United States Patent [19]

Dixon

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[54] **REFRIGERATOR CABINET CONSTRUCTION**

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[52] **U.S. Cl.** ..... **312/214,** 220/9 F, 52/470, 217/131

[51] **Int. Cl.** **F25d 23/06**

[58] **Field of Search** ..... 312/214, 236; 220/9 F; 264/45; 52/470, 468

[56] **References Cited**

UNITED STATES PATENTS

2,639,592	5/1953	Philipp	312/214
3,478,135	11/1969	Randall	264/45
3,632,012	1/1972	Kitson	220/9 F

FOREIGN PATENTS OR APPLICATIONS

721,035	12/1954	England	312/214

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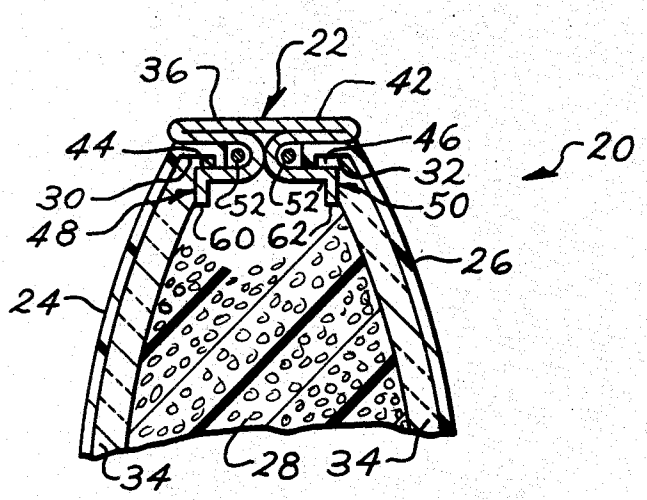
[57] **ABSTRACT**

In a household refrigerator having first and second compartments separated by a partition, a face element of the partition is constructed for maintaining walls of the partition at spaced-apart locations and connecting the face element to the walls and to foam insulation within the walls.

