

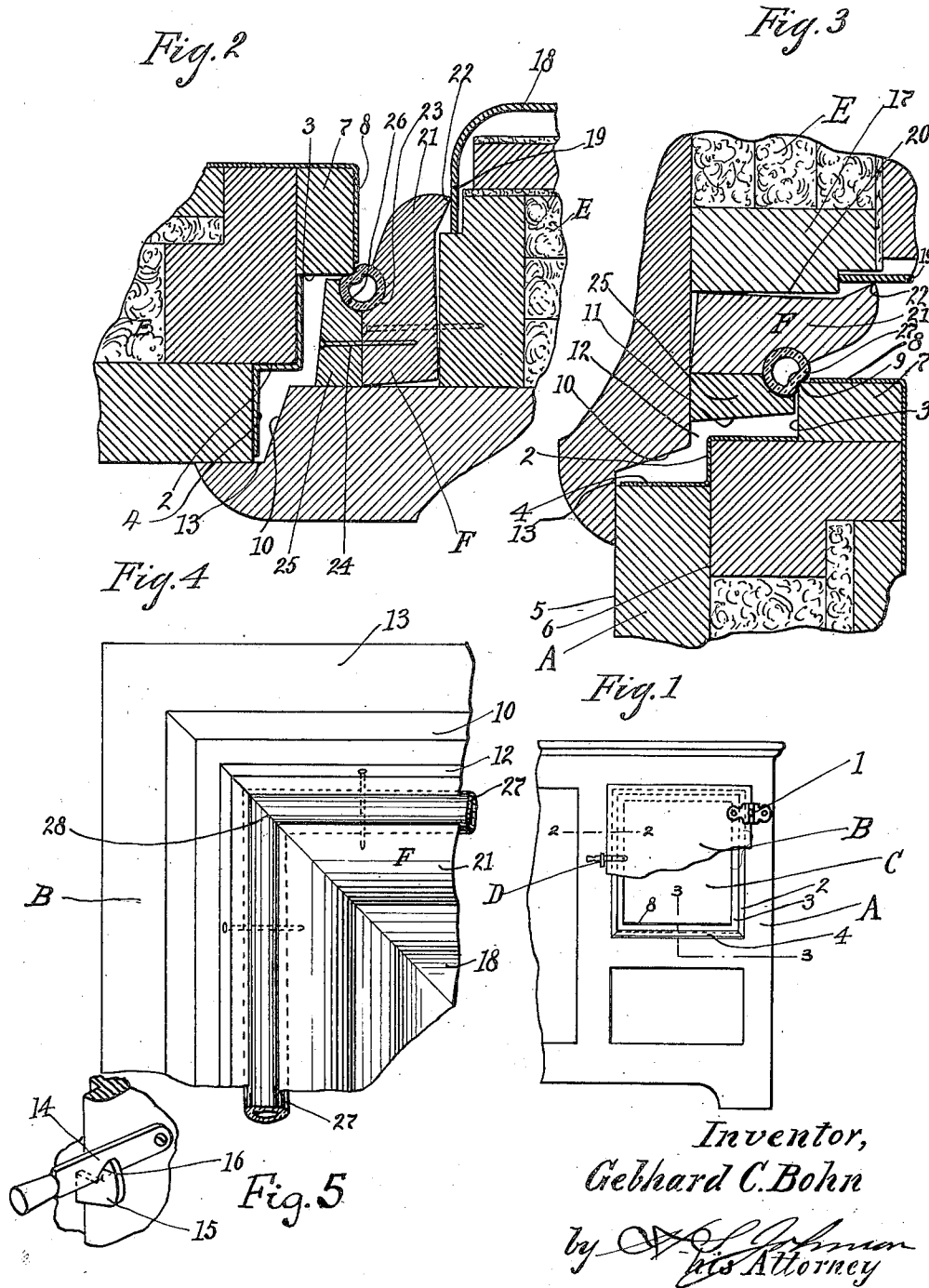
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G. C. BOHN

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DOOR JOINT

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by *[Signature]*
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UNITED STATES PATENT OFFICE.

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DOOR JOINT.

Application filed December 2, 1919. Serial No. 341,934.

To all whom it may concern:

Be it known that I, GEBHARD C. BOHN, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Door Joints, of which the following is a specification.

This invention relates to seals for refrigerator doors and more particularly to the closure for the ice chamber, and has for one of its objects to provide a built-in sealing element interposed between the edge of the door and the casing surrounding it, thereby excluding the cold air within the chamber from the deep interstices formed around the edge of the comparatively thick door.

These interstices in ordinary refrigerators are more or less in open communication with the atmosphere, it being impossible to so fit the hard meeting surfaces of the door and door frame so as to render the joint air tight.

The presence of the cold air in the interstices so reduces the temperature of that part of the casing structure immediately surrounding the door as to cause condensation of the moisture in the air thereon, both outside of the refrigerator and in said interstices. This condensation or sweating as it is sometimes called, is very injurious to the wood structure, especially to that portion forming the door sill.

A further object of the invention is to provide a metallic sheathing for the door sill having a break therein so as to prevent the direct passage of cold to, or adjacent to the front of the refrigerator, thus, tending to maintain a higher temperature in the sill structure.

To this end the invention consists in the construction, combination and arrangement of parts hereinafter described and claimed. In the drawings forming part of the specification:

Figure 1 is a fragmentary front view of a refrigerator.

Figure 2 is an enlarged sectional view taken on line 2—2 of Figure 1.

Figure 3 is an enlarged sectional view taken on line 3—3 of Figure 1.

