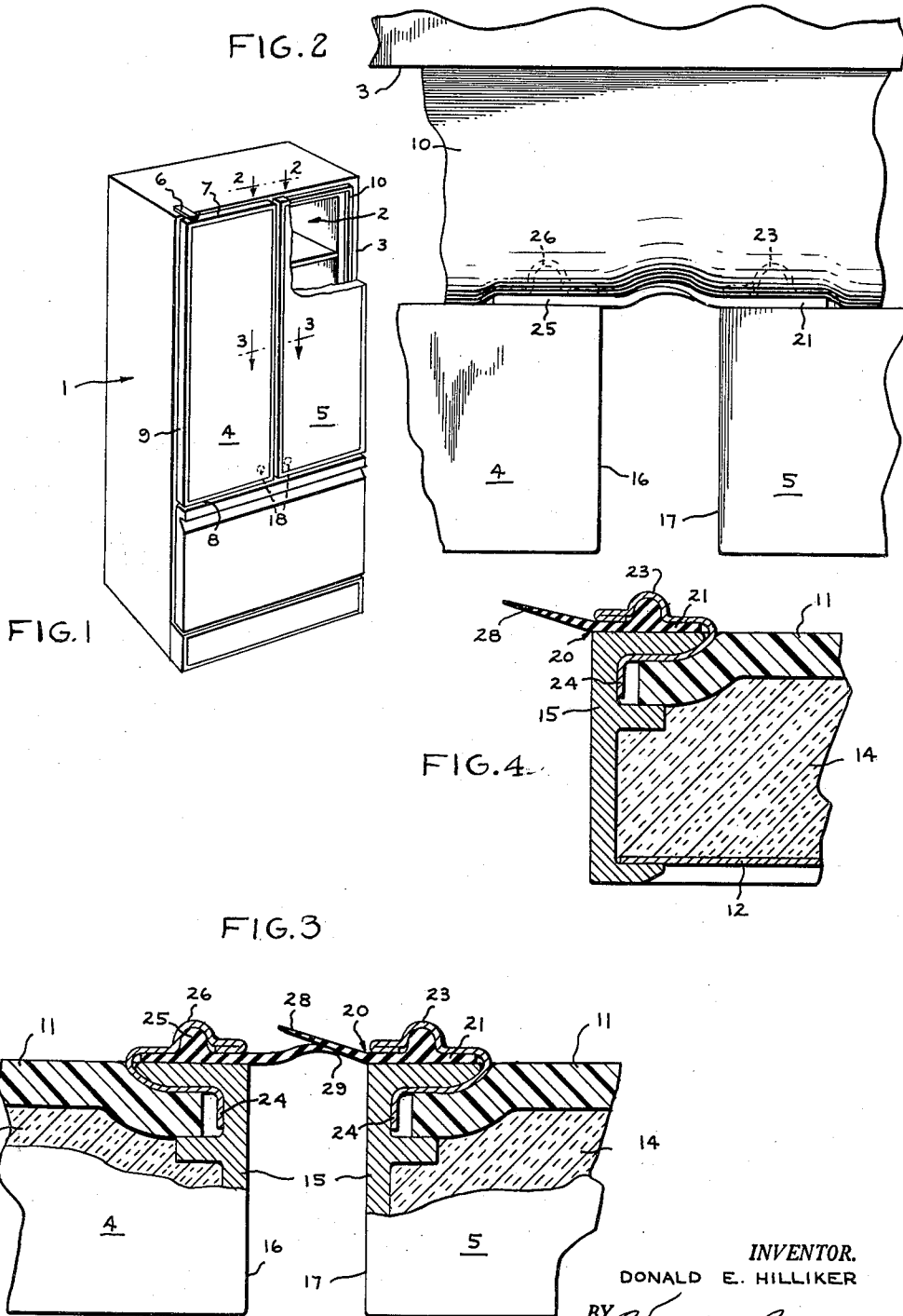


Jan. 1, 1963

D. E. HILLIKER
REFRIGERATOR CABINET, INCLUDING IMPROVED
CLOSURE SEALING MEANS
Filed Jan. 16, 1961

3,070,852



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REFRIGERATOR CABINET, INCLUDING IMPROVED CLOSURE SEALING MEANS

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Filed Jan. 16, 1961, Ser. No. 83,084
2 Claims. (Cl. 20—16)

The present invention relates to refrigerator cabinets and is more particularly concerned with a cabinet in which a pair of side-by-side closure members are employed for closing a single access opening to the cabinet.

In order to seal the refrigerated space within a refrigerator cabinet, the door or other closure member for closing an access opening to the cabinet normally carries a resilient gasket on the inner peripheral face or surface thereof for engaging a mating face portion of the cabinet defining the access opening. In the case of cabinets having more than one closure member for an access opening, as for example a double door refrigerator, it has been general practice to employ a mullion extending across the access opening between the adjacent closure members to provide a surface for sealing engagement with the gasket. Such a mullion of course obstructs the access to the cabinet.

