Feb. 16, 1943. S. BOHN 2,311,182

REFRIGERATOR DISPLAY CASE

Filed Dec. 17, 1940 2 Sheets-Sheet 1

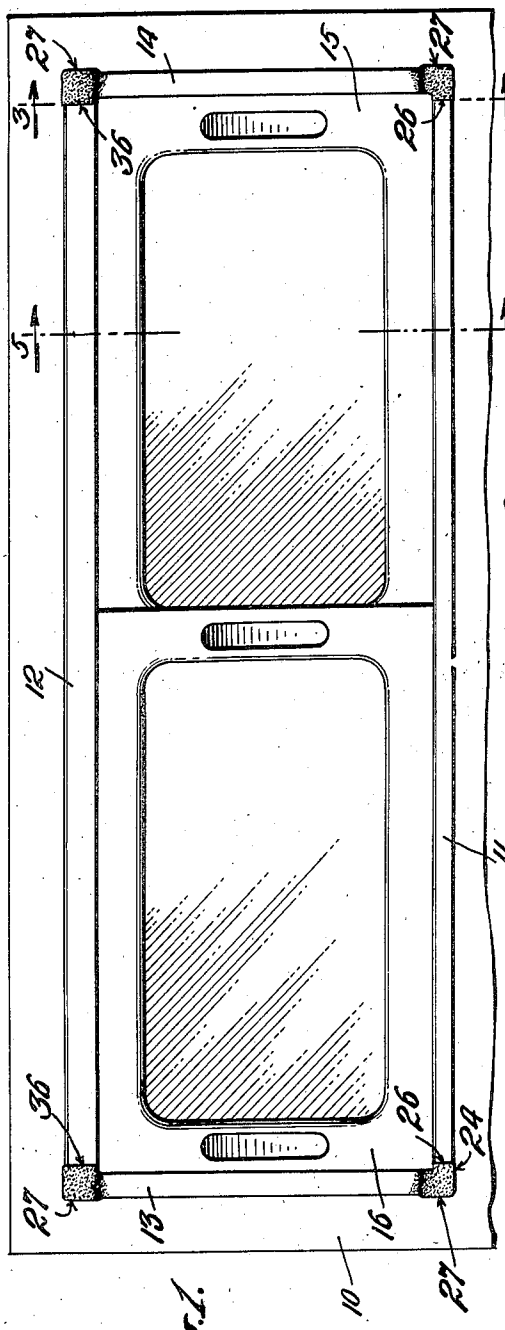


Fig. 1.

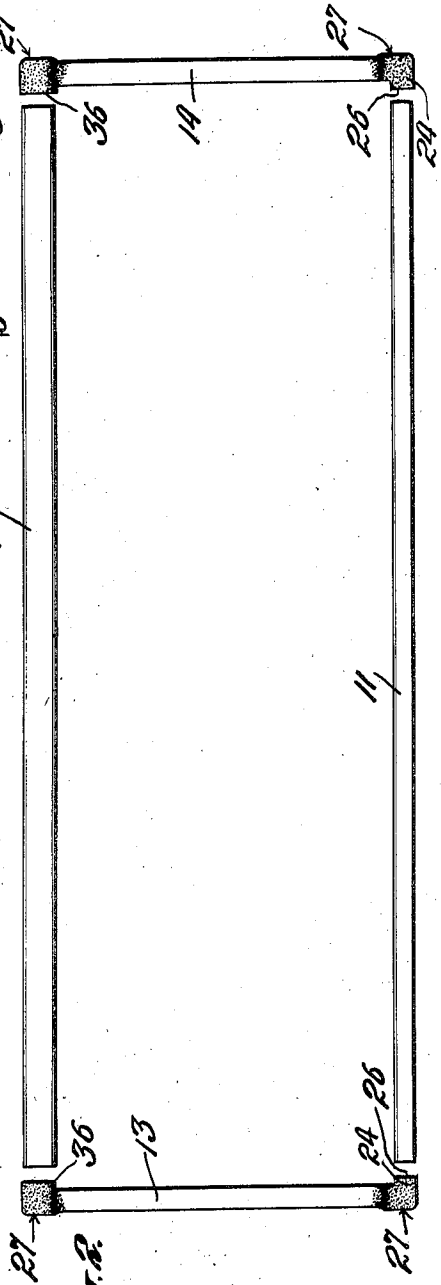


Fig. 2.

