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VAPOR PROOF COVER OR FREEZER DOOR ASSEMBLY

Filed July 23, 1958

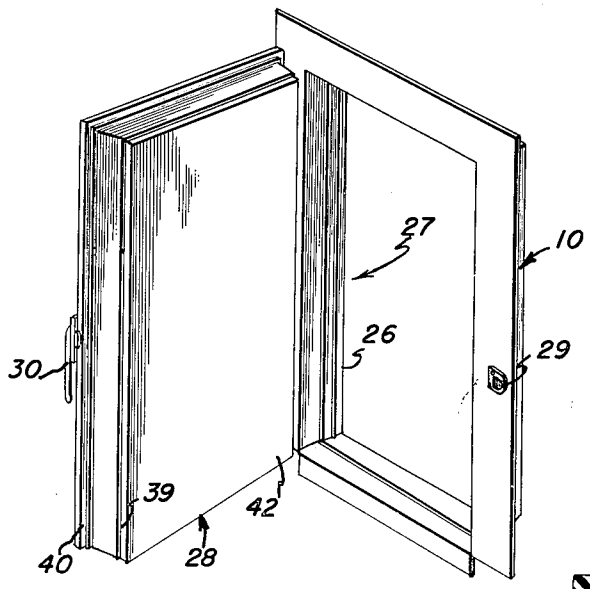
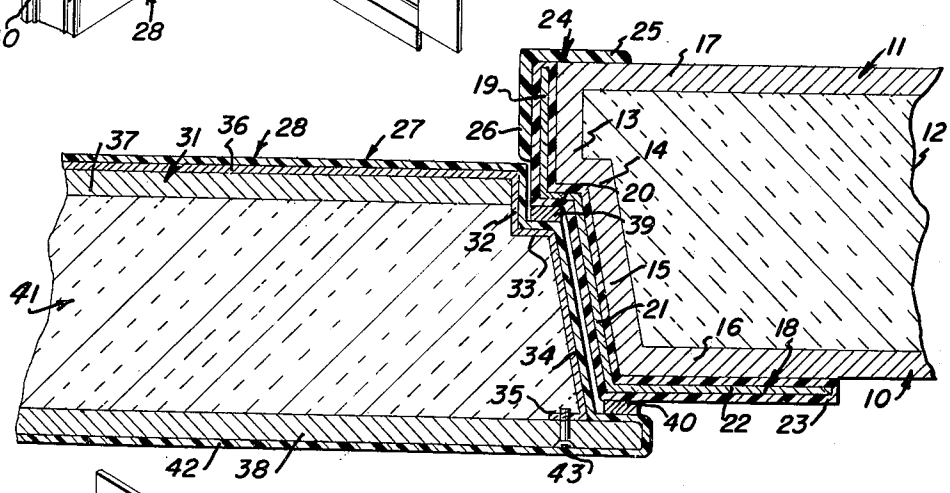


FIG. 1

FIG. 3



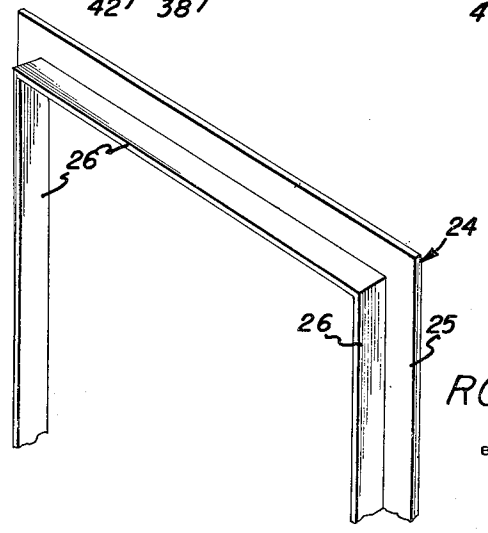


FIG. 2

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VAPOR PROOF COVER OR FREEZER DOOR ASSEMBLY

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1 Claim. (Cl. 20—16)

The present invention relates to a door assembly, and more particularly to a door assembly for a cooler or freezer or refrigerator.

