Jan. 7, 1958 V. E. NOEL ET AL 2,818,946

DOOR CONSTRUCTION

Filed Sept. 9, 1955

FIG. 1

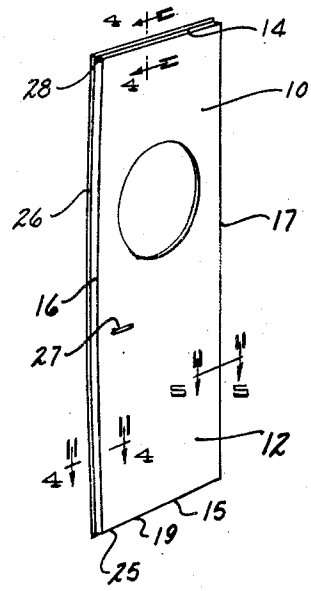


FIG. 2

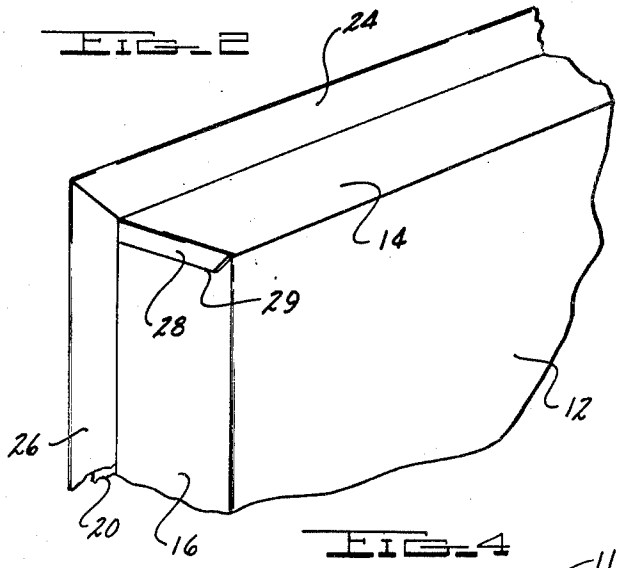


FIG. 3

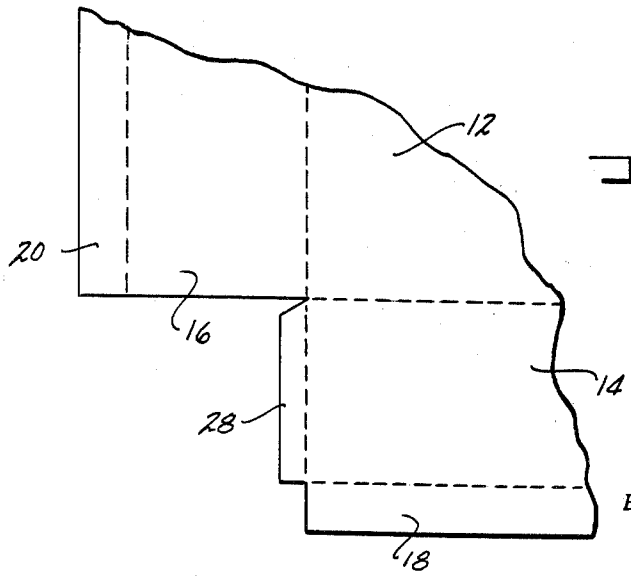


FIG. 4

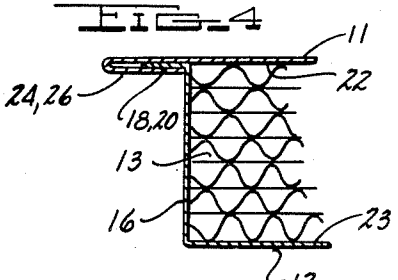
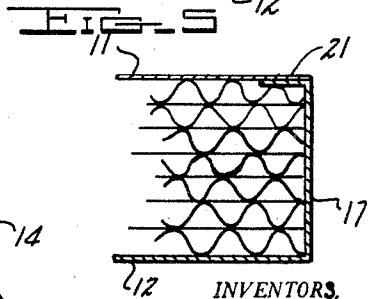


FIG. 5



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DOOR CONSTRUCTION

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Application September 9, 1955, Serial No. 533,395

2 Claims. (Cl. 189—46)

The present invention relates to improvements in the construction of doors, and particularly doors suitable for use in house trailers, cabin cruisers or the like.

In United States patent application, Serial No. 342,874, filed on March 17, 1953 there is disclosed a door construction including two parallel sheet metal panels spaced from each other by right angularly directed wall portions extending along the top, bottom and side edges of said panels. In the space between the panels there is provided a reinforcement means in the form of a pad of corrugated material, preferably corrugated cardboard. The door construction is employed in house trailers and cabin cruisers where it is exposed to the weather, and unless the corrugated material is sealed from rain it will become soggy and lose its reinforcement characteristics. One point at which rain has been found to enter into the cardboard material is the joint between the top wall and each side wall. In order to prevent entry of rain into this joint there is provided according to the present invention a sealing mechanism in the form of a tab formed integrally with the door top wall. The tab is extended downwardly outside the side wall so as to prevent rain from entering the joint between the top and side walls.

The present application is a continuation in part of the above-mentioned application, Serial No. 342,874, Patent Number 2,781,875 issued Feb. 19, 1957.

One object of the present invention is to provide a door construction including two spaced metal panels and a body of reinforcing material, wherein the reinforcing material is sealed from exposure to rain.

Another object is to provide a door construction of the above-identified character, wherein sealing of the reinforcing material is effected at a minimum cost.

Another object is to provide a door construction having the above-identified character, wherein the seal for the reinforcing material is retained over extended periods of time. This object is achieved by forming the sealing means integrally with the door. The integrally formed sealing means is of such construction and placement as to eliminate the need for any liquid or plastic sealing compositions.