5 Claims, 4 Drawing Figures



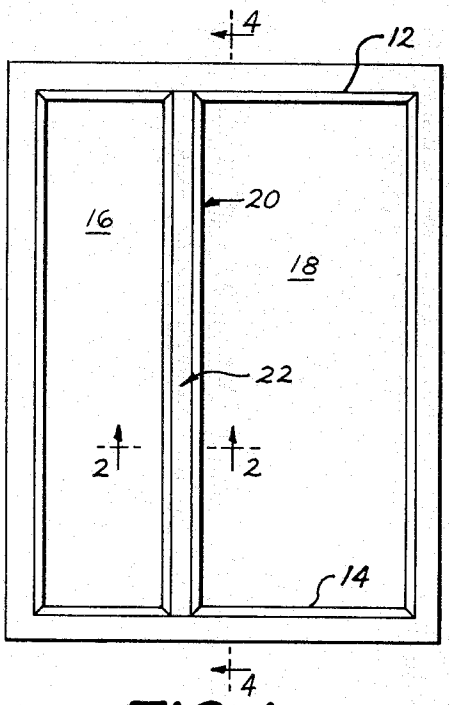


FIG. 1

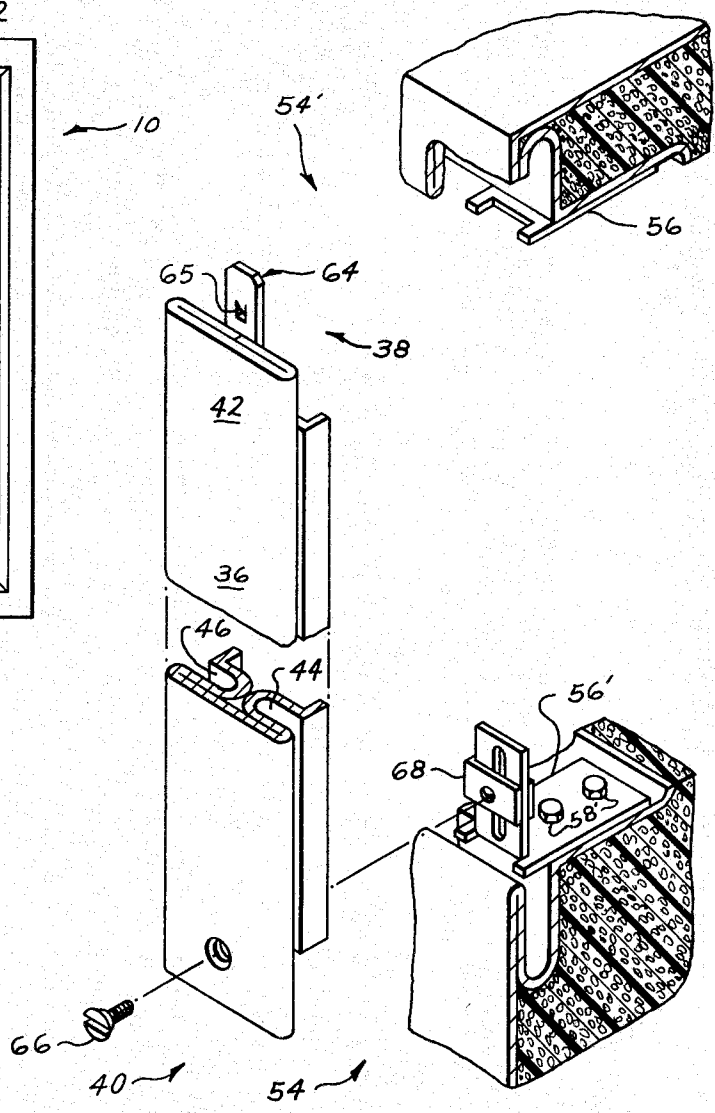


FIG. 3

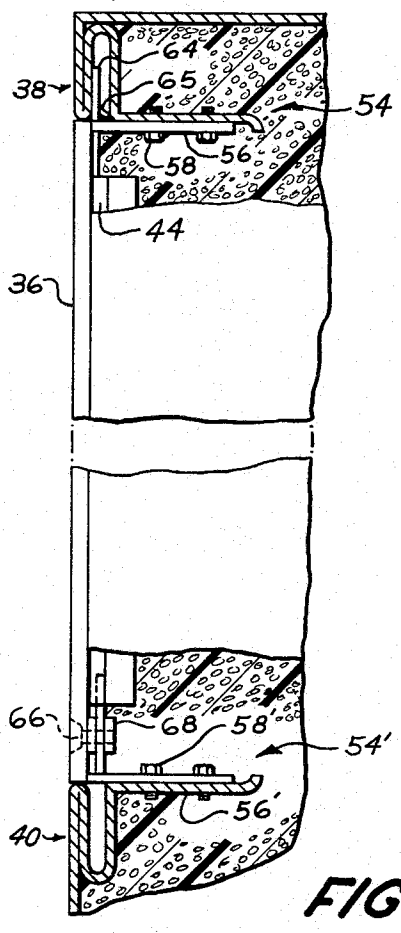


FIG. 4

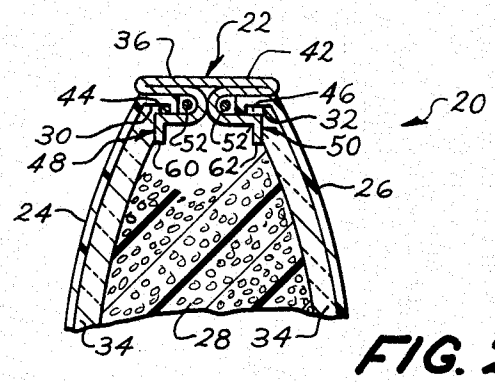


FIG. 2

REFRIGERATOR CABINET CONSTRUCTION

BACKGROUND OF THE INVENTION

In the construction of a household refrigerator, it is often desirable to provide a partition within the refrigerator for separating the refrigerator into first and second compartments such as a freezer compartment and a fresh food compartment, for example. It is further desirable to have the partition constructed in such a manner that the partition is formed of spaced-apart walls, thereby forming a cavity within which foam insulation is formed in situ and connects the various elements of the partition together to form a unitary insulated partition.

U.S Pat. Nos. 3,478,135-Randall and 3,632,012-Kitson show first and second walls having a foam insulation positioned between the walls to form a composite structure with a face element extending over an edge of the composite structure.

Where the structure being formed is a partition of a refrigerator, such as for top-mount or side-by-side types of freezer and fresh food compartments having separate access doors, it is desirable to provide mullion heaters along the partition edge and a construction in which the various elements are physically connected by in situ formed foam insulation, thereby resulting in a unitary insulated partition of sturdy construction.

