May 20, 1941. H. M. DODGE 2,242,421

REFRIGERATOR CABINET LID

Filed July 14, 1938

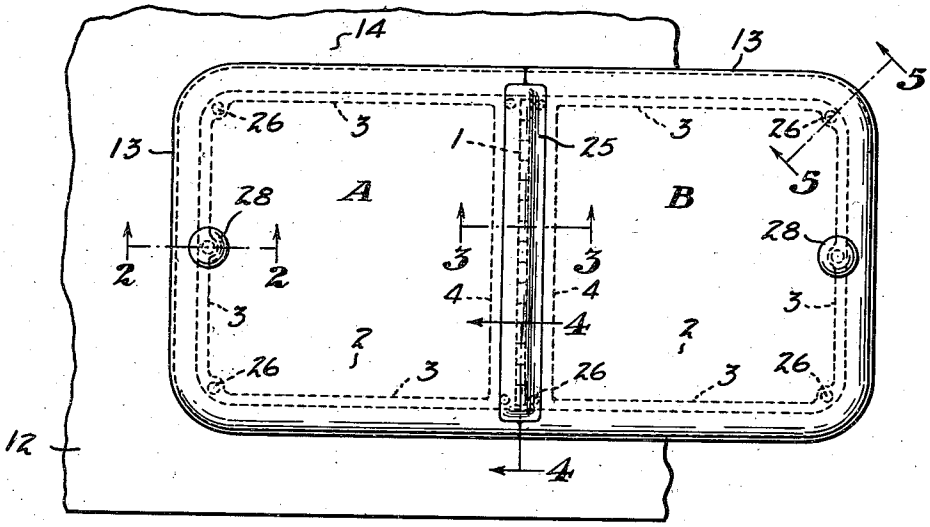


Fig. 1

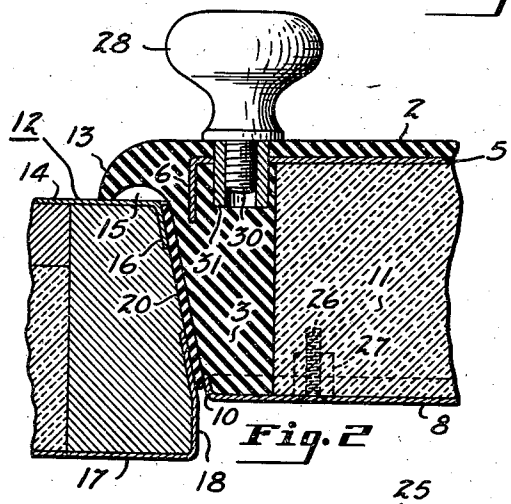


Fig. 2

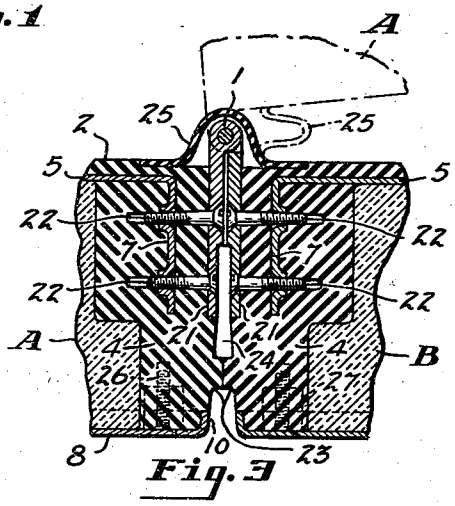


Fig. 3

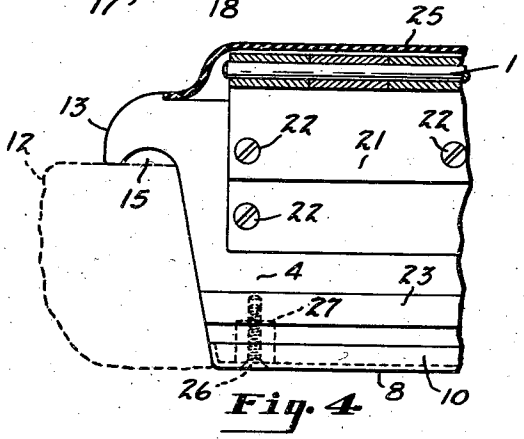


Fig. 4

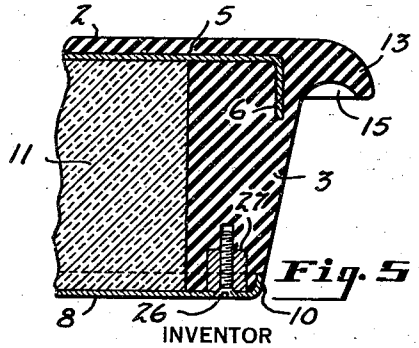


Fig. 5

INVENTOR
Howard M. Dodge
BY
Evans & McCoy
ATTORNEYS

Patented May 20, 1941 2,242,421

UNITED STATES PATENT OFFICE

2,242,421

REFRIGERATOR CABINET LID

Howard M. Dodge, Wabash, Ind., assignor to The General Tire & Rubber Company, Akron, Ohio, a corporation of Ohio