It is a primary object of the present invention to provide a mullionless closure arrangement for a refrigerator cabinet including improved gasket means for sealing the joints or spaces between adjacent edges of the closure members as well as between the closure members and the cabinet.

Another object of the present invention is to provide an improved low cost sealing arrangement for sealing the spaces surrounding a pair of closure members for a refrigerator cabinet or the like, which sealing arrangement does not interfere with the opening and closing of either closure member.

Further objects and advantages of the invention will become apparent as the following description proceeds and the features of novelty which characterize the invention will be pointed out with particularity in the claims annexed to and forming part of this specification.

In carrying out the present invention, there is provided a refrigerator cabinet having a face portion defining an access opening to the interior of the cabinet and at least two doors or other closure members for closing the access opening. The doors are arranged in side-by-side relationship across the access opening with their opposed or mating edges in spaced relation to permit opening or closing of either door without disturbing the other. The remaining edges of the doors are in overlapping and spaced relationship with the face portion of the cabinet. A sealing gasket on the face of the cabinet and extending about the entire periphery of the access opening seals the space between the adjacent edges of the doors and the cabinet. In order to seal the space or air gap between the opposed or mating edges of the closure members, there is provided a pair of sealing strips including longitudinal anchoring portions respectively secured to the inner surface of each door along the mating edge thereof and flexible sealing portions extending into the space between the closure members in overlapping relationship with one another. To assure contact of these sealing portions with one another when the closure members are in a closed position and even though these members may not be in exact alignment, each of the sealing portions extends at an angle and in the same direction from the plane of the anchoring portions.

For a better understanding of the invention, reference may be had to the following description taken in conjunction with the accompanying drawings in which:

FIG. 1 is a perspective view, partly in section, of a

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refrigerator incorporating an embodiment of the present invention;

FIG. 2 is an enlarged view of a portion of the cabinet of FIG. 1 taken along line 2—2 of FIG. 1;

FIG. 3 is an enlarged sectional view of a portion of the cabinet of FIG. 1 taken along line 3—3 of FIG. 1; and

FIG. 4 is a view illustrating the normal shape of the sealing strip employed in the practice of the present invention.

While it will be obvious that the present invention is applicable to the sealing the spaces between a cabinet and a plurality of doors or drawers for closing the access opening to the cabinet as well as for sealing the space between the adjacent edges of the doors or drawers, the invention will be particularly described with reference to a refrigerator cabinet comprising a pair of doors which cooperate to close a mullionless access opening to the cabinet.

Referring to FIG. 1 of the drawing there is shown a refrigerator cabinet generally indicated by the numeral 1 having a storage compartment 2 within the cabinet. The single access opening to the storage compartment 2 is defined by a cabinet face portion 3. The access opening is closed by a pair of doors 4 and 5 which are pivotally supported adjacent their outer vertical edges on the cabinet by means of suitable hinges 6. Each of these doors 4 and 5 are mounted on the face of the cabinet in such a position that their upper and lower edges 7 and 8 as well as their pivotally mounted edges 9 overlap the face portion of the cabinet 3 and are spaced therefrom a distance sufficient to provide room for a resilient sealing gasket 10 mounted on the face portion 3 of the cabinet and extending about the entire periphery of the access opening to the compartment 2. The doors are normally held or latched in their closed gasket sealing positions by any suitable means such as a pair of magnetic latches indicated by the numeral 18.

In accordance with the usual refrigerator cabinet practice, each of the doors includes an inner panel or surface 11 and an outer panel or surface 12 spaced from one another, the space between these panels being filled with suitable heat insulating material 14. In the illustrated embodiment of the invention, these inner and outer panels 11 and 12 are secured together by means of a trim strip or frame member 15 extending about the entire periphery of each door. Since the doors are of substantial thickness, it is necessary to provide a space between the mating or inner edges 16 and 17 of the respective doors of a width such that inner or mating edge of one door will clear the other as it is being moved to the open or closed position.

In accordance with the present invention there is provided an improved low cost sealing means for sealing the space between those portions of the mating edges 16 and 17 of the two doors and for cooperating with the gasket 10 to also seal the space between the two doors in the areas of the gasket 10.

As is shown more particularly in FIGS. 2, 3 and 4 of the drawing, this sealing means is in the form of a flexible sealing strip 20 of rubber or the like which extends the full length of the mating edges 16 and 17 of the doors and which includes a base or anchoring portion 21 overlying the inner surface of the door and secured thereto by means of retaining member 23. In the illustrated embodiment of the invention, this anchoring means is secured to the doors proper by means of a section 24 extending between the inner panel 11 and the frame 15. If desired the anchoring portion of the sealing strip may also include a relatively small bead 25 adapted to be engaged by a correspondingly shaped portion 26 of the retaining member for the purpose of positively aligning the sealing strip along the inner surface of the door.

