

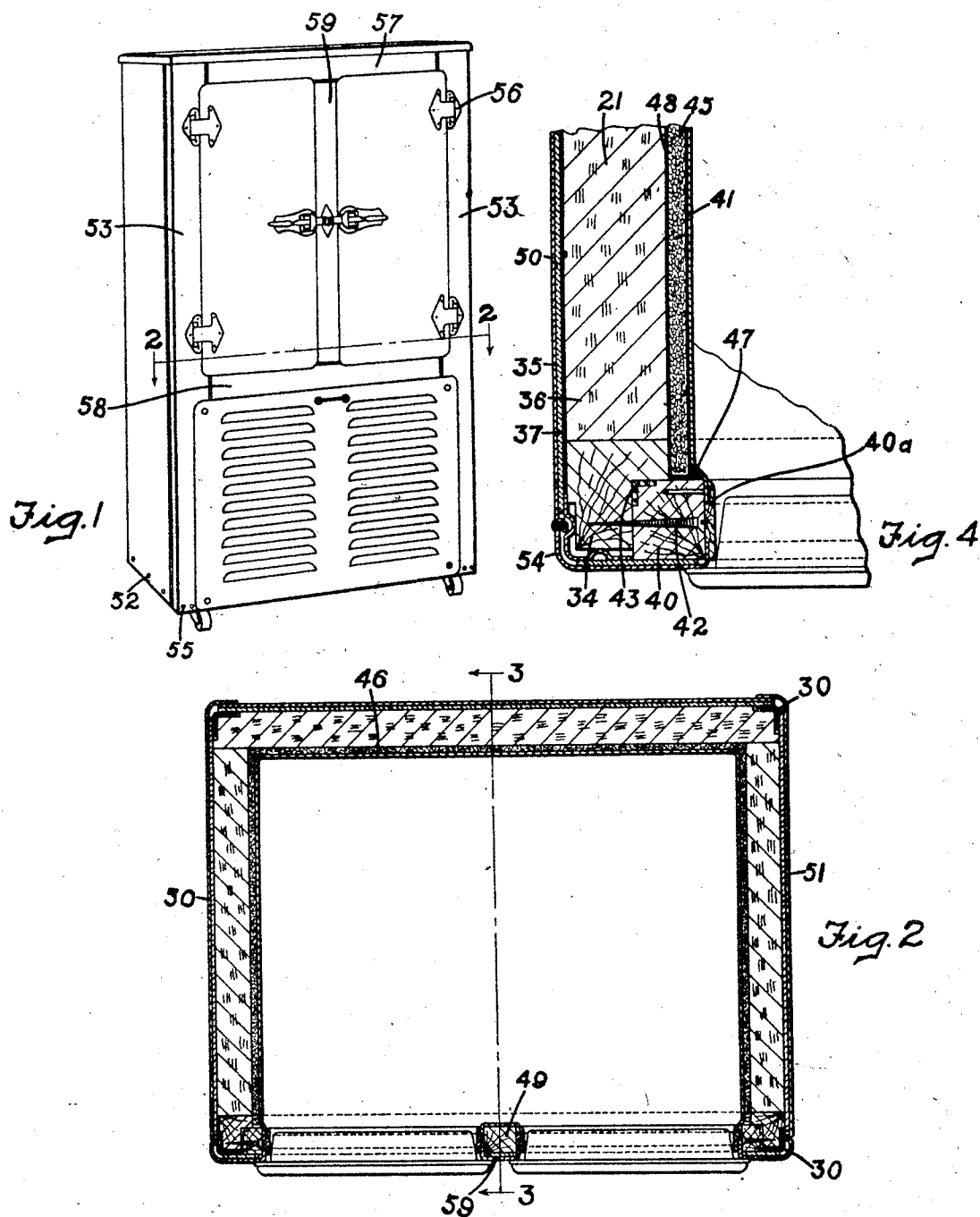
Feb. 23, 1932.

