

March 11, 1958

R. G. KURTZ
CABINET SEALING MEANS

2,825,940

Filed May 20, 1955

2 Sheets-Sheet-1

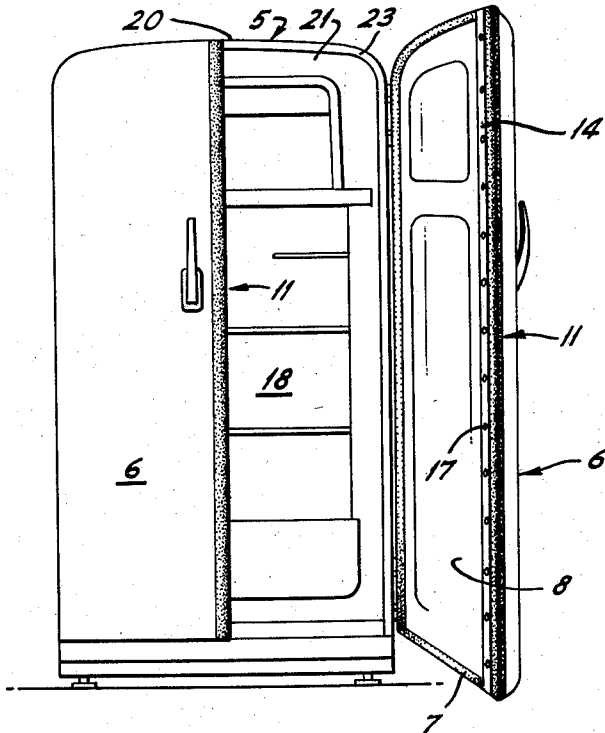


FIG. 1.

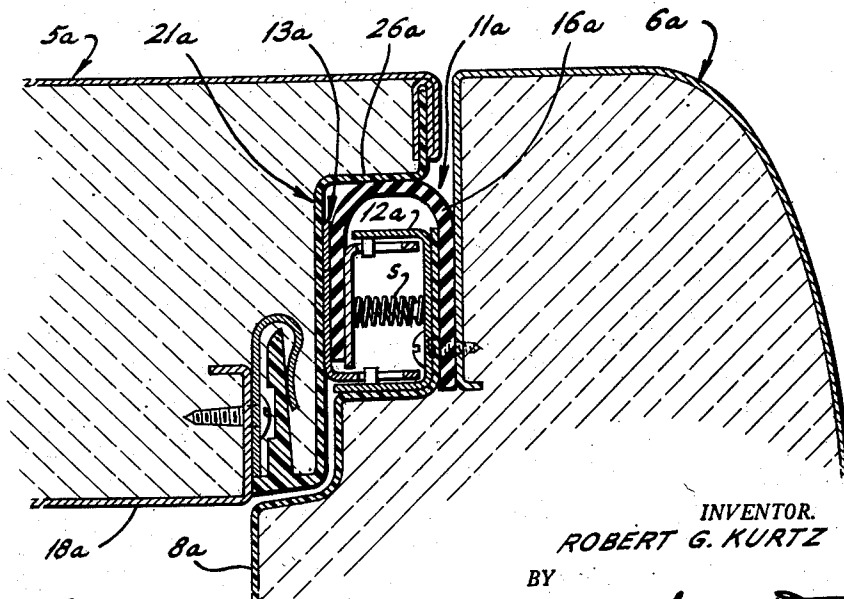


FIG. 4.

