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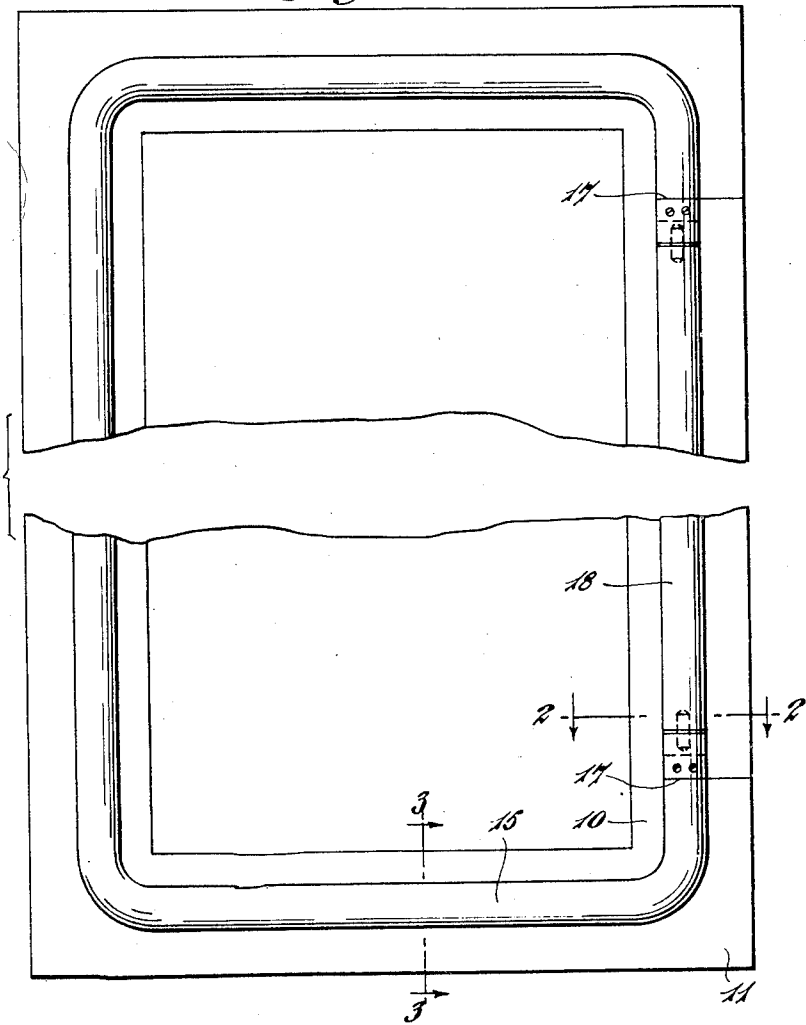
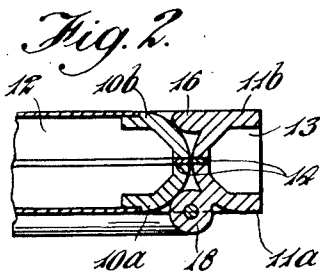
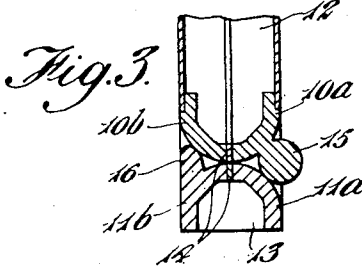
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REFRIGERATOR DOOR CONSTRUCTION

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Fig. 1.



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REFRIGERATOR DOOR CONSTRUCTION

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1 Claim. (Cl. 20—35)

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This invention relates to refrigerators and the like and has for its chief object to provide an improved construction of door and door frame for the same which will render the provision of sealing gaskets between the door and the frame unnecessary, and which will, moreover, not suffer from the disadvantage so often experienced with refrigerator doors that the door and frame ice up over a considerable area with the result that great force has to be used to unstick the door which is liable to be damaged in the process.

According to the present invention the mating parts of the door frame and the framing of the door are made in the form of light alloy castings which are substantially semi-circular in cross section, at least one of the parts being provided with an annular bead with which the other part is adapted to engage to give a line contact, or substantially a line contact, around the door.