W. C. HOLBROOK
REFRIGERATING APPARATUS

1,846,554

Filed April 30, 1928

3 Sheets-Sheet 1



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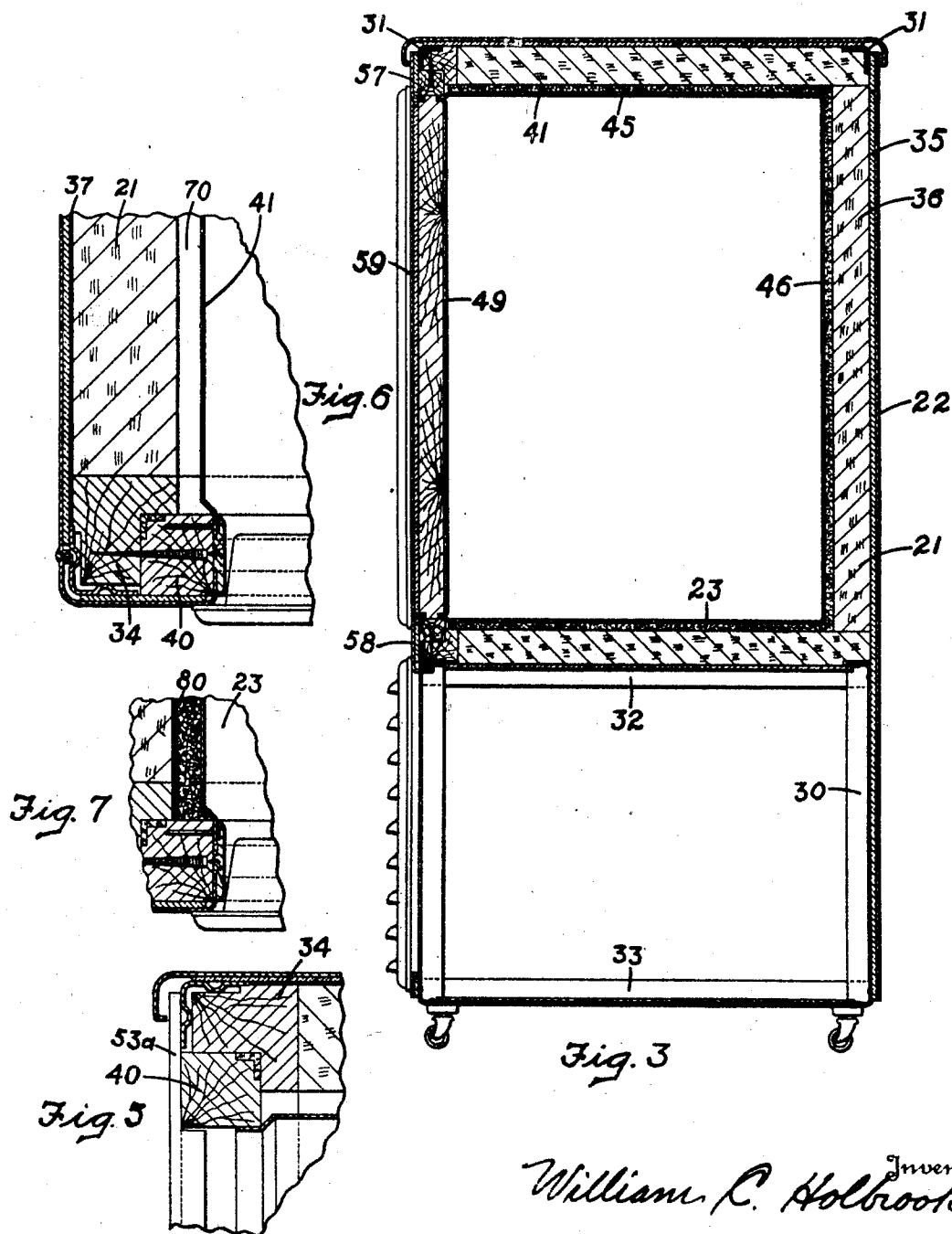
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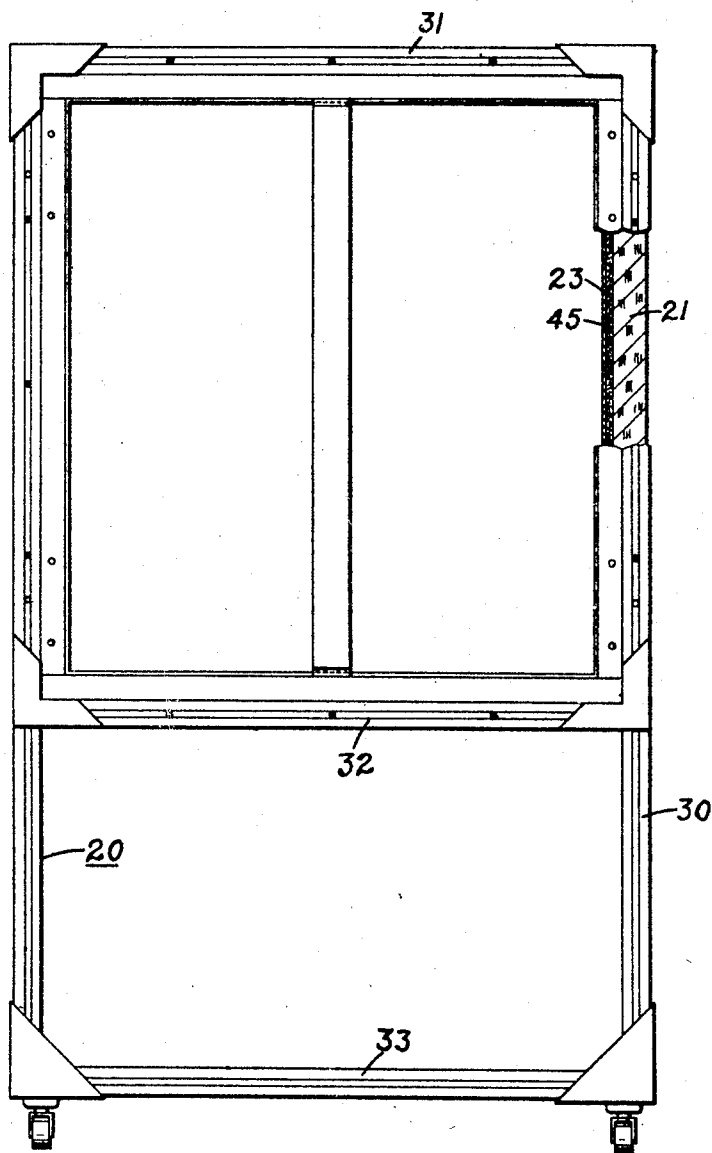