INVENTOR.
ROBERT G. KURTZ
BY
Carl H. Lynne
AGENT

March 11, 1958

R. G. KURTZ

2,825,940

CABINET SEALING MEANS

Filed May 20, 1955

2 Sheets-Sheet 2

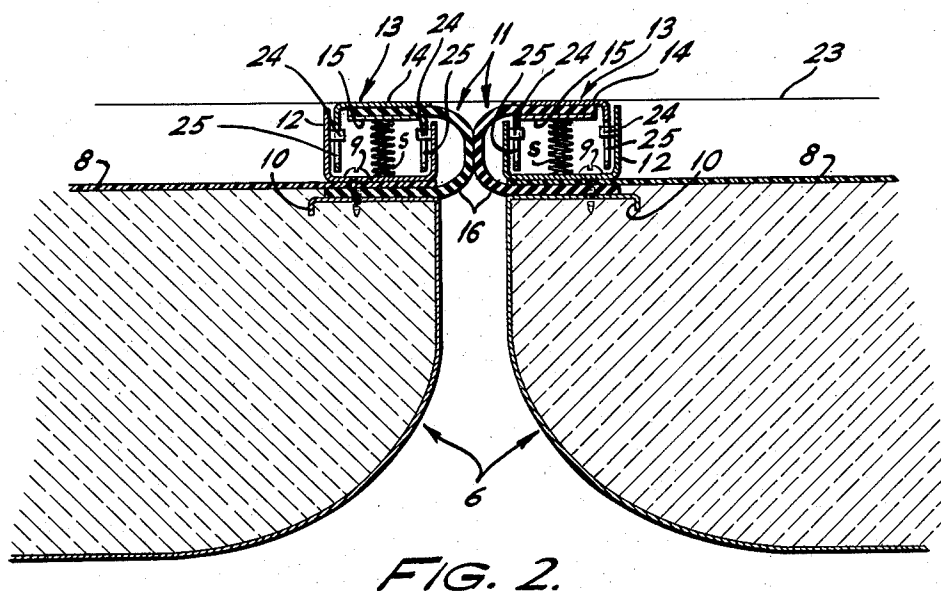


FIG. 2.

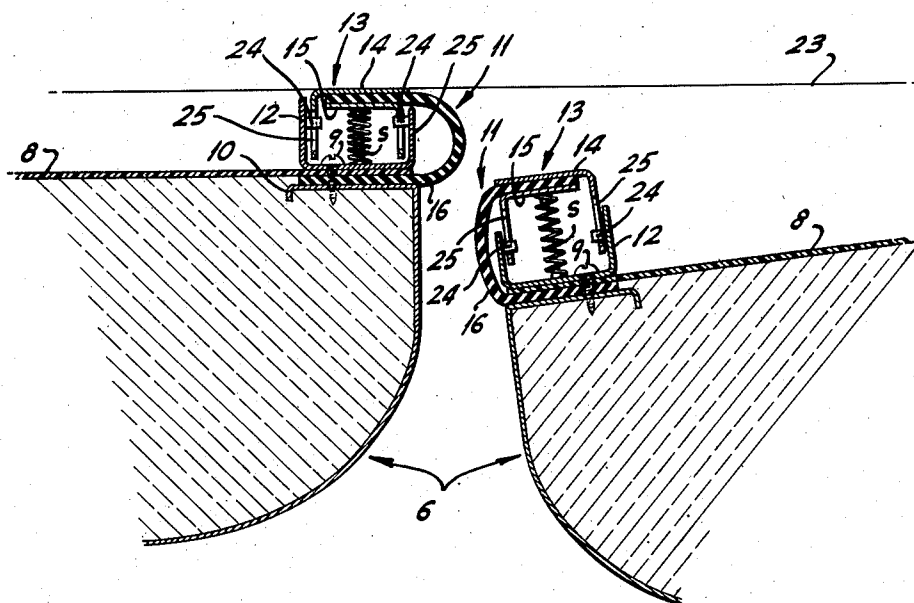


FIG. 3.

INVENTOR.

ROBERT G. KURTZ

BY

Carl H. Lynnestvedt

AGENT

1

2,825,940

CABINET SEALING MEANS

Robert G. Kurtz, Philadelphia, Pa., assignor to Philco Corporation, Philadelphia, Pa., a corporation of Pennsylvania

Application May 20, 1955, Serial No. 509,935

3 Claims. (Cl. 20—69)

This invention relates to cabinet structure and, more particularly, relates to sealing means adapted for use in cabinets, such for example as refrigerator cabinets.

The invention has for its primary object the provision of novel sealing means for double-door cabinets of that type wherein the center stile, usually provided between the confronting edges of the two doors, is eliminated.

It is a further object of this invention to provide sealing means enabling either door to be opened and then to be closed and automatically sealed against the edge of the other door.

In one aspect, the invention also comprehends adaptation of the novel sealing means to refrigerator cabinets of the single door type.

To the foregoing general ends, and first briefly described, the invention provides door sealing means, and particularly means of the type in which a pair of doors abut in the closed position, and each door carries gasket means and means for flexing the gasket means to project it to sealing position in response to closing the door.

The manner in which the foregoing and other objects and advantages of the invention may best be achieved will be more clearly understood from a consideration of the following description, taken in conjunction with the accompanying drawings, in which:

Figure 1 is a perspective view of a "stileless" refrigerator having each of its two doors equipped with the novel sealing means of this invention;

Figure 2 is an enlarged fragmentary sectional view of apparatus of the kind shown in Figure 1, the view illustrating the doors and cooperating gasket means in the closed position;

Figure 3 is a view similar to Figure 2, and showing the left-hand door closed and the right hand door partially open; and,

Figure 4 is a fragmentary sectional view of a modified embodiment of the invention which differs from the preferred embodiment in that the novel gasket means is utilized to effect sealing of a free edge portion of a single door.