SUMMARY OF THE INVENTION

In accordance with this invention, a household refrigerator has opposed walls and first and second compartments separated by a partition. The partition has an edge and first and second spaced-apart walls for forming a cavity therebetween. A first material is positioned within the cavity and substantially covers the first and second walls. A face element extends from within the cavity to a location overlying at least a portion of the walls along the partition edge. Heating means is positioned between the walls along the partition edge. Foam insulating material is positioned within the cavity between and adhering to the first material of the first and second walls. Each of the first and second walls have a flange portion extending along the length of the partition edge. The flange portions are directed generally toward and spaced from one another in the assembled position. The face element has opposed end portions and is enfolded to form a planar face, first and second opposed channels, and first and second outwardly extending flanges. The first and second channels have an associated wall flange nested therein and at least one heating means nested in one of the channels between the face element and the associated wall flange. The first and second outwardly extending flanges contact the first material and adhere to the foam insulating material. Means is provided for connecting opposed ends of the face channel to opposed walls of the refrigerator.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a diagrammatic frontal view of a refrigerator having the partition of this invention;

FIG. 2 is a partial sectional view of the partition, and

FIGS. 3 and 4 are diagrammatic views of the face element and connecting means of the partition of this invention.

DETAILED DESCRIPTION OF THE INVENTION

In the embodiment of FIG. **1**, a household refrigerator **10** has opposed walls **12, 14** and first and second compartments **16, 18** defined by a partition **20** connected to and extending between said refrigerator walls **12, 14.**

In the embodiment of FIG. **2**, the partition has an edge **22** and first and second spaced-apart partition walls **24, 26** defining a cavity **28.**

Each of the first and second walls **24, 26** has a flange **30, 32** which extends along a portion of the length of the partition edge **22.** To provide a rigid construction, it is preferred that the flanges **30, 32** each extend along substantially the entire length of the respective wall.

The flanges **30, 32,** are each directed generally toward one another and terminate at a location spaced one from the other in the erected position of the partition **20.**

A first material **34,** for example, fiberglass, is positioned within the cavity **28** and substantially completely covers and is attached to the inner surface of the first and second wall **24, 26.**

In the embodiment of FIGS. **2–4,** a face element **36** has opposed end portions **38, 40** and is enfolded along its length to form a planar face **42,** first and second opposed channels **44, 46,** and first and second outwardly extending flanges **48, 50.**

In the assembled position, an associated wall flange **30, 32** is nested in a respective channel **44, 46.** One or more heating means **52, 52′** are respectfully nested in at least one, preferably both, of the channels **44, 46,** each at a location between the face element **36** and the associated wall flange. The first and second outwardly extending flanges **48, 50** of the face element **36** are contacting the first material **34** along the length of the partition **20.**

Foam insulation is formed in situ within the defined cavity **28** and is adhering to the face element flanges **48, 50** and to the walls **24, 26** through the first material **34** for connecting the elements one to the other and forming a unitary, insulated partition **20** that is of sturdy construction.

Connecting means **54,** such as brackets **56, 56′** and fastening means **58, 58′,** are associated with the end portions **38, 40** of the face element **36** for connecting the partition to opposed walls **12, 14** of the refrigerator **10.**

The flanges **30, 32** of the walls **24, 26** have flange end portions **60, 62** extending along the heating means **52, 52′.**

In the preferred embodiment, one end portion **38** of the face element has a tongue **64** and a latching means **65** thereon for latching into a bracket **56** of the connecting means **54.** The other end **40** of the face element **36** has fastening means such as a screw **66** for insertion into a movable nut **68,** thereby providing for vertical adjustment of the face element **36.**

By so constructing the apparatus, the number of elements are reduced, the resultant partition is sturdy and well insulated, and waste of materials and power for constructing the partition and operating the heating elements are reduced.

Other modifications and alterations of this invention will become apparent to those skilled in the art from the foregoing discussion and accompanying drawings,

and it should be understood that this invention is not to be unduly limited thereto.

What is claimed is:

1. In a household refrigerator having opposed walls and first and second compartments separated by a partition, said partition having an edge first and second spaced-apart walls forming a cavity therebetween, a first material within the cavity and substantially covering the first and second walls, a face element extending from within the cavity to a location overlying at least a portion of the walls along said partition edge, heating means positioned between the walls along the partition edge, and foam insulation material within the cavity between and adhering to the first material of the first and second walls, the improvement comprising:

each of said first and second walls having a flange portion extending along the length of the partition edge and being directed generally toward and spaced from one another in the assembled position;

said face element having opposed end portions and being enfolded to form a planar face, first and second opposed channels, and first and second outwardly extending flanges, said first and second channels having an associated wall flange nested therein, the heating means nested in one of the channels between the face element and the associated wall flange, and said first and second outwardly extending flanges contacting the first material and adhering to the foam insulating material; and

means for connecting opposed ends of the face channel to opposed walls of the refrigerator.

2. Apparatus, as set forth in claim 1, wherein a heating means extends through each of the channels.

3. Apparatus, as set forth in claim 1, wherein the first material is fiberglass.

4. Apparatus, as set forth in claim 1, wherein the wall flanges each have an end portion extending along the heating means.

5. Apparatus, as set forth in claim 1, wherein an end portion of the face element has a tongue having a latching means thereon.

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