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Filed Dec. 17, 1940 2 Sheets-Sheet 2

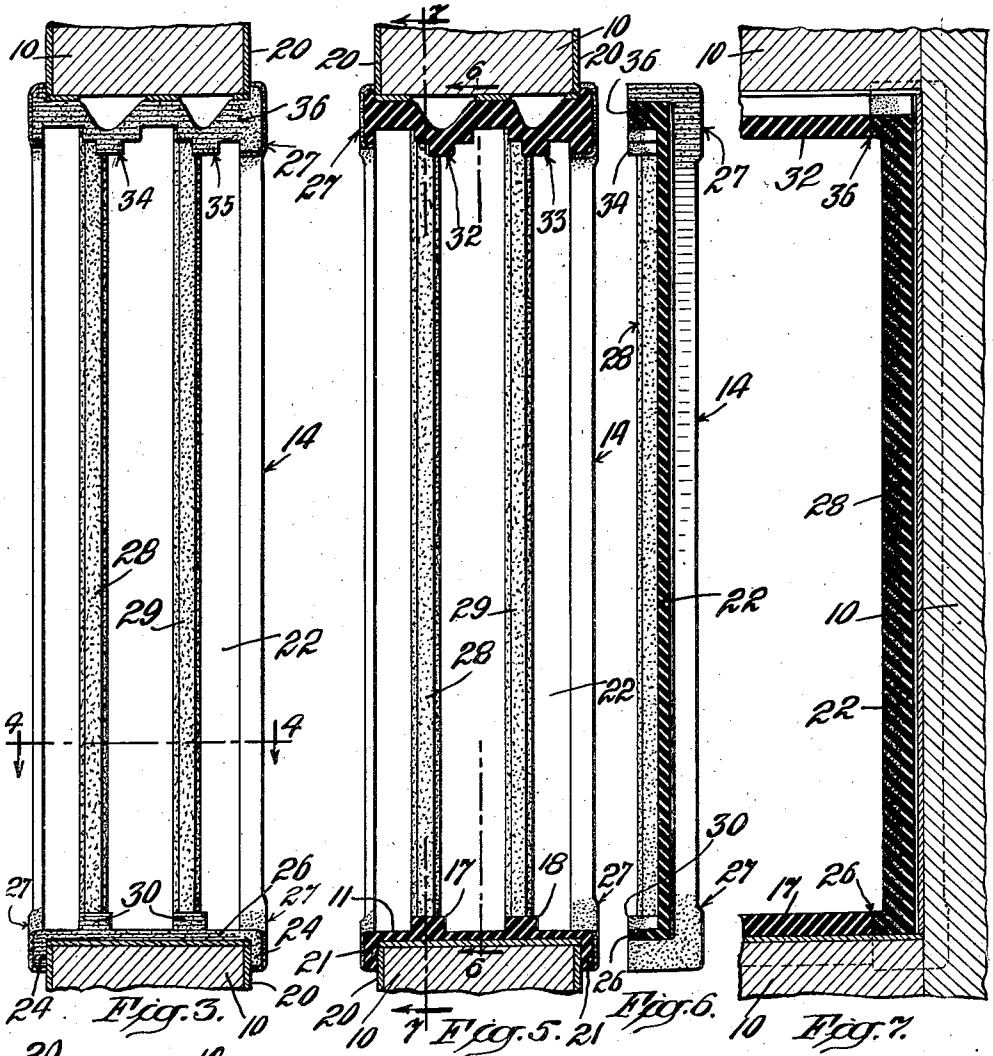


Fig. 3. Fig. 5. Fig. 6. Fig. 7.

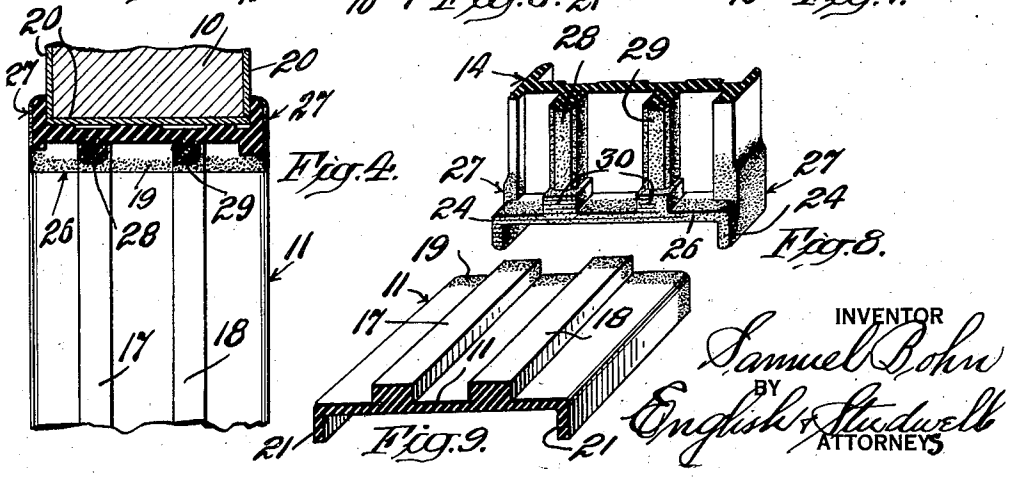


Fig. 4. Fig. 8. Fig. 9.

