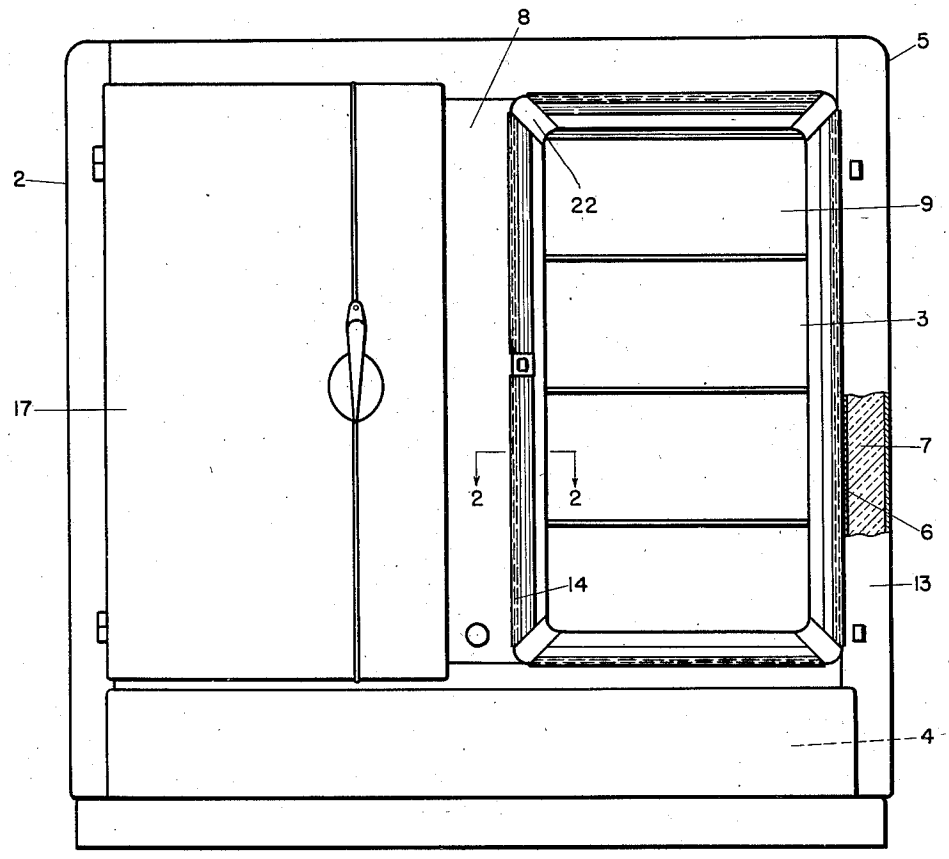
March 28, 1950 P. E. JAMES 2,502,219

REFRIGERATION CABINET WITH CONDENSATION PREVENTING MEANS

Filed Nov. 30, 1946 2 Sheets-Sheet 1

FIG. 1



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REFRIGERATION CABINET WITH CONDENSATION PREVENTING MEANS

Filed Nov. 30, 1946 2 Sheets-Sheet 2

FIG. 2

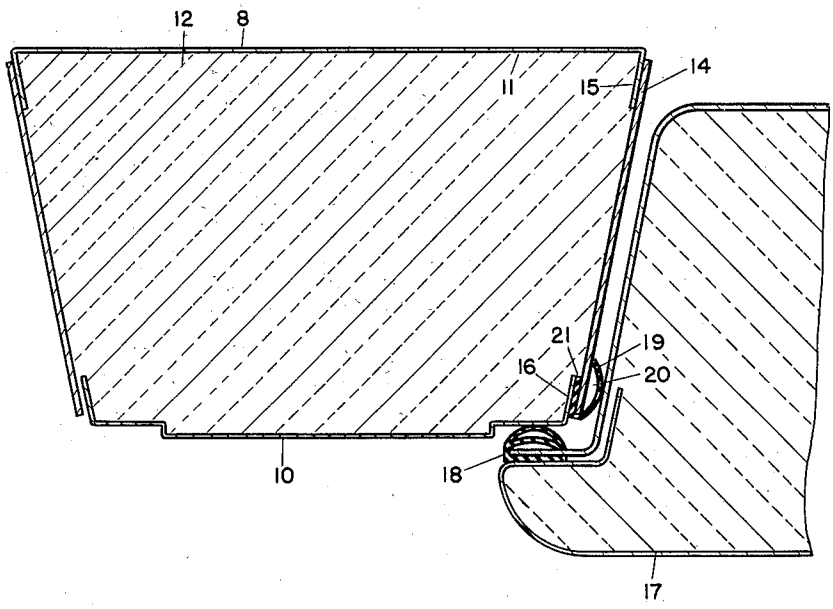
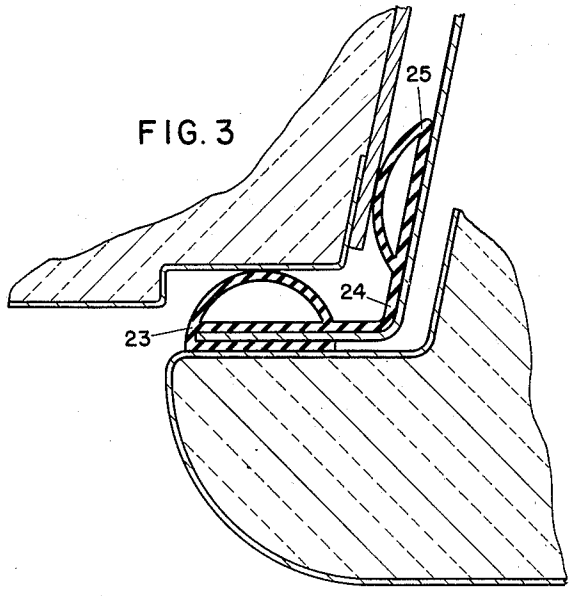


