United States Patent

[11] 3,590,545

[72] Inventor **Cyril J. Webb**
Birmingham, England

[21] Appl. No. **770,240**
[22] Filed **Oct. 24, 1968**
[45] Patented **July 6, 1971**

[73] Assignee **Alcoa of Great Britain Limited**
Droitwich, England

[32] Priority **Oct. 27, 1967**
[33] **Great Britain**
[31] **49054/67**

---

[54] **STRUCTURAL ASSEMBLIES**
2 Claims, 3 Drawing Figs.

[52] U.S. Cl. **52/588,** 52/394, 52/595
[51] **Int. Cl.** **E04c 1/30**
[50] **Field of Search** 52/588, 595, 519, 522, 528, 529, 542, 394, 403; 94/13, 17

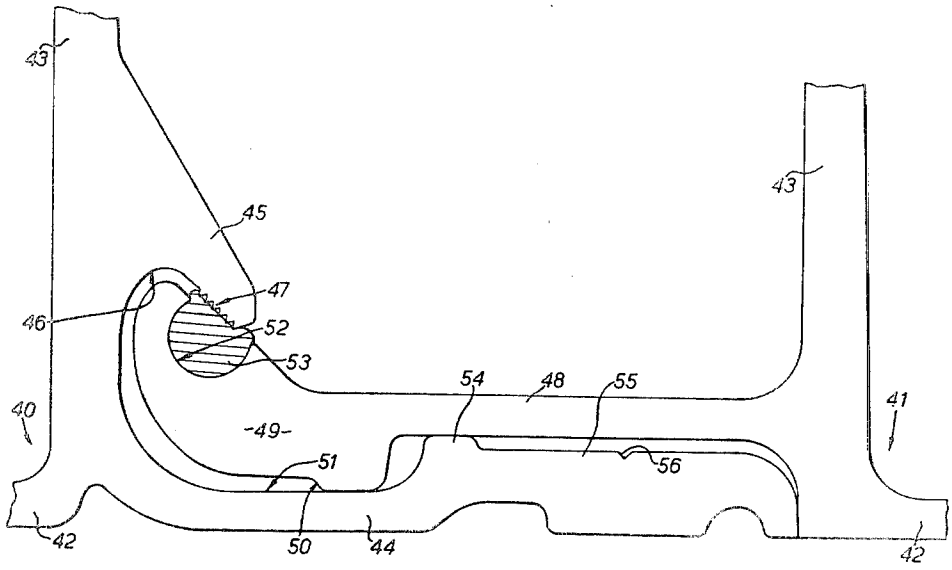
[56] **References Cited**

UNITED STATES PATENTS

1,900,446	3/1933	Joy	299/21
2,251,672	8/1941	Friberg	94/24
2,833,186	5/1958	Dobell	94/8 X
2,852,991	9/1958	Dobell	94/22 X
2,910,921	11/1959	Freyssinet	94/8
3,437,017	4/1969	Walz	94/8
1,729,632	10/1929	Stone	52/595
2,786,556	3/1957	Constance	52/588
2,923,384	2/1960	Black	52/588
3,157,965	11/1964	Watson	52/529 X
3,229,438	1/1966	Flagan	52/588
3,253,377	5/1966	Schakel	52/595
3,324,617	6/1967	Knight et al.	52/588 X

Primary Examiner—Price C. Faw, Jr.
Attorney—Stevens, Davis, Miller and Mosher

ABSTRACT: Metal floor assembly comprising at least two units interengaging along side edge portions which overlap and have between their overlapped portions a removable sealing strip.