The object of the invention is to provide a door assembly which is vapor proof and easy to keep clean as well as being light in weight.

Another object of the invention is to provide a vapor proof cooler or freezer door assembly which is moisture proof so that it will not rot or be subject to mold problems, and wherein warping or distortion of the parts is minimized or prevented.

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

In the drawings, of which there is one sheet,

Figure 1 is a perspective view showing the door in open position.

Figure 2 is a fragmentary perspective view illustrating certain constructional details of the assembly.

Figure 3 is an enlarged sectional view showing the door in closed position.

Referring in detail to the drawings, the numeral **10** indicates a body member which includes an outer wall member **11**, and the body member is hollow and has insulation **12** therein. The wall member **11** is shaped to include a first portion **13**, a right angularly arranged second portion **14**, and an inclined angularly arranged third portion **15**, the third portion **15** terminating in a fourth portion **16**. The wall member **11** is further provided with a fifth portion **17** which is arranged in spaced parallel relation with respect to the portion **16**.

The numeral **18** indicates a strip, Figure 3. The strip **18** is shaped to include a first section **19** which is contiguous to the first portion **13**, and the strip **18** further includes a second section **20** which is arranged at right angles with respect to the first section **19**. An inclined third section **21** extends from the second section **20**, and the third section **21** terminates in an angularly arranged fourth section **22**. A layer of material such as plastic material **23** surrounds the strip **18**.

The numeral **24** indicates a frame member which includes a base piece **25** as well as a right angularly arranged end piece **26**. The body member **10** is provided with an enlarged opening **27**, and a door **28** is mounted for movement into and out of opened and closed relation with respect to the opening **27**. A latch **29** may be provided for retaining the door **28** in locked or closed position, and a handle **30** is provided for use in opening the door **28**.

The door **28** includes a wall piece **31** which embodies a first portion **32**, a right angularly arranged second portion **33**, and an inclined third portion **34**. The portion **34** terminates in a lip **35**. As shown in Figure 3 the wall piece **31** further includes a portion **36**. As shown in Figure 3, plate members **37** and **38** are provided, and

gaskets **40** and **39** are carried by the door for helping to provide a tight joint or seal. The door **28** is hollow and has insulation **41** therein, and a layer of plastic **42** surrounds the door **28**. Securing elements **43** may be provided for retaining parts of the door connected together.

From the foregoing, it is apparent that there has been provided a door assembly which is constructed so that a tight joint or seal is provided between the door and frame so that with such a door assembly used in a desired location such as on a cooler, or freezer or refrigerator, it will be seen that leakage of air past the door when the door is in closed position will be prevented or minimized.

In Figure 1 there is illustrated a door and casing while in Figure 3 there is illustrated a cross section of the door in closed position.

The door is adapted to be constructed of a molded Fiberglas shell or other moldable materials and may consist of several parts which form a cavity varying in depth depending upon whether the door is for high or low temperature coolers. The space within the door may be filled with a suitable insulation such as polystyrene insulation as indicated by the numeral **41**, and sheets of laminated wood such as the sheets or plates **37** and **38** may be provided for giving the door the required amount of rigidity as well as providing a means for securing hinges and other hardware. When the parts are properly assembled and sealed, the entire door is vapor proof. The outer edge of the door extends outward to provide a seat for the gasket **40** which engages the door casing as shown in Figure 3.

The door casing or body member **10** includes the wall member **11** which may be made of steel to provide the necessary rigidity, and the door may be encased in Fiberglas or other moldable material. With the parts arranged as shown in the drawings, when the door is in closed position, there will be a complete seal against air or moisture and the door fits snugly against the casing when the door is closed. The gasket **39** fits in an offset portion between the door and casing so that the pair of gaskets **39** and **40** provide a double gasket seal.

The member **24** may be made of Fiberglas and has an angled formation to fit the inside of the door.

Some of the advantages of the Fiberglas cooler and freezer door assembly of the present invention are that it is vapor proof, easy to keep clean, light in weight and since it is moisture proof, it cannot rot and is not subject to mold problems. Furthermore, technique of assembly, namely, adhering of Fiberglas or other moldable materials to wood or polystyrene to wood, or to Fiberglas true platen produces a solid mass that will not deflect, or other moldable materials under pressure over a flat warp or distort.