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REFRIGERATOR DISPLAY CASE

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Application December 17, 1940, Serial No. 370,446

4 Claims. (Cl. 20—11)

The invention relates to an improvement in casements for display cases and cabinets, and more particularly to an improvement in the door casements of display cases of the refrigerator type. Display cases of this type have usually a fixed, transparent panel at the front of the case and at the rear thereof a rectangular opening providing access to the interior of the case. To close this rear opening in order to prevent escape of cold air and entrance of room air therethrough, the refrigerator case is provided with a pair of doors which are mounted to slide between top and bottom rails carried by lintel and sill members of a casement structure surrounding the rear opening. These doors overlap each other at their inner ends when closed. At all marginal regions of engagement by the doors with the casement walls, the walls and the contiguous edges of the doors are arranged to be substantially leakproof, the space between the working parts being only such as is necessary for a sliding joint.

It is customary to manufacture the lintel and the sill members of such casements as structural units separate from each of the end uprights or jambs of the casement, the practice being to assemble these four casement members by first installing a jamb at each end of the casement, and then inserting the lintel and the sill between the jambs. Heretofore, the several members of such a casement have been made throughout of a non-resilient material, and hard rubber has been found to constitute a preferred material for the intended purpose, as it satisfies the important requisites of cleanliness, permanence and economy in manufacture. All relatively non-resilient materials, such as hard rubber, are, however, inconvenient in that the operation of assembling the four casement members is rendered difficult by reason of the nicety with which the sill and lintel members, with their rails, must be fitted to the jambs at each corner of the casement to render the joints leakproof.

The object of the invention is to provide an improved casement structure for refrigerator display cases in which the deficiencies of former casement structures and the inconveniences of assembling them are eliminated. In accordance with this object I interpose a resilient material between the abutting parts of the various non-resilient members of the casement. The casement being composed of a lintel carrying the top rail, a sill carrying the bottom rail, and two upright jambs, the lintel being interposed between and abutting the upper ends of the jambs and the sill being interposed between and abutting the lower ends of the jambs, the object of the invention is accomplished in one embodiment thereof by facing the abutted portions of the jambs with resilient material, such as soft rubber. With this arrangement, the rail members may be composed throughout their length of hard rubber or similar relatively non-resilient material. Or in another embodiment of the invention the jambs may be composed of non-resilient material, the ends of the rail members being faced with resilient material. In a third and preferred embodiment of the invention, all the directly abutting parts of the casement frame or structure are resilient, being composed of soft rubber or similar material.

In the accompanying drawings illustrating the preferred form of the invention, Fig. 1 is a view in elevation of the improved casement structure at the rear of a refrigerator display case, showing two sliding doors, with their cooperating jamb and rail members, the rest of the refrigerator case structure being broken away; Fig. 2 shows in side elevation the separately formed jamb and rail members of the casement ready for assembly; Fig. 3 is a detail view in vertical section upon a larger scale, taken on the line 3—3 of Fig. 1, the door being omitted; Fig. 4 is a similar detail view in horizontal section, taken on the line 4—4 of Fig. 3; Fig. 5 is a detail view in vertical section taken on the line 5—5 of Fig. 1, the door being omitted; Fig. 6 is a fragmentary detail view in vertical section, taken on the line 6—6 of Fig. 5; Fig. 7 is a similar view taken on the line 7—7 of Fig. 5; Fig. 8 is a fragmentary detail view in isometric perspective of the bottom end of a jamb member; and Fig. 9 is a fragmentary detail view in isometric perspective of a rail formed with a resilient end section.

The refrigerator display case in which the improved casement structure of the present invention is embodied may be of conventional or other suitable construction and material, the wall portions thereof around the casement being designated by the reference numeral 10. In the rear side of the case is a rectangular opening provided on its inner edges with casement members including a sill 11, a lintel 12, and end uprights or jambs 13 and 14. These members (except as hereinafter specified) are preferably made of a hard rubber compound, but may be made of any other suitable material. The inner sliding door is indicated at 15 and the outer sliding door at 16. These doors move upon rails or tracks 18 and 17, which are formed integrally

with the structure of the bottom sill 11, being made of hard rubber in their body portions in the instance illustrated and having each end faced with a section of soft rubber 19 which is preferably incorporated with the hard rubber body in pursuance of a feature of the invention. This section of soft rubber may however be omitted from the rail structure under certain conditions. The sill 11 has flanges 21 which fit snugly over the contiguous wall portion 10 of the case, the latter being shown as provided with an enamelled sheet metal finish, as at 20.