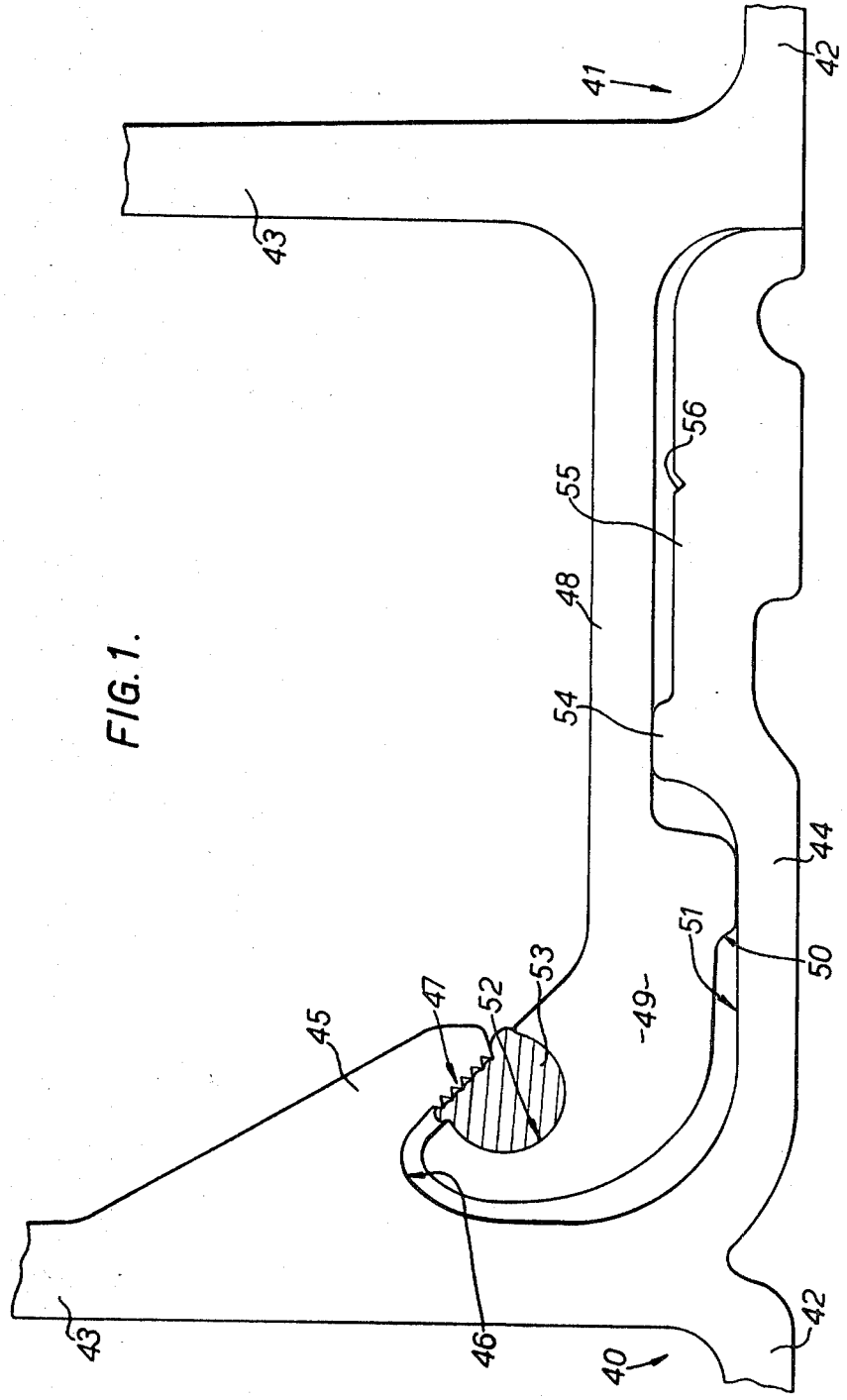


FIG. 1.

INVENTOR
CYRIL J. WEBB
By Stevens, Davis, Miller & Mosher
ATTORNEYS

FIG. 2.

