Nov. 7, 1950 J. W. NORRISH 2,528,705

REFRIGERATOR DOOR ASSEMBLY

Filed July 23, 1948

FIG. 1

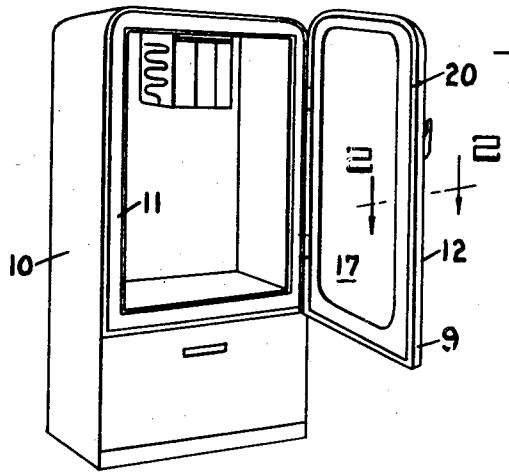


FIG. 2

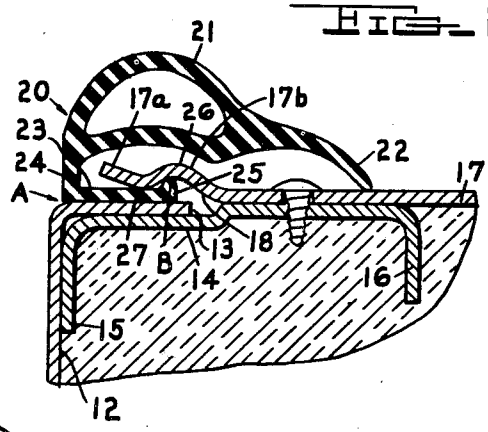
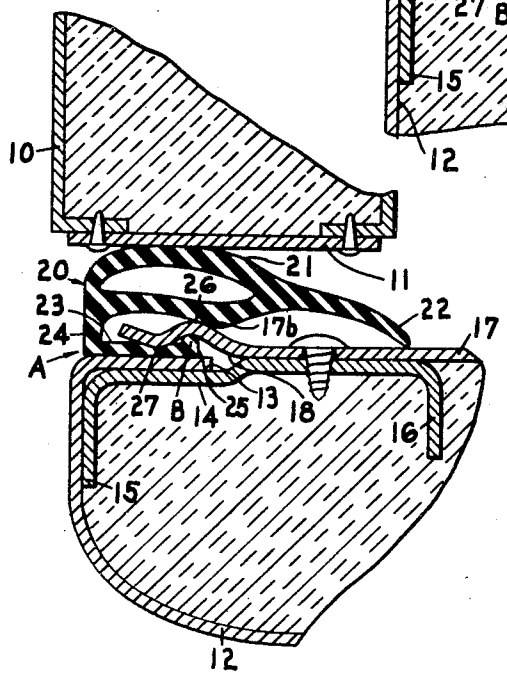


FIG. 3



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REFRIGERATOR DOOR ASSEMBLY

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4 Claims. (Cl. 20—35)

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This invention relates to a refrigerator cabinet construction and more especially to a refrigerator door and door seal assembly.

An object of this invention is to provide a door gasket and door assembly whereby the door gasket may be mounted to the door without being penetrated by any screw or other fastening means.

Another object of this invention is to provide a novel door and gasket assembly whereby the door is constructed and arranged to include a resilient portion which cooperates with the door seal both to retain the gasket upon the door and to provide an improved door seal.

A further object of this invention is to provide a door gasket and door assembly including an inner door panel including a resilient portion adapted to exert pressure on a flange of the door gasket to provide an improved seal when the door is closed.

A still further object of this invention is to provide a door gasket and door assembly in which the inner door panel includes a resilient section constructed and arranged to provide a pair of laterally disposed pressure points upon closing of the door.

These and other objects of this invention will be apparent from the following description and claims taken in conjunction with the accompanying drawings, forming a part of this application, in which:

Fig. 1 is a perspective view of a refrigerator cabinet embodying the gasket and door assembly arrangement of this invention.

Fig. 2 is an enlarged section of a door taken along the line II—II of Fig. 1.

Fig. 3 is an enlarged section illustrating the construction with the door in closed position.

Referring to the drawings for a detailed description, the reference numeral 9 designates a door for a refrigerator cabinet 10 including a breaker strip 11 at the front of the cabinet extending between the inner and outer shells thereof. The door comprises an outer panel 12 of sheet metal, the edges of which are bent inwardly throughout the periphery of the panel to provide a flat flange 13 entirely around the panel. A door frame 14 of a general U-shaped configuration is mounted with a portion of the base of the U adjacent one side of flange 13 and in contact therewith and with a second portion of the base extending laterally of flange 13 in substantially the same plane as the flange. The sides 15 and 16 of the U-shaped door frame are positioned to extend into the interior of the door. Door

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frame 14 may be welded to flange 13 or to that portion of door panel 12 contacting side 15 of the door frame.

Door 10 includes an inner panel 17 of thin, stiff heat resisting material such as any well known plastic or paper impregnated with a resinous condensation product. There are many such products known to the industry under various trade names and the particular composition forms no part of this invention. Door panel 17 extends substantially to the outer margin of door 10 in such manner as to overlap flange 13 throughout the periphery of the door.

