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REFRIGERATING APPARATUS

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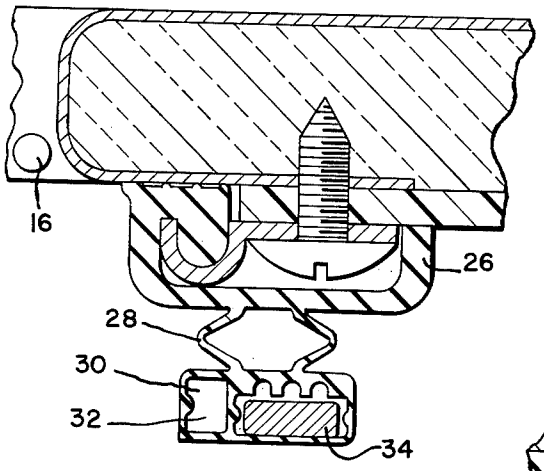

Fig. 3

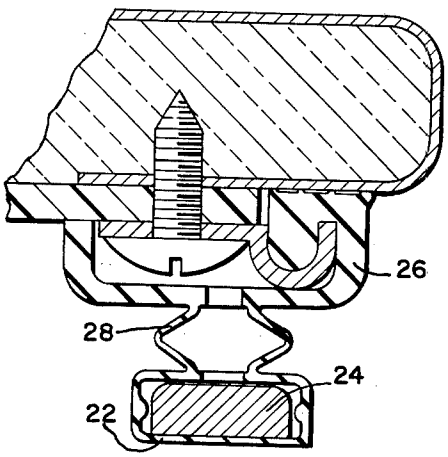

Fig. 2

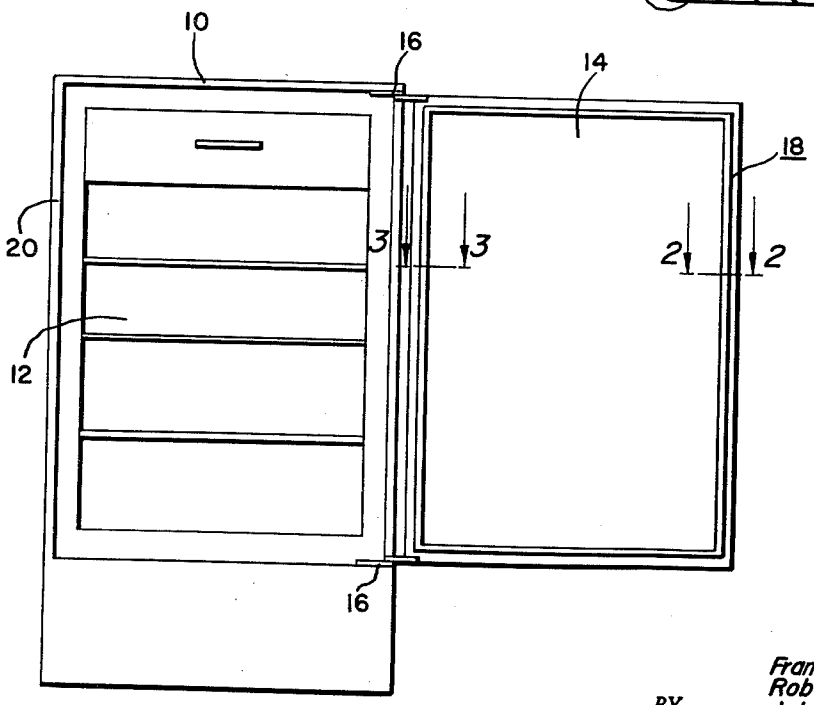

Fig. 1

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REFRIGERATING APPARATUS

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This invention relates to refrigeratnig apparatus and more particularly to an improved door seal for use in a refrigerator or the like.

One of the big problems in providing a good door seal for a refrigerator is that of providing a door seal which can be used for sealing the door adjacent the hinge side of the door. Magnetic seals which have proven to be very satisfactory for sealing the three sides of the door have not been satisfactory for sealing the hinge side of the door where the seal is required to wipe across the face of the cabinet and for that reason it has been customary to eliminate the magnet from the bulb of the door seal adjacent the hinge side only and to utilize nonmagnetic compressible filler material in the bulb of the seal at this point. Seals of this type require very accurate alignment of the door relative to the face of the cabinet and therefore are undesirable even though such seals are capable of standing up under the wiping action which takes place between the door seal and the door jamb.