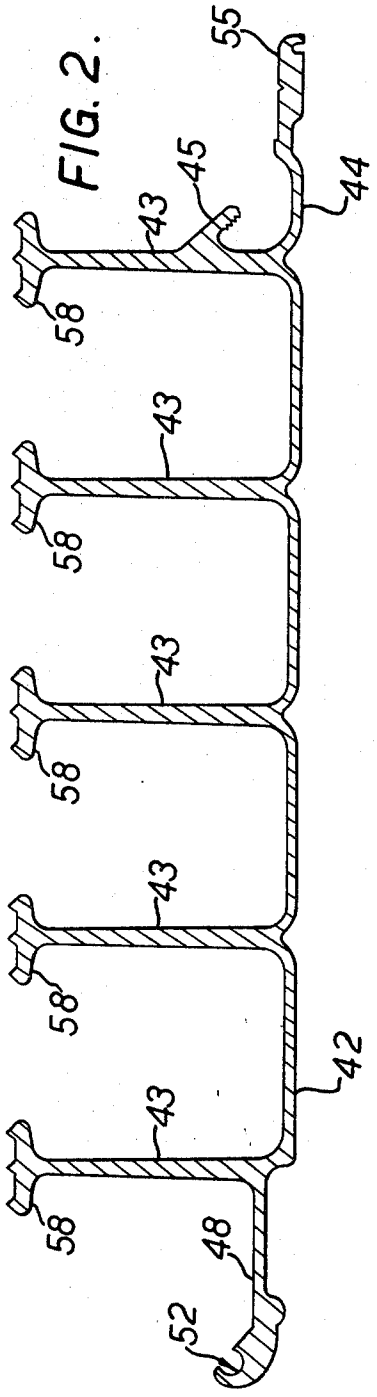
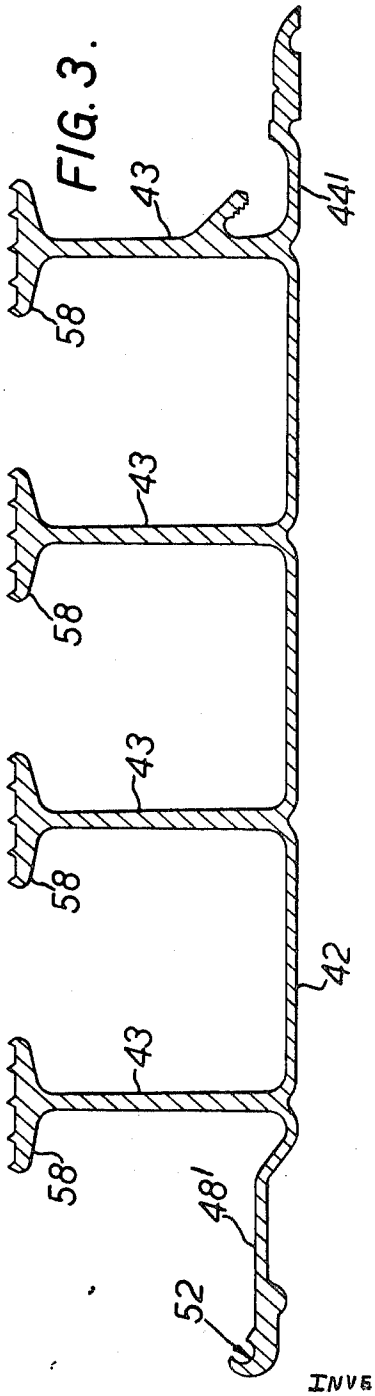


FIG. 3.



INVENTOR
CYRIL J. WEBB
By Stevens, Davis, Miller & Mosher
ATTORNEYS

STRUCTURAL ASSEMBLIES

The present invention concerns structural assemblies and units therefor.

In commercial vehicles and freight containers it is known for the walls ceilings and floors of the load-carrying portion of the vehicle to be constructed from a plurality of individual interlocking units.

According to one aspect of the present invention there are provided, for a structural floor assembly or the like, two units which are adapted to interengage along adjacent side edge portions which overlap one another when engaged and are adapted to receive between their overlapped portions a sealing member which, when the units are interengaged, is compressed and lies adjacent the edge of the uppermost side edge portion.

According to another aspect of the invention there are provided, for a structural assembly, two units which are adapted to interengage along adjacent side edges, the side edge of one unit being formed with a laterally extending base flange above which is arranged a projection which extends laterally from an upstanding portion of said one unit, the side edge of the other unit being formed with a tongue which is adapted to overlie the base flange of said one unit when the two units are interengaged and which has an upwardly projecting edge portion which when the two units are interengaged lies closely adjacent the projection of said one unit, said projection and said projecting portion of said tongue being adapted to receive between them a sealing member and compress the sealing member when the two units are interengaged.

The projection of said one unit is preferably arranged near the base of said upstanding portion and defines a downwardly facing groove or channel for receiving the tongue of said other unit when the units are interengaged.

The tongue of said other unit is preferably adapted to receive a strip of sealing material, and for this purpose the upwardly projecting edge portion of the tongue may be formed with a groove, the projection of said one unit providing an abutment surface against which when the two units are interengaged the sealing strip is engaged.

It is also preferred that the base flange of said one unit is formed with an upwardly projecting portion which is spaced laterally from the base of said upstanding portion, the arrangement being such that in order to interengage the two units it is necessary to rotate the units relatively to one another to enable the tongue to obtain its interengaged position.

In one embodiment of the invention the tongue extends laterally from the base of said other unit, whereas in another embodiment of the invention the tongue extends laterally from an upstanding portion of said other unit at a position above the base thereof.

The tongue preferably overlies closely substantially the entire upper surface of the flange in the interlocked position of the units.

According to another aspect of the invention there is provided a structural assembly comprising two units as defined above, and a strip of sealing material arranged between the projecting portion of the tongue and said laterally extending projection of said one unit, the sealing strip being in a compressed condition and preventing moisture and dirt from passing between the units.