Figure 4 is a fragmentary enlarged view of one corner of the inside of the door, and

Figure 5 is a perspective view of the door latch.

In Figure 1 of the drawings A designates a refrigerator and B a door, the latter pivotally supported by means of hinges 1 (one

only being shown) in a manner to form a closure for the food chamber C. The door opening of the ice chamber C is rectangular in shape, the jambs, sill and top thereof being formed with progressive offsets so as to form shoulders 2 and 3 respectively.

As shown in the drawings the casing is constructed of several superposed layers of wood to form said shoulders, the joints between the layers being exposed to any water that might accumulate on the door sill. To protect these joints against invading moisture applicant provides a metallic sheathing 4 extending from the shoulder 3, almost to the outer face 5 of the refrigerator, thereby covering the joint 6 in the casing. Likewise the innermost rail 7 which is rectangular in cross section and forms part of the door frame, is covered by a sheathing 8 the latter extending to within a short distance of the upper edge 9 of the shoulder 3. Thus, it will be noted that a break in the sheathing is effected by omitting to cover the face of the shoulder 3.

The door B is shown constructed along its edges with progressively arranged shoulders 10 and 11 corresponding to shoulders 2 and 3 in the door opening and loosely overlying the latter to form an air space 12, the latter completely surrounding the door when it is in closed position. The body of the door may be built up in any suitable manner, the door shown in the drawings being formed with an outer overhanging lip to form a flat face 13 extending beyond the door opening and adapted to flatly meet the face 5 to be held thereagainst by means of a suitable latch D. The latch shown, comprises a lever 14 pivotally mounted on the door so as to be swung to extend beyond the edge thereof and an outstanding hook-shaped lug 15 on the casing adapted to embrace the lower edge of the lever, the embracing part thereof having an upwardly and outwardly inclined inner edge 16 to engage the outer face of the lever to force the door against the face 5 of the refrigerator. The center of the door comprises an insulated body portion suitably built up to contain a core of insulating material E, the latter being surrounded in part by an inwardly extending comparatively high thin rail 17, the base thereof being on a level with the shoulder 10, and a metallic cover 18 formed with a downturned flange 19 over-

lying said rail. The outer horizontally disposed face 20 of the rail is located a distance from the innermost edge of the rail 7 of the door opening. Positioned in the space thus formed, which latter surrounds said insulated body portion, is the two-section moulding member F, a part thereof forming the shoulder 11 mentioned in the foregoing. The two-section moulding member comprises a comparatively wide thin main section 21 one of the wide faces thereof being formed at its outer edge with a projecting ridge 22 extending beyond said wide face, and the other wide face thereof having intermediate its long edges a longitudinal groove 23 formed with an arcuate bottom. The section 21 overlies the face 20 of the rail 17 and is suitably secured flatwise to the latter, the ridge 22 being firmly pressed against the flange 19 to afford a tight joint thereat. Suitably secured, as by nails 24, to the grooved side of section 21 is the section 25 the latter being formed with a longitudinal groove 26 adapted to register with the groove 23 so as to form a seat for a rubber tube 27 the outer edge of the section being spaced slightly from the shoulder 3. The combined size of the grooves 23 and 26 is greater than half the circumference of the rubber tube so that the latter is firmly locked in its seat when the two sections are secured in position on the door.

As indicated in Figure 4 the tube parts imbedded in the door, one for each edge thereof, are carefully mitred at the corners 28 so as to present a continuous convex yielding surface extending entirely around the door, the tube projecting longitudinally out of its groove at the juncture of the two sections. The tube which may be termed a sealing element, contacts as shown with the corner of the rail 7, when the door is in closed position, thereby forming an air tight joint between the ice chamber and the atmosphere.

By using a hollow sealing strip made of resilient material, excessive unevenness in the joint making edge such as the corner 9 is easily conformed to. Further, a tubular sealing element is also more easily compressed than a solid resilient mass, it re-

quiring but a slight pressure to indent the same.

In the construction of refrigerators, the juncture of the door and casing is obviously not insulated, the structure thereat becoming cooled and thereby tending to sustain condensation. A liberal sized air space such as is indicated by the numeral 12 operates as an insulating medium, applicant providing an air tight joint at its extreme inner end near the interior of the ice chamber. Thus, the air space is rendered quite long and deep which affords excellent insulation between the interior and exterior of the refrigerator.

I claim:

1. In a refrigerator door joint, the combination of a door and door casing, the surrounding edge of the door and casing being formed respectively with offsets, a metallic covering for the inner face of the door overhanging the edges thereof, a pair of relatively superposed strips removably secured around the edge of the door and having their meeting edges formed with a seat, one strip being wider than the other and overlapping and contacting with the overhanging edge of said door cover, and resilient sealing means secured in said seat between said strips upon attaching one strip to the other, and projecting beyond the same to contact with the adjacent edge of the door casing.

2. In a refrigerator door joint, the combination of a door and a door casing, an offset formed in the edge of the door and door casing, respectively, a pair of relatively superposed strips removably secured to the edge of the door, a sheet-like cover for the door, a bend in the edge thereof extending over the edge of the door, means whereby one of the superposed strips engages the bent portion of the sheet-like door cover to secure it in place, resilient means interlockingly engaged by the relatively superposed strips to contact with an adjacent edge of the door casing, and a metal protecting strip formed to fit the offset of the sill portion of the door but non-continuous from the inside to the outside thereof.

In testimony whereof I affix my signature.
GEBHARD C. BOHN.