It is an object of this invention to provide a magnetic type of door seal which can be used adjacent the hinge side of the door without causing excessive friction between the door jamb and the door seal.

More particularly it is an object of this invention to provide a magnetic door seal for use adjacent the hinge side of a door wherein that portion of the bulb which first contacts the door jamb does not contain any magnetic material and assists in delaying the closing of the air gap between the magnet in the gasket and the metal cabinet during the closing movement of the door.

Another object of this invention is to provide a magnetic type door seal in which the bulb portion of the seal is separated into a plurality of compartments, only one of which contains a magnet.

Another object of this invention is to provide a special type of magnetic door seal for use adjacent the hinge edge of a door which may be mitered to a conventional magnetic type door seal used at the other three sides of the door.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawing wherein a preferred embodiment of the present invention is clearly shown.

In the drawing:

FIGURE 1 is a front elevational view showing a refrigerator cabinet embodying our invention.

FIGURE 2 is a fragmentary sectional view taken substantially on line 2—2 of FIGURE 1.

FIGURE 3 is a fragmentary section view taken substantially on line 3—3 of FIGURE 1.

Referring now to the drawing wherein a preferred embodiment of the invention has been shown, reference numeral 10 designates a refrigerator cabinet having a conventional food storage compartment 12 and a door 14 for closing the food storage compartment. The door 14 is hinged to the cabinet 12 adjacent its one edge by means of suitable hinges 16. A door seal generally designated by the reference numeral 18 is adapted to be carried by the inner face of the door to seal against the face or door jamb surface 20 of the refrigerator cabinet 10. The door jamb surface 20 is of metallic construction and

serves to attract the magnet in the magnetic door seal in the closed position of the door.

A conventional magnetic type door seal is used at the top and bottom of the door and adjacent the handle side of the door. This conventional magnetic type door seal is shown in cross section in FIGURE 2 of the drawing. As shown in FIGURE 2 of the drawing this seal consists of a bulb portion 22 which serves to enclose a flexible magnet 24 which preferably extends the full length of the seal. The bulb portion 22 is secured to the seal mounting portion 26 by means of a flexible bellows-like arrangement 28 which allows for flexibility of the door seal. Door seals of the construction shown in FIGURE 2 of the drawing are now used extensively commercially and has proven to be satisfactory for use in sealing the three sides of the door. For a more detailed description of door seals of this type reference is made to copending application Serial No. 833,166, filed August 12, 1959. It has been customary practice in the past to omit the magnet from that portion of the door seal located adjacent the hingle side of the door. When using a magnet in a door seal of the type shown in FIGURE 2 adjacent the hinge side of the door, the magnet causes the bulb portion to prematurely grip the cabinet and this substantially prevents any wiping action between the seal and the door with the result that the seal would become distorted. To solve this problem the magnet was omitted from the seal adjacent the hinge and a resilient padding was substituted for the magnet but such padding would often allow for door leaks.

It has been found that a door seal having a cross section as shown in FIGURE 3 of the drawing can be used very effectively adjacent the door hinge side. It will be noted that in the seal shown in FIGURE 3 of the drawing, the bulb portion includes a first pocket 30 and a second pocket 32 which are arranged in side by side relationship. It will also be noted that the overall cross-sectional shape of the seal shown in FIGURE 3 is identical to that shown in FIGURE 2 with the result that a fused or vulcanized mitered joint can be formed between a section of door seal like that shown in FIGURE 3 and a section of door seal like that shown in FIGURE 2.

Furthermore, it will be observed that the magnet 34 located in the bulb compartment 30 is narrower and thinner than the magnet 24 shown in FIGURE 2. By making the magnet slightly smaller and by offsetting the magnet to one side so as to provide an open bulb portion 32 adjacent that edge of the door seal which first strikes the door jamb at the hinge side of the door, the necessary amount of wiping action can take place between the door seal and the door jamb before the air gap between the magnet 34 and the door jamb has been reduced to a point where the magnet 34 is pulled firmly against the door jamb. The magnet at the hinge side is not depended upon for holding the door closed and therefore it merely needs to be strong enough to hold the bulb in sealing engagement with the cabinet when the door is fully closed.