Now making more detailed reference to the drawings, there is illustrated a cabinet 5, in this instance a refrigerator cabinet, including a pair of similar doors or closure members 6 each provided with the usual sealing means 7 along the upper, lower and outer edges of said members. The inner faces of the doors 6 are provided with liners 8, which may be of any suitable material, and are attached by screws 9, or any other suitable means, to flanged door portions 10, as seen in Figures 2 and 3.

Attached to the inner vertical edges of the doors 6 by means of the screws 9 are novel sealing means 11, constructed in accordance with my invention and comprising complementary channel sections 12 and 13. The assemblies comprising sealing means 11 are identical on the two doors. Channel section 13 includes a suitably positioned flange 14 and an angle member 15, said flange and member serving to clamp flat portions of a resilient bowed gasket member 16 through the agency of rivets 17 (Fig-

2

ure 1). Other flat portions of the resilient bowed gasket member, opposite the aforementioned clamped portions are, on both doors, interposed between liner 8 and door flanged portion 10, where the mounting screws 9 urge the channel section 12, along with the liner 8, against the gasket 16, thereby securing this portion of the gasket also. Springs S, or other suitable resilient means, mounted between the opposed channel sections 12 and 13 urge these sections apart.

Attached to the complementary leg portions of the channel 12 are pins 24 which engage slots 25 provided in the complementary leg portions of the channel 13. The slots 25 are so positioned that their center lines are perpendicular to the plane of the transverse flange portions of the channels 12 and 13. By virtue of correlation of pins 24 with slots 25 the transverse flanges of channels 12 and 13 remain parallel throughout the movement permitted by slots 25. The slots 25, of course, limit the travel of channel section 13 relative to fixed channel 12.

Additional structure of the refrigerator cabinet 5 is of known type, and includes a liner 18 with insulation interposed between it and an outer shell 20. Joining the front of the liner 18 to the front of the outer shell 20 is a peripheral breaker strip 21, suitably attached to flanged portions (not shown) of the cabinet liner 18 and to flanging 23 of the outer shell 20. Latching means for the doors 6 is not shown, but it is to be understood that a variety of known means may be employed.

The operation of the doors and the novel sealing means is as follows:

Considering the doors in the position shown in Figure 1, further reference to Figure 3 illustrates the mode of operation of the novel sealing means 11, the left-hand door as viewed in a closed position demonstrating the relative positions of the gasket elements when a single door is closed, and similarly, the right hand door in its open position illustrating the novel gasket means 11 in the position it occupies prior to contact with the cabinet. Closing the door, as shown in Figure 2, causes the flange 14 of channel member 13 to impinge upon a frontal portion 23 of the cabinet flanging, whereupon engagement of the latching means (not shown) causes displacement of channel member 13 toward its complementary member 12 a distance determined by the pull-in distance of the latch. Motion of channel member 13 toward member 12, in turn, causes the springs S to be compressed and, at the same time, the bowed resilient gasket member 16 is flexed so that its central portion is displaced toward the corresponding gasket of the opposite door a sufficient distance to cause it to impinge upon and seal against the opposing gasket.

Again referring to Figure 3, it is seen that opening of either door causes the springs S, in the opened door, to seek extended position, whereupon channel member 13 is forced away from its complementary channel 12 a distance determined by the length of slots 25. End portions of the slots impinge upon the pins 24, thereby limiting the travel of channel portion 13. This action causes the bowed gasket member 16 to be placed under tension such that the projecting bowed portion is drawn backwardly toward the door structure. In this manner the bowed portion of the gasket 16 is caused to be displaced in a direction away from the opposing gasket.

It will be observed that complete and satisfactory sealing of the doors is accomplished even though the cabinet includes no center stile. Absence of the stile is, of course, very desirable because of the resultant increase in storage space and the improvement in accessibility.

In the modified embodiment shown in Figure 4, the principles of this invention are applied to a cabinet of the single door type, the novel gasket means being used to effect a seal between the free edge of the door and

the adjacent door jamb structure. In this embodiment, gasket means 11a is carried by insulated door 6a which carries a suitable liner 8a, said gasket including bowed resilient member 16a held in place by complementary channel sections 12a and 13a. Springs S are mounted between channel sections 12a and 13a, thereby urging said channels apart. Additional structure includes the cabinet outer shell 5a joined at its front portion to liner 18a by means of breaker strip 21a, said breaker strip being S-shaped in its cross section for reasons hereinafter described.