Fig. 8

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UNITED STATES PATENT OFFICE

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REFRIGERATING APPARATUS

Application filed April 30, 1928. Serial No. 273,865.

This invention relates to refrigerating apparatus and more particularly to a cabinet for said apparatus.

5 An object of this invention is to provide a cabinet for refrigerating apparatus in which the lining may be removed without disturbing the main portion of the cabinet.

10 Another object of this invention is to provide a cabinet with a removable lining, said lining carrying a portion, only, of the insulation.

15 Another object of this invention is to provide a lining unit adapted to be inserted or removed as a unitary structure in the main portion of the refrigerator cabinet, substantially without dismantling said main portion.

20 Another object of this invention is to provide a cabinet construction in which the scraps of the main insulation operations may be utilized in the cabinet.

25 Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawings, wherein a preferred form of the present invention is clearly shown.

In the drawings:

30 Fig. 1 is a perspective view of a cabinet embodying features of my invention;

Fig. 2 is a cross-sectional view taken along the line 2—2 of Fig. 1;

Fig. 3 is a vertical cross-sectional view taken along the line 3—3 of Fig. 2;

Fig. 4 is an enlarged portion of Fig. 2;

35 Fig. 5 is an enlarged vertical cross-sectional view of a portion of the cabinet with the door opening trim removed;

Fig. 6 is a detailed cross-sectional view of a modification;

40 Fig. 7 is a detailed cross-sectional view of a further modification; and

45 Fig. 8 is an elevation of a cabinet with the outer casing removed to show more clearly features of construction. The removal of the outer casing is not necessary in the physical embodiment, but it has been assumed in this illustration in order to show certain features.

50 A refrigerator cabinet embodying features of my invention may have several sides such as the vertical and horizontal sides of the or-

dinary refrigerator cabinet. A unitary lining structure, wherein refrigerated air circulates, may be made independently of the remainder of the cabinet, and this is adapted to be inserted in, or removed from, the main portion of the cabinet. This is of particular advantage, since it is possible to replace a lining which may have become damaged either during the process of manufacture or after the cabinet has been in use by the purchaser. By my invention, it is possible to remove the damaged lining without disturbing any but a few minor parts of the main portion of the cabinet and a new lining unit may then be substituted for the damaged lining.