A plurality of screws or other fastening means function to mount the inner door panel to the door frame. As shown, door panel 17 is moulded or otherwise formed to include a resilient section 17*a* laterally offset outwardly from the fastening means and providing an extension overlying flange 13 entirely about the periphery of the door. Section 17*a* is normally biased in a direction away from flange 13, as shown in Fig. 2, but is adapted to move toward the flange upon closing of the door. (See Fig. 3.) A boss 17*b*, formed on the resilient section of panel 17, provides a raised rim extending concentrically with and entirely about the periphery of the inner door panel. Boss 17*b* includes a concave surface on the underside thereof which cooperates with a door gasket to retain the same in a fixed position on the door. A rubber sealing gasket disposed at the outer margin of the inner door panel comprises a tubular portion 21 of substantially crescent-shaped cross section and includes an extension 22 and a flange 23 connected by a web 24 to the tubular portion. A raised boss 25 provided on the end of flange 23 cooperates with concave surface 18 to retain the gasket on the door.

In assembled relation, flange 23 of the door gasket is interposed between flange 13 and door panel 17 such that boss 25 is positioned directly beneath concave surface 18. With this arrangement, the sealing gasket is secured to the door without being penetrated by screws or other fastening means. Boss 25 prevents accidental removal of the door gasket when the door is open.

Upon closing of the door against breaker strip 11, a pair of laterally disposed pressure points 26 and 27 are provided to insure a more positive door seal than that provided by door seals of common construction. As will readily be understood, closing of the door forces rim 17*b* inwardly toward flange 13 due to compression of the tubular portion of the door gasket. Rim 17*b* will therefore exert pressure upon the underside of the

tubular portion entirely about the periphery of the door. At the same time, resilient section 17a will be forced toward flange 13, compressing gasket flange 23 against the outer door panel. In this manner a pair of laterally disposed pressure points 26 and 27 are provided, one on the gasket flange and one on the tubular portion of the gasket. Thus, closing of the door results in compression of flange 23 and the underside of tubular section 21 of the door gasket to insure a positive door seal entirely about the periphery of the door.

While this invention has been disclosed in a particular form, it will be obvious to those skilled in the art that it is not so limited, but may be practiced in other modifications without departing from the spirit and scope thereof as set forth in the appended claims.

What is claimed is:

1. A door assembly for a refrigerator cabinet comprising an outer door panel, an inwardly turned flange on said outer door panel extending around the periphery of said door and presenting a continuous unbroken planar bearing surface throughout the length of said flange, an inner door panel mounted adjacent said flange, a resilient extension on said inner door panel adapted to move inwardly and outwardly with respect to said bearing surface overlying said surface in spaced relation thereto and normally biased away therefrom, a door gasket including a flange disposed in contact with and supported upon said bearing surface extending beneath said resilient extension, said gasket including a tubular section joined to said gasket flange spaced from said bearing surface and said gasket flange, said tubular section overlying said resilient extension, said tubular section presenting one surface adapted to contact said cabinet and a second surface in contact relation with said resilient extension whereby said extension is deflected inwardly upon said gasket flange toward said bearing surface upon closing of said door.

2. A door assembly for a refrigerator cabinet comprising an outer door panel, an inwardly turned flange on said outer door panel extending around the periphery of said door and presenting a continuous unbroken planar bearing surface throughout the length of said flange, an inner door panel, means for securing said panels together, a resilient extension on said inner door panel adapted to move inwardly and outwardly with respect to said bearing surface overlying said surface in spaced relation thereto, said extension including a portion concave and a second convex with respect to said bearing surface, a door gasket including a flange disposed in contact relation with and supported upon said bearing surface extending beneath said resilient extension, said gasket including a tubular section spaced from said bearing surface and said gasket flange and joined to said gasket flange, said tubular portion overlying said resilient extension, said tubular section presenting one surface in contact relation with said cabinet and a second surface in contact relation with the concave portion of said resilient extension whereby the convex portion of said extension is deflected inwardly upon said gasket flange toward said bearing surface upon closing of said door.

3. A door assembly for a refrigerator cabinet comprising an outer door panel, an inwardly turned flange on said outer door panel extending around the periphery of said door and presenting a continuous unbroken planar bearing surface throughout the length of said flange, an inner door panel mounted adjacent said flange, a resilient section on said inner panel adapted to move inwardly and outwardly with respect to said bearing surface overlying said surface in spaced relation thereto, a door gasket including a flange disposed in contact with and supported upon said bearing surface extending beneath said resilient section, said gasket including a tubular section joined to said gasket flange spaced from said bearing surface and said gasket flange, said tubular section overlying said resilient section, said tubular section presenting one surface adapted to contact said cabinet, said resilient section presenting one surface in contact with the under-surface of said tubular section and a second surface laterally disposed from said aforementioned extension surface in contact relation with said gasket flange whereby said resilient section exerts pressure outwardly on the under surface of said tubular section and inwardly upon said gasket flange upon closing of said door.

4. A door assembly for a refrigerator cabinet comprising an outer panel having an inwardly turned flange extending around the periphery of said door and presenting a continuous unbroken planar bearing surface, an inner door panel mounted adjacent said flange, a resilient section on said inner panel adapted to move inwardly and outwardly with respect to said bearing surface overlying said bearing surface in spaced relation thereto, a door gasket including a flange disposed intermediate said resilient section and said bearing surface, said gasket including a tubular portion joined to said gasket flange and spaced from said bearing surface and gasket flange, said tubular portion overlying said resilient section, a raised rim on said resilient section extending outwardly toward said tubular portion of said gasket, said resilient section including a portion contacting said gasket flange laterally of said rim, said tubular portion presenting one surface in contact with said cabinet, said raised rim contacting the under surface of said tubular portion, and said resilient section being disposed in contact with said gasket flange when said door is closed.

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