In the operation of the embodiment of Figure 4, closing of the door 6a causes the forward flange or web portion of the channel 13a to impinge upon a flange portion of breaker strip 21a, which action in turn causes a displacement of channel 13a toward complementary channel 12a. The movement of said channel 13a causes bowed resilient member 16a to bulge toward confronting portion 26a of breaker strip 21a and impinge thereon to effect a seal between said door 6a and cabinet 5a.

Opening door 6a releases the compression force upon springs S, thereby causing channel section 13a to move away from complementary channel section 12a. This movement of the channel causes the bowed portion of resilient means 16a to move away from the portion 26a of the S-shaped breaker strip 21a, thereby breaking the seal between door 6a and cabinet 5a.

From the foregoing description it will be understood that the present invention provides novel and improved sealing means for double-door cabinets of the "stileless" type, the invention being particularly characterized in that force is exerted against the gasket, during closing of the door, in such a way as to flex or bulge the gasket thereby to project it to a sealing position.

I claim:

1. In cabinet structure having an access opening, a door hingedly mounted for opening and closing movement with respect to said access opening, and sealing means for said door comprising: a pair of channel-like members having leg and web sections, said web sections being spaced one from the other in a direction generally transverse the plane of said door and said leg portions of each of said members being presented toward and overlying the leg portion of the other of said members, one of said members being slidable toward and away from the other along said overlying leg portions, the other channel-like member being affixed to a free edge of said door; and gasket means including a pair of flange portions and an intermediate portion of resilient material interconnecting said flange portions, one of said flange portions being affixed to said other of the channel-like members and the other of said flange portions being affixed to the web portion of the slidable channel-like member whereby said intermediate portion of said gasket is extensible and retractable with respect to said edge of said door, in response to variation in the spacing between said channel-like members, the construction and arrangement being such that said intermediate portion is projected into sealing contact with part of said structure in response to impingement of the slidable channel-like member upon another part of said cabinet structure and

consequent movement of said channel-like members toward one another.

2. In a cabinet having an access opening, oppositely hinged and abutting doors adapted to close said opening, and means for sealing abutting portions of said doors, said means comprising: a gasket carried by each door, each said gasket having first and second flange portions, spaced in a direction transverse the plane of said door, and an intermediate sealing portion extensible and retractable in the general plane of said door; means for securing said first flange portion to said door; channel means disposed along an edge portion of said door and overlying said first flange portion, the leg portions of said channel means being presented in a direction transverse the plane of said door; and a second channel means having its web portion parallel to the web portion of said first channel means and having its leg portions presented toward said first channel member and overlying leg portions thereof, the web portion of said second channel means being so constructed and arranged as to support said second flange portion of the gasket, said second channel means being so constructed and arranged as to provide for variation in the space between said flange portions and being disposed for contact with the cabinet during closing of the door to exert force in a direction to reduce the spacing between said flange portions and to cause flexing of said intermediate portion and extension of the latter toward and into sealing contact with the abutting gasket.

3. In cabinet structure having an access opening, oppositely hinged and abutting doors for closing said opening and means for sealing an edge portion of each door to the abutting edge portion of the other door, said means comprising: gasket means generally U-shaped in cross-section including a pair of flange portions, one of said flange portions affixed to the door adjacent and along said edge portion thereof, said gasket means further including a web portion intermediate said flange portions extensible and retractable in the general plane of said door; and mechanism disposed intermediate said flange portions and including a first member affixed to the door in the region of said one flange portion, a second member engaging the other of said pair of flange portions and movable relatively to the first, said first and second members being so constructed and arranged as to normally keep said flange portions spaced apart and said web portion in retracted position, the movable member however being disposed for cooperation with a part of the cabinet structure during closing of the door to exert force to effect relative movement of the flange portions of said pair toward one another to cause extension of said web portion into contact with the abutting gasket means.

References Cited in the file of this patent

UNITED STATES PATENTS

404,445	Stodard	June 4, 1889
1,918,911	Hull	July 18, 1933
2,212,551	Reid	Aug. 27, 1940
2,692,809	Kesling	Oct. 26, 1954

FOREIGN PATENTS

813,075	Germany	Sept. 6, 1951
---------	---------	---------------