As an embodiment of my invention, the cabinet may comprise a frame 20, insulation 21, outer casing 22 and a lining structure 23.

The frame 20 may be of any design. As herein shown it may comprise uprights 30 preferably made of angle iron. These uprights may occur at the upright edges of the cabinet and may be joined by horizontal angle iron pieces 31 at the top, horizontal pieces 32 at the bottom of the refrigerating cabinet proper, and horizontal pieces 33 at the bottom of the machine compartment, if such a compartment is made part of the cabinet. These horizontal pieces may be at the horizontal edges of the cabinet. At the front of the metal frame structure, a wooden frame may be attached to the metal frame, and this wooden frame may be part of the door jamb structure. Wooden pieces 34 may be placed within the angles forming the door jamb structure. The frame as herein described is by way of example only, since it may be varied in many ways, for instance, by making the frame entirely of wood.

55 I may attach either all or a part of the insulation to the frame structure. A method of attaching the insulation may be by placing sheets of deadening material, such as wall-board 35 outside of the angle irons of the frame and then cementing large pieces of corkboard 36 to the wallboard 35 by the use of any suitable cement, such as a bituminous cement 37. The wallboard 35 and the corkboard may be so cemented that the flanges of the angle irons may be held be-

tween the pieces of wallboard and the pieces of corkboard to secure these pieces in place. By properly overlapping the ends of the pieces of corkboard, as shown in the drawings, all of the sides may be secured to the frame members in this manner. The outer casing 22 may then be applied outside of the wallboard 35 in any approved manner. In this particular embodiment the outer casing 22 may be made substantially as described in the copending application of Henry P. Braeutigam and William C. Holbrook, Serial No. 257,989, filed February 29, 1928.

A lining unit may be made insertable through a side of the cabinet, and in this particular embodiment, the unit may be inserted through the side having the door opening. The lining unit may comprise a wooden frame structure 40 forming part of the door jamb. The metallic lining 41 may be attached to this wooden frame structure 40 by any suitable means such as by nailing through previously formed openings in the lining edge, or the like. The frame structure 40 is adapted to fit in the wooden frame 34 heretofore described. Thus the lining unit may be inserted in the opening formed by the frame 34 and may be secured thereto by any suitable means such as screws 42. If desired, a suitable cork gasket 43 may be interposed between the frames 40 and 34.

When a portion of the insulation is to be carried by the lining unit, such insulation may be hermetically connected to the lining. As an embodiment, a sheet of balsam wool 45 may be wrapped around the top, bottom and lateral sides of the lining, and a sheet 46 may be placed against the rear side of the lining. This balsam wool may be cemented to the lining, for instance, with bituminous cement and the edges, as at 47, may also be sealed with the bituminous cement in order to make a substantial hermetic connection. The inside of the insulation 21 may be lined with a waterproof paper bag 48 in which the lining unit may slide in place and may then be secured by the screws 42 to the frame 34. The bag may be secured inside the insulation in any suitable manner, as by cementing it to the corkboard, and may cover the entire inside of the insulation 21. If desired, the insulation 45 may also have a bag of waterproof paper placed over it so that the two bags furnish suitable sliding surfaces when the lining unit is inserted or removed.

If the cabinet is of the two-door variety, the lining unit may also include a door mul-lion 49 which may be secured to parts of the frame 40. Suitable door opening trim 40a, of wood or the like may be used, being secured by screws or similar devices. In general the outer casing 22 comprises side panels 50 having flanges at their vertical sides. These panels may be secured to the frame-work by means of screws or bolts 52 at the

top and bottom of the cabinet. The front part of the casing may be made with long upright panels 53 having flanges at their vertical edges. One of said flanges 54 extends partly around the corner of the cabinet and has a rubber gasket interposed between its edge and the edge of the panel 50 or 51. These panels 53 are secured to the frame-work by screws or bolts 55 and by the screws used to attach the hinges 56 to the frame. Panels 57, 58 and 59 of a similar nature are used to complete the front part of the casing and also have rubber gaskets or the like interposed at their abutting edges. Where the flanges of these panels cross metal frame members, the flanges may be shortened to equal the thickness of the deadening material, such construction being shown, for instance, at 53a, Fig. 5. A machine compartment door may be hinged at the bottom to the cabinet in any suitable manner.