While the embodiment of the present invention as herein disclosed, constitutes a preferred form, it is to be understood that other forms might be adopted.

What is claimed is as follows:

1. In combination, a cabinet having a storage space therein provided with an access opening, a door for closing said opening, a door seal for sealing the joint between said cabinet and said door extending around all edges of said opening, said door seal adjacent three of said sides having a single compartment bulb portion for contacting said cabinet, a magnet disposed in said bulb portion and substantially filling the same, said door seal adjacent the fourth side of said opening also comprising a bulb portion, means for dividing said last named bulb portion into

a plurality of compartments having a combined cross-sectional area corresponding substantially to the cross-sectional area of said first named bulb portion, magnetic means disposed in only one of said compartments, and means on said cabinet arranged to attract said magnetic means in the closed position of said door.

2. In combination, a cabinet having a storage space therein provided with an access opening, a door for closing said opening, a door seal for sealing the joint between said cabinet and said door extending around all edges of said opening, said door seal adjacent three of said sides having a single compartment a bulb portion for contacting said cabinet, a magnet disposed in said bulb portion and substantially filling the same, said door seal adjacent the fourth side of said opening also comprising a bulb portion, means for dividing said last named bulb portion into a plurality of compartments having a combined cross-sectional area corresponding substantially to the cross-sectional area of said first named bulb portion, magnetic means disposed in only one of said compartments, and means on said cabinet arranged to attract said magnetic means in the closed position of said door, said door seal comprising a continuous strip having fused mitered joints at corners thereof.

3. In combination, a cabinet having a storage space therein provided with an access opening, a door for closing said opening, a door seal for sealing the joint between said cabinet and said door extending around all edges of said opening, said door seal adjacent three of said sides having single compartment bulb portion for contacting said cabinet, a magnet disposed in said bulb portion and substantially filling the same, said door seal adjacent the fourth side of said opening also comprising a bulb portion, means for dividing said last named bulb portion into a plurality of compartments, magnetic means disposed in only one of said compartments, and means on said cabinet arranged to attract said magnetic means in the closed position of said door.

4. In combination, a cabinet member having a compartment therein, a door member supported on said cabinet member and movable relative to said cabinet member for closing said compartment, hinge means for pivotally connecting said door adjacent its one edge to said cabinet member, sealing means carried by said door adjacent said one edge and arranged to sealingly engage a portion of said cabinet member in the closed position of the door, said sealing means comprising a longitudinally extending bulb portion secured to said door by means of a deformable support, means for dividing said bulb portion into a plurality of longitudinally extending side by side compartments, magnetic means disposed in one

of said compartments located adjacent the edge of said bulb poriton farthest away from said hinge means, and means on said cabinet member arranged to attract said magnetic means in the door closing position.

5. A door seal for use on a door which is pivotally supported on a cabinet adjacent one edge of the door, comprising in combination, means forming a bulb portion extending around the four edges of said door for sealing the joint between said door and said cabinet, and magnetic means disposed within said bulb, said magnetic means adjacent the pivoted edge of said door being smaller than the magnetic means located adjacent another edge thereof.

6. A door seal for use on a door which is pivotally supported on a cabinet adjacent one edge of the door, comprising in combination, means forming a bulb portion extending around the four edges of said door for sealing the joint between said door and said cabinet, magnetic means disposed within said bulb, said magnetic means adjacent the pivoted edge of said door being smaller than the magnetic means located adjacent another edge thereof, and means adjacent said pivoted edge of said door for preventing that portion of the bulb containing said magnetic means from contacting said cabinet when said bulb portion first engages said cabinet adjacent said pivoted edge.

7. A door seal for use on a door which is pivotally supported on a cabinet adjacent one edge of the door, comprising in combination, means forming a bulb portion extending around the four edges of said door for sealing the joint between said door and said cabinet, magnetic means disposed within said bulb, said magnetic means adjacent the pivoted edge of said door being weaker than the magnetic means located adjacent another edge thereof, and means adjacent said pivoted edge of said door for preventing that portion of the bulb containing said magnetic means from contacting said cabinet when said bulb portion first engages said cabinet adjacent said pivoted edge, said last named means comprising means forming an air pocket in said bulb adjacent that portion of the bulb which first contacts the cabinet.

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