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To provide the actual bridging and sealing of the space between the mating edges 16 and 17 of the adjacent doors, each sealing strip includes a sealing portion 28 extending into the space between the doors in substantial overlapping relationship with the corresponding portion 28 of the other sealing strip. Preferably each sealing portion extends at least two-thirds of the distance between the door edges 16 and 17. So that there will be minimum interference to the opening of either door, these sealing portions are also preferably of a tapered and relatively thin cross section terminating almost at a point at their outer edges 29 to provide increased flexibility towards these outer edges.

As is shown more particularly in FIGURE 3 of the drawing, the sealing strips are secured to the doors in such a manner that the base or anchoring portions 21 thereof are in substantially the same plane when the doors are in their closed positions. However, because of manufacturing variations differences in the compressibility of various sections of gasket 10, latching force variations, etc., the two doors may not always close to the same extent, that is, to a point where the sealing strips are in the same plane. To obtain the desired seal under such conditions, the sealing strips are formed so that in their normal or unflexed positions as shown in FIG. 4, the portions 28 form a small or acute angle with the plane of the base portion 21. In other words, each of the sealing portions 28 extend at an acute angle and in the same direction from the plane of the anchoring portions. In the illustrated embodiment of the invention the sealing portions slope or angle inwardly or in other words toward the interior of the cabinet. By this shape of the sealing strips, a positive contact of at least the outer edge or tip 29 of one of the sealing portions with a surface of the other is assured even though the two doors or anchoring portions of the sealing strips may not be in exact alignment when the doors are closed.

As indicated in FIG. 2 of the drawing, the retaining members 23 for securing the sealing strips to the doors terminate short of the point where the doors contact the horizontal portions of the gasket 10 at the top and bottom of the access opening. Also, if a bead such as bead 25 is provided on the strips, this bead may be removed in this area so that the end portions of the sealing strips at the upper and lower corners of the doors will provide a substantially flat surface for sealing engagement with the adjacent portions of the gasket 10. Thus there is provided a complete seal of the space between the mating surfaces of the doors which includes the portions thereof overlapping the gasket 10.

From the foregoing, it will be seen that there has been provided a relatively inexpensive means for sealing the mullionless joint or space between adjacent closure members. Either of the doors 4 and 5 can be opened or closed without disturbing the other. For example with reference particularly to FIG. 3 of the drawing it will be seen that in the opening of the door 4, the sealing strip attached thereto merely disengages itself from the sealing strip attached to door 5 and re-engages that strip during closing of the door 4. On the other hand, if it is desired to open the door 5 while leaving the door 4 in its closed position sealing portions 28 of both strips will deform or bend to permit the portion attached to the door 5 to slide past the other as the door 5 is opened. Those portions of the sealing strips overlying the gasket 10 which are generally deformed as shown in FIG. 2 of the drawing when the doors are in their closed positions will undergo this same action as one sealing strip slides past the other.

While the present invention has been described with reference to a specific embodiment thereof, it will be understood that the modifications can be made by those

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skilled in the art without actually departing from the invention. Therefore the appended claims are intended to cover all such variations as come within the true spirit and scope of the invention.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. In combination, a cabinet having a face portion defining an access opening to the interior of said cabinet, a sealing gasket on said face portion completely surrounding said access opening, a pair of closure members in side-by-side relationship for normally closing said opening, said closure members having opposed spaced edges extending across said access opening, the remaining edges of said closure members overlapping said face portion for sealing engagement with said gasket when said members are in their closed position, means for sealing the space between said opposed edges comprising opposed sealing strips extending along the opposed edges of said closure members with the ends thereof overlapping said gasket when the closure members are closed, each of said strips consisting essentially of a substantially flat anchoring portion overlying the inner surface of a closure member and secured thereto and a flexible sealing portion of tapered cross section extending directly from said anchoring portion into the space between said opposed edges in overlapping relationship with the corresponding portion of the other of said strips, each of said sealing portions extending at an acute angle and in the same direction from the plane of said anchoring portions to assure engagement of said sealing portions with one another when said closure members are in a closed but not completely aligned position.

2. In combination, a cabinet having a face portion defining an access opening to the interior of said cabinet, a compressible sealing gasket on said face portion completely surrounding said access opening, a pair of doors pivotally supported in side-by-side relationship for normally closing said opening, said doors having spaced mating edges extending across said access opening, the remaining edges of said doors overlapping said face portion for sealing engagement with said gasket when said doors are in their closed position, means for sealing the space between said opposed edges comprising opposed sealing strips extending along the opposed edges of said doors with the ends thereof overlapping said gasket when the doors are closed, each of said strips consisting essentially of a substantially flat anchoring portion overlying the inner surface of a door and secured thereto and a flexible sealing portion of tapered cross section extending directly from said anchoring portion into the space between said opposed edges in substantial overlapping relationship with the corresponding portion of the other of said strips, said anchoring portions being mounted on said doors to be substantially in the same plane when said doors are closed, retaining means securing said anchoring portions to said doors with the ends thereof terminating short of the points said doors contact said gasket when said doors are closed, each of said sealing portions extending at an acute angle and in the same direction from the plane of said anchoring portions to assure engagement of said sealing portions with one another when said doors are in a closed but not completely aligned position.

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