FIG. 3



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UNITED STATES PATENT OFFICE

2,502,219

REFRIGERATION CABINET WITH CONDENSATION PREVENTING MEANS

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Application November 30, 1946, Serial No. 713,346

2 Claims. (Cl. 62—89)

1

This invention relates to refrigeration cabinets and more particularly to a refrigeration cabinet of the freezer type having means included therein to prevent condensation on the exterior surface of the cabinet.

Condensation on the exterior surface of refrigeration industry. Such condensation is undesirable for it permits water to drip from the cabinet; in addition, condensation damages the finish of the cabinet and eventually rusts the metal forming the cabinet wall. Various attempts have been made to solve the problem without success. For example, it has been proposed to employ a double balloon on the sealing gasket. Such construction has not been satisfactory for it has resulted in condensation between the balloons when the door of the cabinet is open and freezing when the door is closed. This is particularly serious when the cabinet is employed as a freezer; at the low temperatures maintained in the storage compartment of a freezer, such condensation quickly freezes, tightly securing the door in place and preventing opening thereof when it is desired to remove or to place produce in the compartment for storage.

The chief object of the present invention is to provide a refrigeration cabinet which includes means for obviating the collection of condensate at the exterior wall of the cabinet.

An object of the present invention is to provide a refrigeration cabinet in which a baffle is disposed between the storage compartment and that portion of the exterior cabinet wall lying within the sealing means to prevent ready flow of cold air against such portion. Since cold air is prevented from contacting such surface when the door is closed, such portion is not cooled to the temperature of the storage compartment; thus, the exterior exposed wall is not cooled to any substantial extent below the temperature of the ambient atmosphere so that moisture from the atmosphere does not condense thereon. In addition, such construction permits moisture which might condense on such surface when the door to the storage compartment is open to migrate into the storage compartment when the door is closed, preventing freezing when the cabinet is in use.

This invention relates to a refrigeration cabinet which comprises a storage compartment adapted to be maintained at a temperature below the temperature of the ambient atmosphere, the storage compartment having an opening therein, a door adapted to close the opening, sealing means interposed between said door and the exterior

2

wall sealing the opening, and means disposed between the storage compartment and the exterior wall at said opening to obstruct the flow of cold air from the storage compartment against that portion of the exterior wall extending interiorly of the sealing means.

The attached drawing illustrates a preferred embodiment of my invention, in which:

Figure 1 is a view in elevation of a refrigeration cabinet embodying the present invention, a door of the cabinet being removed to illustrate the baffle member;

Figure 2 is a sectional view on the line 2—2 of Figure 1; and

Figure 3 of a sectional view similar to Figure 2 illustrating a modification of the invention.

Referring to the drawing, there is shown a refrigeration cabinet 2 including a storage compartment 3 and a machine compartment 4 for the accommodation of compressor and associated elements (not shown) of the refrigeration system. As is customary, the compressor, condenser, driving mechanism, etc. are placed in the machine compartment, and a suitable heat exchanger or evaporator is placed in the storage compartment and connected to the condenser and compressor by suitable conduits. These elements per se form no part of my invention and consequently are not shown in detail.

The cabinet 2 includes longitudinal frame members at its corners and connecting elements are provided between the various corner members to form the whole into a unitary frame for the cabinet. An exterior metal shell or wall 5 having any suitable decorative surface conceals the frame. Interiorly of the frame there is provided an interior liner or wall 6 which forms the storage compartment 3. Insulation 7 of any suitable type, for example, mineral wool, fiberboard, corkboard, or the like is placed between walls 5 and 6 surrounding compartment 3 on all sides.

A mullion 8 divides one side of the storage compartment into a plurality of openings 9 to permit access to the compartment for placement and removal of stored foodstuffs, for example. Mullion 8 is composed of an outer exposed metal wall 10 and an inner metal wall 11. Insulation material 12 is disposed between such walls. Openings 9 are surrounded by the usual jambs 13 which are composed of breaker strips 14 secured to flanges 15 and 16 of mullion walls 10 and 11 and flanges (not shown) of shell 5 and liner 6 thus preventing conduction between liner 6 and shell 5. Breaker strips 14 attached to flanges 15 and 16 form side walls of mullion 8.