Details of this structure are more fully disclosed in the application Serial No. 257,989 hereinbefore mentioned, of which this application is a continuation in part.

It is seen that the lining unit 23 may be removed from the cabinet without disturbing the major portion of the cabinet. In this particular embodiment it is only necessary to remove the door opening trim 40a and the front parts, 53, 57, 58 and 59 of the outer casing 22. The lining unit may then be removed and repaired or a new unit may be inserted in its place without disturbing the major portion of the cabinet.

In the modification shown in Fig. 6, an air space 70 is provided between the main portion of the insulation 21 and the lining 41. This modification is substantially the same as that shown in Figs. 1 to 5 inclusive with the exception that the air space 70 is substituted for the insulation 45. The insulation 45 in the first modification may be of a sufficient thickness to prevent the formation of condensation within the insulation. The thickness of the insulation 45 may be such that the temperatures at the division between the insulation 45 and the insulation 21 will ordinarily not condense moisture. Since the insulation 45 is hermetically sealed, no atmospheric moisture would be condensed within the insulation 45 and because of the temperature no moisture will be condensed within the insulation 21. In the modification shown in Fig. 6 the moisture condensed, if any, may run down the sides of the lining 23 and suitable means may be provided at the bottom to catch the condensed moisture.

In the modification shown in Fig. 7 a mixture of granulated cork and a suitable binder such as an emulsified bituminous cement and water may be pasted on the lining 23 and may be held in place by a metallic screen 80. This structure may then be allowed to dry and may be installed in the main portion of the

cabinet in a manner similar to that hereinbefore described.

The cork used in the modification shown in Fig. 7 may be clippings or waste produced in the manufacture of the main portion of the cabinet, these clippings or waste being cut to a suitable size.

While the form of embodiment of the invention as herein disclosed, constitutes a preferred form, it is to be understood that other forms might be adopted, all coming within the scope of the claims which follow.

What is claimed is as follows:

1. A refrigerator cabinet comprising a frame unit and a lining unit for a refrigerated air circulating compartment, the lining unit being insertable in and removable from the frame unit without disturbing the main portion of the frame unit, the lining unit comprising a lining provided with a door opening and a sub-frame for said door opening, said frame unit comprising a frame having a door opening, and insulation and an outer casing on said frame.

2. A refrigerator cabinet comprising a frame unit and a lining unit for a refrigerated air circulating compartment, the lining unit being insertable in and removable from the frame unit without disturbing the main portion of the frame unit, the lining unit comprising a lining provided with a door opening, insulation hermetically connected to said lining, and a sub-frame for said door opening, said frame unit comprising a frame having a door opening, insulation on said frame and an outer casing.

3. A refrigerator cabinet comprising a frame having frame members at the edges of the cabinet, deadening sheets on the outside of said frame members, insulating sheets on the inside of said frame members, said insulating sheets being attached to said deadening sheets, and a removable lining unit inside said insulating sheets, said unit being removable without disturbing said insulating sheets.

4. A refrigerator cabinet comprising a frame having frame members at the edges of the cabinet, deadening sheets on the outside of said frame members, insulating sheets on the inside of said frame members, said insulating sheets being attached to said deadening sheets, an outer casing outside said deadening sheets, and a removable lining unit inside said insulating sheets, said unit being removable without disturbing said insulating sheets.

5. A refrigerator cabinet comprising a frame unit and a lining unit for a refrigerated air circulating compartment, the lining unit being insertable in and removable from the frame unit without disturbing the main portion of the frame unit, the lining unit comprising a lining provided with a door opening, insulation hermetically connected

to said lining, and a sub-frame for said door opening, said frame unit comprising a frame having a door opening, insulation on said frame and an outer casing, said sub-frame telescoping within the door opening of said last named frame.

6. A refrigerator cabinet comprising an outer insulated wall structure provided with an opening, a closure for said opening, a lining unit within said outer wall structure, said lining unit including a liner and hermetically sealed insulating material carried by said liner, said entire lining unit being insertable into and removable from said outer wall structure through the said opening without disturbing said outer insulated wall structure.

In testimony whereof I hereto affix my signature.

WILLIAM C. HOLBROOK.