Application July 14, 1938, Serial No. 219,272

5 Claims. (Cl. 220—31)

This invention relates to refrigerator cabinet lids, and in particular to an improved type of lid which may be made of insulating material, such as rubber, Bakelite, and the like.

It is an object of the present invention to provide a refrigerator cabinet lid of such construction that heat transfer therethrough is minimized.

Another object is to provide an improved refrigerator cabinet lid construction which will afford an effective seal around the periphery of said lid.

A further object is to provide a refrigerator cabinet lid which is simple in design and construction and inexpensive to manufacture, and one which will be sturdy and durable.

Other objects and advantages of the present invention will become more apparent from the following detailed description, accompanied by the drawing, in which:

Figure 1 is a top plan view of a two-piece refrigerator cabinet lid embodying the present invention;

Fig. 2 is a sectional view taken substantially on the line 2—2 of Fig. 1, illustrating a seal between the lid and cabinet;

Fig. 3 is a sectional view taken substantially on the line 3—3 of Fig. 1, showing details of the hinge construction connecting the two sections of the lid shown in Fig. 1;

Fig. 4 is a fragmentary sectional view, taken substantially on the line 4—4 of Fig. 1; and

Fig. 5 is a fragmentary sectional view taken substantially on the line 5—5 of Fig. 1, illustrating the construction at a corner of the lid shown in Fig. 1.

With reference to the accompanying drawing, in which like parts throughout the several views are indicated by the same reference numerals, it may be seen that one type of refrigerator cabinet lid embodying the present invention is made in two sections, A and B, joined together by a hinge 1. Each of the lid sections A, B comprises a top wall 2, formed of rubber or other insulating material, outer side walls 3 depending from the top wall and adapted to be disposed adjacent the periphery of the refrigerator cabinet opening, and inner side walls 4 depending from the top wall 2 along the sides of each of the sections, A, B which are to be hingedly connected. The side walls 3 and 4 are continuous and extend around the periphery of each section. Embedded in the top wall 2 is an upper reinforcing plate or pan 5, provided with a depending flange 6 at the outer edge of the top wall 2 extending downwardly through a portion of the side wall 3 and a depending flange 7 at the inner edge of the top wall 2 extending downwardly through a portion of the side wall 4. Positioned across the bottom of each section of the lid is a lower reinforcing plate or pan 8, provided with upturned edges 10 to engage a portion of the lateral surfaces of the side walls and aid in holding them in position. The previously mentioned walls and pans of each section enclose a quantity of heat insulating material 11, such as kapok, mineral wool, cork, etc. The outer side walls 3 of the lid which contact the periphery of the cabinet opening are tapered inwardly so they may provide support for the lid on the lateral surfaces of the opening in the refrigerator cabinet 12.

The seal between the lid and opening of the cabinet may be seen in Fig. 2. Extending outwardly and downwardly from the top edge of the lid sections is a resilient, peripheral flange or lip 13, which is a continuous part of the top wall 2, so formed that its lower surface rests on an upper cabinet plate 14. The flange or lip 13 is formed so that it is hollow underneath to provide an enclosed air space 15 which affords a seal around the lid when it is positioned on the cabinet. When the lid is in its normal closed position on the cabinet it is supported by the side walls 3 as mentioned and also by the extremity of the flange or lip 13 which contacts the upper cabinet plate 14.

The upper cabinet plate extends to the edge of the cabinet opening and has a downwardly extending flange 16 extending a short way into the opening. A lower cabinet plate 17 is provided beneath the top wall of the cabinet and extends to the edge of the opening, having an upwardly extending flange 18. Overlapping the flanges 16 and 18 of the cabinet plates 14 and 17, respectively, is a breaker strip 20 formed of a suitable heat insulating material, such as rubber and extending around the lateral surface of the cabinet opening. In this manner the side walls 3 of insulating material contact only the breaker strip 20 which is also of insulating material and heat transfer due to conduction from the outside of the cabinet to the inside is substantially eliminated around the cabinet opening.