Doors 17 are suitably mounted on cabinet 2 to close openings 9. Resilient gaskets 18 of any suitable composition are attached to the interior surface of doors 17 extending about the openings and are adapted to be compressed against the exterior walls 5 and 10 when the door is closed to seal the openings preventing escape of cold air from the storage compartment to the ambient atmosphere. It will be noted (refer to Figures 2 and 3) a portion of wall 5 and a portion of mullion wall 10 extend interiorly of the sealing gaskets 18 so as to be exposed to the cold air of compartment 4. Such construction gives rise to the problem of condensation for this cold metal portion by conduction reduces the temperature of the exposed surfaces below the temperature of ambient atmosphere causing moisture to condense thereon.

I have found that the temperature of such wall portions may be raised substantially above the temperature maintained in the storage compartment by obstructing or blocking the flow of cold air from the compartment against such portions. For this purpose, I interpose barrier or baffle members 19 between the storage compartment and such portions of walls 5 and 10. Members 19 may be composed of a resilient balloon portion 20 terminating in an extended flange 21. The flange 21 is adapted to be disposed beneath the breaker strips, between the breaker strip and flanges 16 of walls 5 and 10 thereby further insulating such portions from exposure to the cold air of the compartment. The flange 21 may be secured in place by the same fastening means employed to secure the breaker strips to the flanges of shell 5 and mullion wall 10, thereby securing the balloon portion 20 in position between the door and the breaker strip to retard flow of cold air against such extended wall portions.

Such baffle members 19 may be disposed about the openings, if desired, or merely adjacent the mullion 8 where the problem of condensation is most acute. It is essential in my invention, however, that such baffles 19 do not form a seal between the breaker strip and the door. If a seal were formed, when the door is opened, condensate would form on the extended portions of walls 5 and 10; when the door is again closed, such condensate would freeze, tightly holding or locking the door in its closed position. To assure that baffle members 19 do not form a seal, I preferably provide paths 22 for the migration to the storage compartment of any condensate which might form on such portions. Preferably, the baffle members do not extend completely about the opening permitting paths 22 to be formed therebetween for the migration of moisture. If desired, openings such as notches (not shown) may be provided in each baffle 19 to form a path for the migration of moisture.

In Figure 3, I have illustrated a modification of my invention in which the sealing gasket 18 and the baffle member 19 are formed as an integral unit. In such structure, portion 23 at one end of body 24 serves as the seal and portion 25 at the opposite end of body 24 serves as a baffle or barrier between the door and the breaker strip to prevent flow of cold air against the portions of the exterior wall disposed within the seal.

My invention provides simple and inexpensive means for obviating collection of condensation at exposed wall surfaces of a refrigeration cabinet. A refrigeration cabinet embodying the present invention does not present the problem of condensation at the center mullion, and such result is achieved without sacrifice of the decorative appearance of the cabinet and without a substantial increase in cost of manufacture.

While I have described a preferred embodiment of my invention it will be understood my invention is not limited thereto since it may be otherwise embodied within the scope of the following claims.

I claim:

1. In a refrigeration cabinet, the combination of a shell, a liner disposed within the shell forming a storage compartment, insulation material disposed between the shell and the liner, said storage compartment having an opening therein, a mullion dividing the opening into a plurality of smaller openings, the edge portions of the exterior wall of the mullion extending within said openings, breaker strips disposed at the openings forming side walls of the mullion, doors closing the openings, a portion of each door extending adjacent the exterior mullion wall, gaskets disposed between said door portions and the mullion wall sealing the spaces therebetween, and resilient baffle members disposed between the doors and the breaker strips obstructing the flow of cold air from the storage compartment against the edge portions of the exterior mullion wall without sealing the spaces between the gasket and the baffle members from the storage compartment, each baffle member having a flange extending in a direction parallel to the body of the baffle and fitting beneath the breaker strip to secure the baffle member in position in the opening, said baffle members having openings therein to permit condensate collected on the edge portions of the mullion wall within the gaskets to migrate to the storage compartment.

2. In a refrigerator cabinet the combination of a shell, a liner disposed within the shell forming a storage compartment, insulation material disposed between the shell and the liner, said storage compartment having an opening therein, a mullion dividing the opening into a plurality of smaller openings, the edge portions of the exterior wall of the mullion extending within said openings, breaker strips disposed at the openings forming side walls of the mullion, doors closing the openings, a portion of each door extending adjacent the exterior mullion wall, resilient members secured to the door extending between the door and the cabinet, each member including a portion disposed adjacent the exterior wall to seal the opening and a second portion disposed between the storage compartment and the exterior wall at said opening to obstruct the flow of cold air from the storage compartment against that portion of the exterior wall extending within the sealing portion without sealing the space between the first portion and the second portion from the storage compartment.

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Certificate of Correction

Patent No. 2,502,219 March 28, 1950

PAUL E. JAMES

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows:

Column 1, line 7, before the word "industry" insert *cabinets has long been a serious problem in the refrigeration*;

and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 4th day of July, A. D. 1950.

[SEAL]

THOMAS F. MURPHY,
Assistant Commissioner of Patents.