Provided with the soft rubber section 19 the bottom rail 11 is interposed between the lower ends of the jambs 13 and 14, after the latter have been installed in their end positions, as shown in Fig. 1. Each rail end abuts against the inner face 26 of the lower end of one of the jambs, as indicated in Fig. 7. The soft rubber section 19 at the ends of the sill serve as a cushion when held under compression between the hard rubber rail and the jamb end which it abuts, thus carrying out one object of the invention, which is to provide a snug fit, insuring a leakproof joint at the corner of the casement. The lower ends of the jambs are provided with flanges 24 corresponding to the flanges 21.

The preferred form of cushion is, however, provided by forming each of the jamb members 13 and 14 with a section or facing of resilient material (indicated in stipple), covering the entire area of the lower jamb end 26 and preferably covering also the entire area of the adjacent corner 27 of the jamb. By reference to Fig. 7 which shows the abutting relation of the rail to the jamb end 26 thus faced with resilient material, it will be readily apparent that even if the rail end be without a facing of resilient material, the resilient facing over the lower end of the jamb will provide a cushion to be held under compression when the sill 11 is interfitted between the lower ends of the jambs. In the instance illustrated, the cushion is formed by a section of soft rubber incorporated with the surface of the hard rubber body 22 of each of the jambs. When the casement members are composed of hard rubber or the like throughout, it is important that the rail members be cut to exact length to fit snugly against the inner faces of the ends of the jambs without imposing a breaking strain on the jamb ends. With the present casement structure such exactitude is not necessary, and by making the rail members a little longer than the distance between the jambs a greater compression of the resilient facings and so a tighter joint is secured.

As shown in Fig. 7 (also by the stipple) a soft rubber facing may be provided to cover each of the mullions 28 and 29, thus affording an elastic cushion against which the ends of the doors may impinge, lessening noise and shocks, preventing breakage of the parts, and making the door-edge contacts leakproof. In Figs. 3 and 8 the lower ends of the mullions are shown as provided with bosses 30, also faced with elastic material, which will be engaged by the ends of the rail tracks 17 and 18 when the sill 11 is installed in abutting relation, interfitted between the lower ends of the jambs. This kind of joint is formed at each of the four corners 27 of the casement, and the arrangement of the parts of one joint is indicated in detail by the showing of Figs. 8 and 9 of the rail and jamb parts prior to their assembly in abutting relation.

The upper ends of the sliding doors 15 and 16 engage with the rails 32 and 33, respectively, as fully described in Patent No. 2,192,519. The upper end of the jamb 14 (and also of the jamb 13) is provided with the soft rubber-faced bosses, 34 and 35, corresponding to the tracks 32 and 33, and bearing the same relation to them that the bosses 30 at the lower end of the jambs bear to the ends of the rails 17 and 18. The upper extremity 36 of each jamb is preferably faced throughout its width with a layer or section of soft rubber (indicated by stipple) against which the corresponding end of the lintel 12 of the door casement is adapted to be snugly fitted in the same manner as the sill fits between the soft rubber facings of the lower ends of the jambs.

Having thus described the invention, what I claim as new is:

1. In a casement of the character described, having four corners, a pair of upright members constituting spaced-apart jambs, top and bottom rail members having ends abutting said jambs at the respective corners of the casement, the middle portions of said members being composed of relatively non-resilient material, and a section of resilient material interposed between each end of each jamb member and the corresponding abutting end of each of said rail members.

2. In a casement of the character described having four corners, a pair of jambs made of non-resilient material and formed with a facing composed of soft rubber at each of their respective ends, rails made of non-resilient material extending between said soft rubber facings at the top and bottom corner joints, respectively, of said casement, said soft rubber facings being held under compression between the corresponding jamb ends and rail ends at each of said corner joints.

3. In a casement of the character described having four corners, a pair of jambs made of hard rubber and each fabricated at each of its ends with an end portion made of a facing of soft rubber incorporated with the hard rubber at said end, and a pair of rails interfitted between said soft rubber facings, one rail at the top and the other at the bottom of said casement, respectively, the ends of said rails being faced with soft rubber, said rail ends and facings constituting cushion elements held under compression between the corresponding jamb ends and rail ends at the four corners of said casement.

4. In a casement of the character described having four corners, a pair of upright members made of non-resilient material and a pair of rail members inter-fitted between said upright members, each of said rail members being made of non-resilient material and formed at each of its ends with a soft rubber facing incorporated with the non-resilient material at said end, said rail ends being held under compression against the corresponding contiguous parts of said upright members at the four corners of said casement.

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