For a better understanding of the invention, and to show how the same may be carried into effect, reference will now be made, by way of example, to the accompanying drawings wherein:

FIG. 1 is a fragmentary transverse sectional view of two units forming one embodiment of the invention;

FIG. 2 is a transverse sectional view of one of the units shown in FIG. 1; and

FIG. 3 is a view similar to FIG. 2 showing a modified unit.

In FIG. 1 there are shown interlocked longitudinal edge portions of two floor units 40 and 41 which are made from extruded aluminum alloy. Each unit comprises a base portion 42 from which extends upwardly a plurality of parallel and longitudinally arranged ribs 43 (only a fraction of one rib of each floor unit is shown in the drawing).

The two units are arranged to interlock and are shown in the drawing in their interlocked position. It will be seen that the longitudinal edge of the unit 40 is formed with a longitudinal base flange 44 which extends laterally by a distance approximately equal to the distance between the adjacent longitudinal edge ribs 43 of the two units 40 and 41.

Immediately above the flange 44 but near the base of the unit 40 is a downwardly depending projection or lip 45 which extends laterally from the edge rib 43 of the unit 40 at a position intermediate the height of the rib and in the same general direction as the flange 44, thereby forming a rounded channel 46. (The channel 46 may alternatively be of square or "vee" cross section). On its downwardly and inwardly facing surface the lip 45 is formed longitudinally with a plurality of "vee" section grooves producing serrations 47.

Closely overlying the entire top surface of the flange 44 is a tongue 48 which extends laterally outwardly from the longitudinal edge of the adjacent unit 41. The tongue 48 is located above the base of the unit 41 by a distance sufficient to permit the lowermost surfaces of the underside of the flange 44 to lie in the same plane as the underside of the base portion 42 of the unit 41 when the two units are in their interlocked position. A longitudinal edge portion 49 of the tongue 48 is of increased thickness relatively to the remainder of the tongue and forms a bead 50 which is seated on a shallow channel 51 formed in the base flange 44. The edge portion 49 is also bent upwardly and in that surface which faces upwardly and towards the edge rib 43 of the unit 41 there is formed a longitudinally extending C-section recess 52 which is arranged to accommodate and hold a length of suitable strip material 53 which when the units are interlocked forms a seal for preventing ingress or egress of liquids and gases.

Bounding the outer longitudinal edge of the shallow channel 51 is a shoulder 54 which when the units are being interlocked acts as a fulcrum. Moreover, this shoulder 54 separates the remaining outer longitudinal edge portion 55 of the flange 44 from the undersurface of that portion of the tongue 48 which overlies the edge portion 55. The edge portion 55 is also formed with a Vee-groove 56 to facilitate drilling holes for fixing bolts or screws (not shown).

FIG. 2 is a cross-sectional view of the entire unit 40. It will be seen that the unit 40 comprises five ribs 43 which are formed with load bearing top portions 58 which with the ribs 43 form a "T" section.

FIG. 3 shows a unit 43 similar to the unit 40 in FIG. 2, but provided with four ribs 43. Again each rib is formed with a load bearing top portion 58. The unit 43 is also different from the unit 40 in that the tongue 48' extends initially from the base of the unit and not from a position above the base of the unit. The base flange 44' on the other side of the unit is also modified to cooperate with the modified tongue 48'.

The particular cross-sectional shape of the recess 52 and of the strip material 53 may be varied to suit different requirements.

The invention is not restricted to structural assemblies which serve as flooring, but is applicable to many structures for example ceilings, walls or partitions.

What I claim is:

1. A structural assembly for forming a load supporting structure and comprising a plurality of elongated extruded aluminum units, each said unit comprising a base portion and a plurality of parallel, longitudinally extending, laterally spaced ribs having coplanar lateral flanges on their free standing ends, a longitudinal base flange extending from one edge of each said unit a distance approximately equal to the spacing between said ribs, a downwardly depending projection extending laterally form the edge rib adjacent said base flange and spaced above said edge flange, a tongue extending laterally outwardly from the other lateral edge of said unit above the

base thereof a distance at least equal to the thickness of said base flange, an edge portion of said tongue having an increased thickness, an upwardly directed slot in said edge portion resilient sealing material filling said slot and extending upwardly therefrom towards said projection whereby to maintain said projection and said tongue spaced apart, and fulcrum means on said base flange acting against said tongue to bias said sealing material into sealing engagement with said projection in the assembled condition of said units.

2. Two units as claimed in claim 1, in which the recess is formed in the edge part of said tongue and the projecting part of said one unit has serrations which press against said sealing member.