The member **24** is of angular formation.

A bottom member connecting the lower ends of the portion **26** in Figure 1, may be composed of angle iron designed to be embedded in the cement floor, and if made of Fiberglas it would be beveled to raise ⅜" from the outer edge to the center portion which would lie under the closed door. This ⅜" bevel permits the door gasket to swing free when the door is opened.

Thus, according to the present invention it will be seen that there has been provided a door assembly which is light in weight and warp-proof. The assembly can be used as a walk-in door and can be sheathed in molded Fiberglas insulated with expanded polyurethane and sealed so that any possibility of moisture absorption is locked out. The weight thereof is one-fourth to one-third that of conventional wood doors and it cannot rot, corrode, warp or wear and it can be provided in white or color which is molded in and the door never needs painting and the assembly is priced competitively with wood and steel.

Some of the advantages of the door assembly of the present invention are as follows. When used as a refrigerator door, the molded Fiberglas exterior locks out moisture permanently, and the rigidity of material guarantees against any warpage. Weight is reduced considerably as compared to most wood doors, and the Fiberglas exterior is highly resistant to impact and will not rot or corrode. The gleaming surface can always be kept clean and bright. The insulation of expanded polyurethane is sealed in and can never lose its insulating properties.

The exterior of the refrigerator door is of reinforced glass such as Fiberglas construction. The front and back sections are molded separately in one piece and they are then permanently bonded together in a moisture-proof, rigid shell. Plywood or Masonite may be molded in the Fiberglas and also steel back-up plates to which hardware is fastened can be molded in. Through an opening in the top of the shell, expanded polyurethane insulation is foamed until the door is full and the foaming and expansion of this product insures that the door is tightly filled with insulation. The opening in the top is then filled with Fiberglas and the door is complete except for hardware, and it is prefectly rigid and will not dent, crack or break under any normal conditions.

Various types of sills are available and if desired a Fiberglas threshold, beveled, can be furnished to be placed flush in the flooring. A removable gasket can also be used. Furthermore, standard hardware is adapted to be employed and because of the light weight and absolute rigidity of the door of the present invention, only two hinges are needed on most sizes and latching is required at only one point and an inside opening safety release can be furnished as standard equipment.

The doors can be arranged to swing from either the right or left and a frame may be provided with the door.

Minor changes in shape, size and rearrangement of details coming within the field of invention claimed may be resorted to in actual practice, if desired.

I claim:

In a device of the character described, a body member provided with an enlarged opening, a frame member mounted in the opening in said body member in fixed relation thereto, said body member including a wall member, said body member being hollow and having insulation therein, said wall member being shaped to include a first portion, a second portion arranged at right angles to said first portion, a third portion arranged angularly with respect to said second portion, a fourth portion arranged angularly with respect to said third portion, a fifth portion which is arranged in spaced parallel relation with respect to said fourth portion, a strip including a first section secured to the first portion of said wall member, a second section arranged at right angles to said first section and secured to the second portion of said wall member, said second section terminating in an angularly arranged third section, said third section terminating in a fourth section which is secured to the fourth portion of said wall member, a layer of material surrounding said strip, a frame member including a base piece that is secured to the fifth portion of said wall member, said frame member further including a right angularly arranged end piece that is parallel with the first portion of said wall member and which is arranged in contact with the layer of material surrounding the said strip; and a door hingedly mounted on said wall member for selectively closing said opening and said door including a wall piece that is disposed in complementary relation with the opening in said body member, said wall piece embodying a first portion, a right angularly arranged second portion extending from said first portion, an inclined third portion extending from said second portion, a lip extending from the third portion of said wall piece, said wall piece further including a fourth portion extending at right angles from and in spaced parallel relation to said lip, parallel plate members one of which is secured to the inner surface of the fourth portion of said wall piece and the other plate member being secured to said lip, gaskets carried by said door in sealing engagement with the body member when the door is in closed position, insulation within said door, and a layer of plastic surrounding said door.

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