Other objects of this invention will appear in the following description and appended claims, reference being had to the accompanying drawings forming a part of this specification wherein like reference characters designate corresponding parts in the several views.

In the drawings:

Fig. 1 is a perspective view of a door embodying the present invention.

Fig. 2 is an enlarged perspective view taken in the same direction as Fig. 1 but showing only the upper left corner of the Fig. 1 door.

Fig. 3 is a view showing a corner portion of a panel employed in the Fig. 1 door, prior to its being pressed into its "door-forming" shape.

Fig. 4 is a sectional view taken on lines 4—4 in Fig. 1.

Fig. 5 is a sectional view taken along line 5—5 in Fig. 1.

Before explaining the present invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and arrangement of parts illustrated in the accompanying drawings, since the invention is capable of other embodiments and of being practiced or carried out in various ways. Also, it is to be understood that the phraseology or terminology employed herein is for the purpose of description and not of limitation.

In the drawings there is shown a door construction 10 including first sheet metal panel 11 and a second sheet metal panel 12. Disposed between these panels is a pad of corrugated cardboard 13. Pad 13 is bonded to the inner surfaces 22 and 23 of panels 11 and 12 by any suitable bonding agent, as for example, Chrysler Cycle-Weld. Pad 13 reinforces panels 11 and 12 against buckling in when pressed upon, and also dampens out noise resulting from vibrations of the panels. Additionally the corrugated cardboard is very low in cost and is found to provide a door with superior heat insulated properties then is the case when prior art types of reinforcing materials are employed.

In order to position panels 11 and 12 in parallel spaced relations panel 12 is provided with flanges 14 through 17 along its top, bottom, and two side edges, respectively. Extending right angularly from flanges 14 through 17 are four terminal walls 18 through 21 respectively. When panels 11 and 12 are in their assembled positions each of walls 18 through 21 facially engages wall 11. Walls 18, 19 and 20 are turned outwardly as shown in Fig. 4. Wall 21 extending along the right edge of the door is turned inwardly as shown in Fig. 5. The right edge of the door is the "hinged" edge, and outward turning of wall 21 would interfere with operation of the door hinge.

Panel 11 is provided with reversely bent flanges 24 through 26 along its top, bottom and left side edges. Said flanges clamp the corresponding walls 18 through 20 against panel 11 and thereby retain panels 11 and 12 in their spaced positions. A bonding agent, as for example, Chrysler Cycle-Weld, is provided between the engaging surfaces of panel 11, walls 18 through 21 and walls 24 through 26. The use of a bonding agent eliminates the spot-welding operation which is sometimes employed to secure door panels together. The spot-welding operation is objectionable in that the spot-welds are visible on the door surface, even when the door is covered with one or more coats of paint.

The operation of bonding pad 13 to panels 11 and 12 and bonding walls 18 through 21 against panel 11 may be carried out in a press using a diagram of the type shown in United States patent application, Serial No. 44,121, filed August 13, 1948 in the name of Vernon E. Noel and Romer G. Weyant. By using such a press the door 10 can be formed with a camber in its unhinged edge, such as can be seen in Fig. 1. It will be observed that the hinge edge is substantially straight while the unhinged edge is bowed. This camber is a very desirable feature of the door construction because the resilient properties of the sheet metal panels will cause the lip formed by flange 26 to be biased against the door frame (not shown) when the lock 27 is engaged in said door frame. Not only will this effect a weather tight seal but it will prevent rattling of the door in its frame.

Door 10 is designed for use in house trailers, cabin cruisers and other installations where it will be exposed to the weather, and unless cardboard pad 13 is sealed from rain it will become soggy and lose its reinforcement characteristics. The joint between flanges 14 and 16 and the joint between flanges 14 and 17 would offer openings for the entrance of rain into pad 13, except that a tab 28 overlies each of these joints. Each of tabs 28 is formed

integrally with flange **14**. This tab construction adds very little to the cost of the door. Each tab makes a joint **29** with flanges **16** or **17**, and due to the way in which the tab is formed joint **29** is shielded from rain. As a result no sealing compositions need be employed between tab **28** and flanges **16, 17.**

We claim:

1. A door construction having front and rear sheet metal panels with the central portions in spaced relation and a corrugated pad disposed between said panels, three of the corresponding edges of said panels including one top and one side edge being shaped and fastened together to form a continuous marginal recess for fitting into a door frame, the joint between said three corresponding edges being formed by the front panel having a peripheral edge folded back in a reverse direction along its inner side, said rear panel having its corresponding edge turned toward the front panel and extending into engagement with the latter, the terminal portion of said edge being turned laterally so as to fit under the folded back portion of the front panel, the corner formed by the junction of the forwardly turned top and side edges being closed by a tab extending from the top edge and overlying the side edge, and the remaining pair of corresponding edges being joined to form a box-like section for fitting against the hinge-carrying side of the door frame, the hinged edge of said door being relatively straight and the opposite edge being cambered to present a concave face toward its rear panel.

2. A door construction having front and rear sheet metal panels with the central portions in spaced relation and a corrugated pad disposed between said panels, said sheet metal panels being shaped and fastened together at two of the edges to form a continuous marginal recess for fitting into a door frame, the joints between the two edges being formed by the front panel having peripheral edges folded back in a reverse direction along its inner side, said rear panel having its corresponding edges turned forward toward the front panel and extending into engagement with the latter, the terminal portions of said corresponding edges being turned laterally so as to fit under the folded back portions of the front panel thereby forming weather tight edges, the corner of the door construction at the intersection of the forward turned portions of the rear panel being joined in weather tight relation by a tab integrally formed in one portion overlapping and being joined to the other portion.

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