The mounting of the hinge 1 connecting the two sections A, B is shown in Fig. 3, and it may be seen that each hinge plate 21 is connected to a section by self-threading bolts 22 which extend through apertures in the depending flanges 7 of the upper pans 5. The depending walls 4 are provided with projecting bosses 23, which co-

operate to form a seal. When they are in engagement, the projections 23 enclose an air space 24 between the sections, thereby preventing heat transfer through the lid between the sections.

At the top of the lid a cover strip 25 of rubber or other flexible insulating material is disposed over the hinge 1 and extending longitudinally thereof, the marginal edges of the strip 25 each being secured to one of the sections A, B by cementing, vulcanization or the like. This cover strip 25 considerably reduces heat transfer through the hinge of the lid but, being flexible, does not interfere with the opening and closing of the lid sections. A slight space is provided between the hinge and the cover strip to reduce the transfer of heat from the strip to the hinge. The position assumed by the cover strip 25 when one section of the lid is opened is shown in broken outline in Fig. 3.

The lower pan 8 of each lid section may be secured to the lid by bolts 26 threaded into metal sockets 27 which are embedded in the body of the side walls. In a similar manner handles 28 may be firmly secured to the lid sections by having bolt portions 30 threaded into metal sockets 31 which extend through the upper pan 5 and are embedded in the side walls.

Preferably the sections of the lid are made by molding the top wall and depending side walls from a suitable rubber compound while the upper pan 5 and the sockets 27 and 31 are in place, so that they may become securely bonded by vulcanization. Then the sections may be assembled by filling the space enclosed by the side walls with the suitable insulating material 11 and affixing the lower pan 8.

A refrigerator cabinet lid embodying the present invention is advantageous in that heat transfer through the lid is reduced to a minimum. There are no metal parts which are exposed to the atmosphere through which heat may be conducted into the interior of the cabinet. Furthermore, the joints and cracks are sealed by enclosed air spaces to prevent heat loss therethrough.

The lid described herein is durable and sturdy, and when made of a semiresilient material will withstand shock and hard usage.

According to the present invention excellent cabinet lids comprising one, two or even more sections may be made readily and inexpensively and it is to be understood that variations and modifications of the specific devices herein shown and described for purposes of illustration may be made without departing from the spirit of the invention.

What I claim is:

1. A refrigerator cabinet lid which comprises a pair of sections each comprising a top wall of heat-insulating material, peripheral supporting walls depending therefrom, an upper metallic pan underlying the top wall and having a depending flange embedded in the depending wall, a lower metallic pan extending across the bottom of each section, heat-insulating material enclosed in each section, a hinge for hingedly connecting the sections, members of said hinge being secured to the sections by means threaded into the depending flange of the upper pan.

2. A refrigerator cabinet lid which comprises two or more hingedly connected sections of molded material each comprising a top wall having side walls depending therefrom, a metallic pan underlying the top wall and having a depending flange disposed in said side wall adjacent the hinged connection, a hinge connecting each pair of said sections, and having a pivot portion, members of the hinge being secured to the sections through the depending flange of said pan, and means for enclosing an air space around the pivot portion of said hinge.

3. A refrigerator cabinet lid construction comprising two or more hingedly connected sections, each comprising a top wall having side walls depending therefrom, a metallic pan underlying the top wall and having a depending flange disposed in said side wall adjacent the hinged connection, a hinge connecting each pair of said sections having legs and a pivot portion, said legs being secured to the sections through the depending flange of said pan, and means providing a normally closed air space between the leg portions of said hinge and an enclosed air space above the pivot portion of the hinge.

4. A refrigerator cabinet lid construction comprising two or more hingedly connected sections, each comprising a top wall having side walls depending therefrom, a metallic pan underlying the top wall and having a depending flange disposed in said side wall adjacent the hinged connection, a hinge connecting each pair of said sections having legs and a pivot portion, said legs being secured to the sections through the depending flange of said pan, and means providing a normally closed air space between the leg portions of said hinge and an enclosed air space above the pivot portion of the hinge, said means comprising a pair of opposed cooperating projections disposed on said side walls adjacent the hinged connection to define a substantial air chamber between the leg portions of said hinge and a flexible strip positioned above the hinge and having its lateral edges each secured to the top wall of an adjacent section.

5. A refrigerator cabinet lid composed of at least one section which comprises a top wall of heat insulating material, peripheral supporting walls depending therefrom, an upper metallic pan positioned against the underside of said top wall and having depending flange portions embedded in the depending walls, heat insulating material enclosed by said walls to substantially fill the cavity formed thereby, and means for forming an enclosed air space around the periphery of the lid between the top wall of the lid and the cabinet in the region of the opening whereby heat transfer through the lid is minimized.

HOWARD M. DODGE.