In the preferred embodiment of the present invention the door frame is provided with a front annular bead of circular cross section adapted to contact with the framing of the door when the door is closed, and the framing of the door is provided at the rear with an annular bead, of curved cross section, with which the door frame makes contact when the door is closed. In this preferred embodiment of the present invention there are thus two annular lines of contact between the door frame and the framing of the door, but due to the shape of the door frame and the framing of the door there is practically a shear action on any ice which has formed along the line of contact with the result that it is a simple matter to shear through the film of ice.

Whilst in the case of domestic refrigerators any heat transfer which may take place through the light alloy castings is immaterial (this being particularly so where the alloy is of low thermal conductivity), it may in some cases be desirable to avoid this heat transfer, in which case the door frame and the framing of the door may each be made in two parts, front and back, the two parts of the door frame and the two parts of the framing of the door being insulated from one another by a strip of heat insulating material, such as rubber or the material sold under the trade-mark "Tufnol."

In order that this invention may be the more clearly understood and readily carried into effect, reference may be made to the accompanying drawings which illustrate, by way of example, one convenient embodiment of the present invention and in which—

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Figure 1 is a front elevation of the door and door frame portion of a refrigerator,

Figure 2 is a section on line 2—2 of Figure 1, and

Figure 3 is a section on line 3—3 of Figure 1.

Referring now to the accompanying drawings in the door frame assembly therein illustrated the door frame 10 and the framing 11 of the door are made in the form of castings of a metal of low thermal conductivity such as magnesium, or preferably, a magnesium alloy. The door itself is lagged with cork or other suitable material in any desired manner, as at 12, and the remainder of the chamber carrying the framing 11 of the door is similarly lagged as at 13.

With a view to avoiding the conduction of heat from the outside to the inside of the refrigerator or the like the door frame and the framing of the door are conveniently each made in two parts, a front part 10a, 11a respectively and a rear part 10b, 11b respectively, and a strip of heating insulating material 14, such, for example, as rubber or the material sold under the trade-mark "Tufnol," is inserted between the two parts, the two parts being, of course, suitably held together to form the complete frames 10 and 11.

The frame 10 of the door is substantially semi-circular in cross-section and the door framing 11 itself may also be regarded as being mainly semi-circular in cross section (see Figures 2 and 3). The door frame 10 is provided around its front with a bead 15 which is substantially circular in cross section and the framing 11 of the door is provided at the rear with a curved annular bead 16. The parts are so proportioned that with the door closed the bead 15 on the door frame contacts with the framing 11 of the door over what is practically a line contact, and the back of the door frame 10 contacts with the bead 16 on the framing 11 of the door in a like manner (see Figures 2 and 3). In addition to the front and back contacts between the door frame and the framing of the door the two heat insulating strips 14 in the frames may likewise contact each other.

The door when closed may thus serve to define two closed chambers which extend all around its edge.

By making the frames of a metal, or alloy, such as that referred to above it is easy to secure airtight joints where the parts contact without the use of high pressure such as is necessary when rubber or like gaskets are used. Furthermore, the strength of the metal frames is such that

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there will be no tendency to distort so that airtight joints will always be maintained.

Whilst it is convenient to provide the annular line contact between the door frame and the framing of the door at the front and the back this is not necessary since only a singular annular line contact may, in some cases, be provided between the parts.

The hinge axis of the door is preferably arranged to coincide with the axis of the bead along one side of the door frame, the bead 15 on the door frame 10a conveniently being gapped, as at 17, and a corresponding bead portion 18 being formed on the front part 11a of the framing for the door. The bead 18 on the framing 15 for the door then bridges the gap 17 in the bead 15 on the door frame and forms a very convenient method of hinging the door. By this means it will be seen that in this case the action of opening the door will shear through any ice film which may have formed around the contact between the door frame and the framing for the door. Due firstly to the small surface of contact over which the ice film may form and secondly to the shear action which is set up as above described, at no time will it be necessary to exert any considerable force in opening the door. All chance of the door being completely iced up or damaged in opening will thus be avoided.

I claim:

A door assembly for refrigerators, including a door and frame, in which the mating parts of the door and the frame are made in the form of light alloy castings which are substantially semi-

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circular in cross-section, the door being provided with a front annular bead of circular cross-section, adapted to contact with the frame when the door is closed, and the frame being provided at the rear with an annular bead of curved cross-section with which the door makes contact when the door is closed, whereby there are formed two annular and substantially mono-dimensional lines of contact between the door and the frame and, due to the shape of the door and the frame, and whereby there is substantially a shear action on any ice that may form along the line of contact.

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