the outer casing; and a heat insulation sheath for the inner casing comprising nested, spaced corrugated paper boxes depending from and carried by said frame, and fibrous material between said boxes; said lining and sheath being in nested relation and having a substantial air space between them.

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