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Wong

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[54] **STRUCTURAL ASSEMBLY AND METHOD OF MAKING SAME**

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[73] Assignee: **Reynolds Metals Company**, Richmond, Va.

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[52] **U.S. Cl.** ..... **52/694**, 29/155 R, 52/588

[51] **Int. Cl.** **E04c 3/07**

[58] **Field of Search** ..... 52/693–695, 588, 741, 745; 29/155 R, 453

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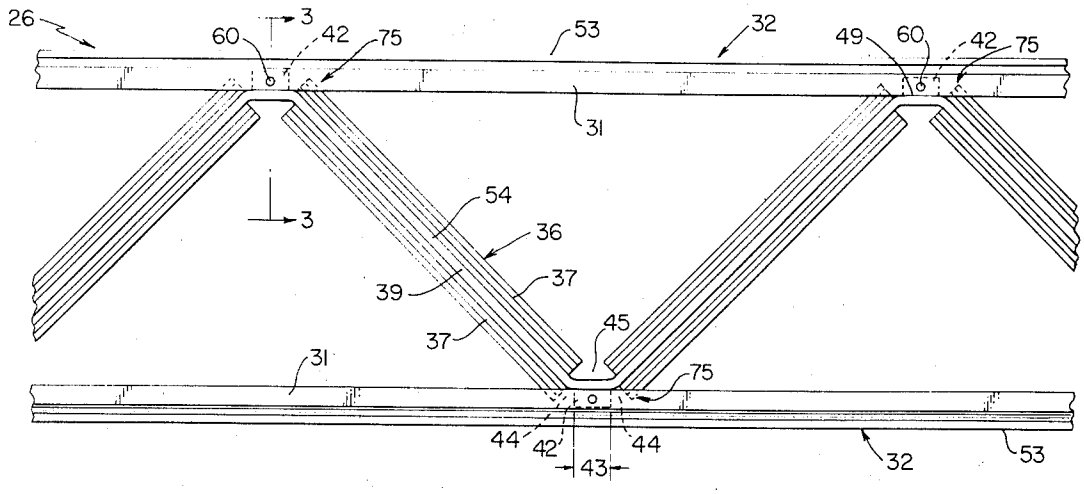
Primary Examiner—Price C. Faw, Jr.

Attorney—John F. C. Glenn and John W. Gibbs, Jr.

[57] **ABSTRACT**

A structural assembly and method of making same is provided wherein each assembly is comprised of a plurality of interconnected members each having at least one pair of resilient arms separated by a groove, and the groove is comprised of a pair of opposed serrated surfaces each defined by a cooperating plurality of parallel V-shaped grooves in an associated arm. At least one interconnecting member is provided having a pair of opposed roughly wedge-shaped portions each comprised of a pair of cooperating inclined surfaces with each inclined surface having a plurality of parallel V-shaped projections extending therefrom defining serrations thereon. The projections correspond in configuration to the V-shaped grooves in an associated interconnected member with the one interconnecting member having at least parts of each of its wedge-shaped portions held in interlocked snap-fitted relation by the resilient arms of an associated interconnected member with the interlocking being achieved solely by relative movement of the one interconnecting member and associated interconnected member toward each other in a direction perpendicular to the V-shaped grooves.

15 Claims, 18 Drawing Figures



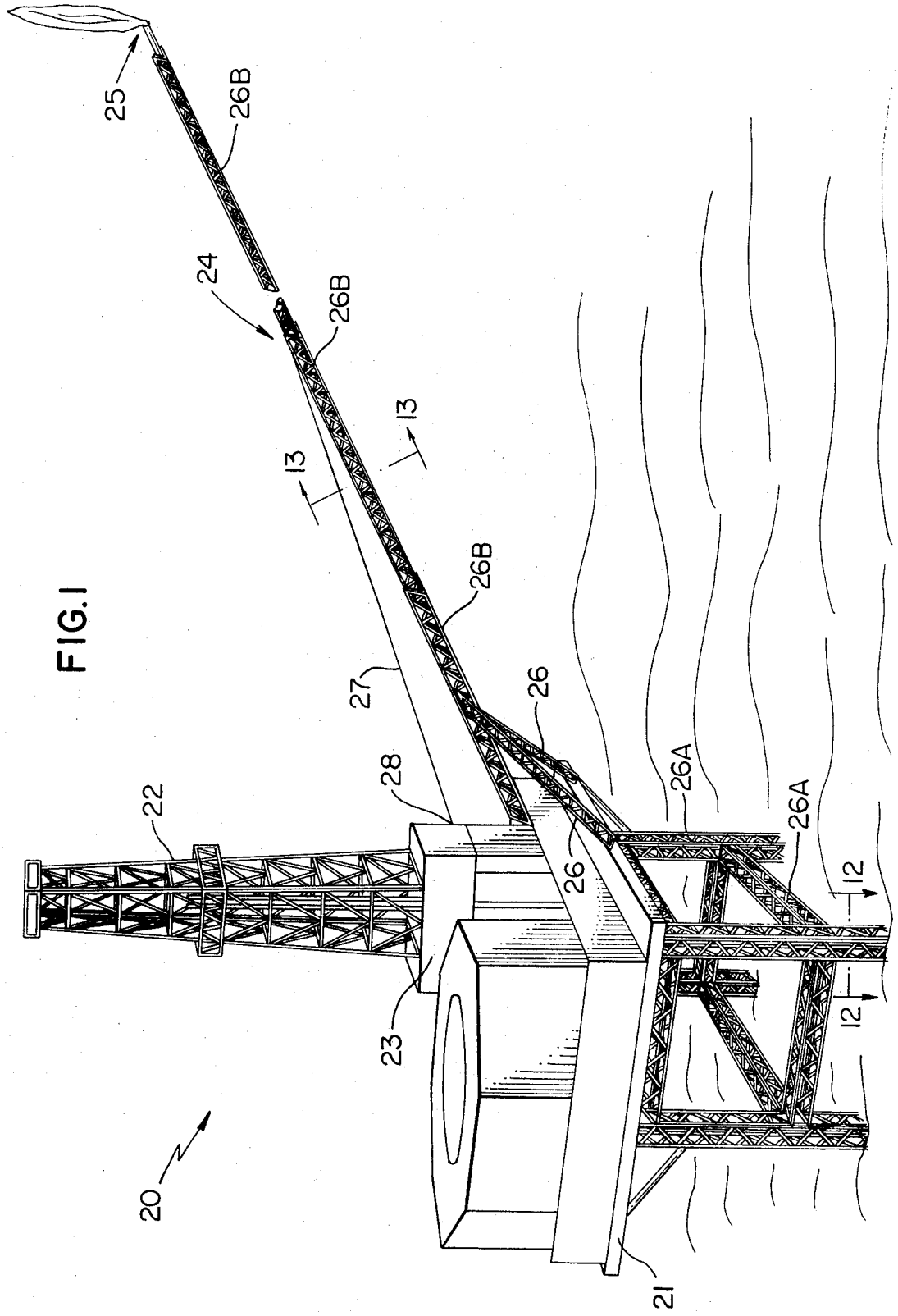


FIG. 1

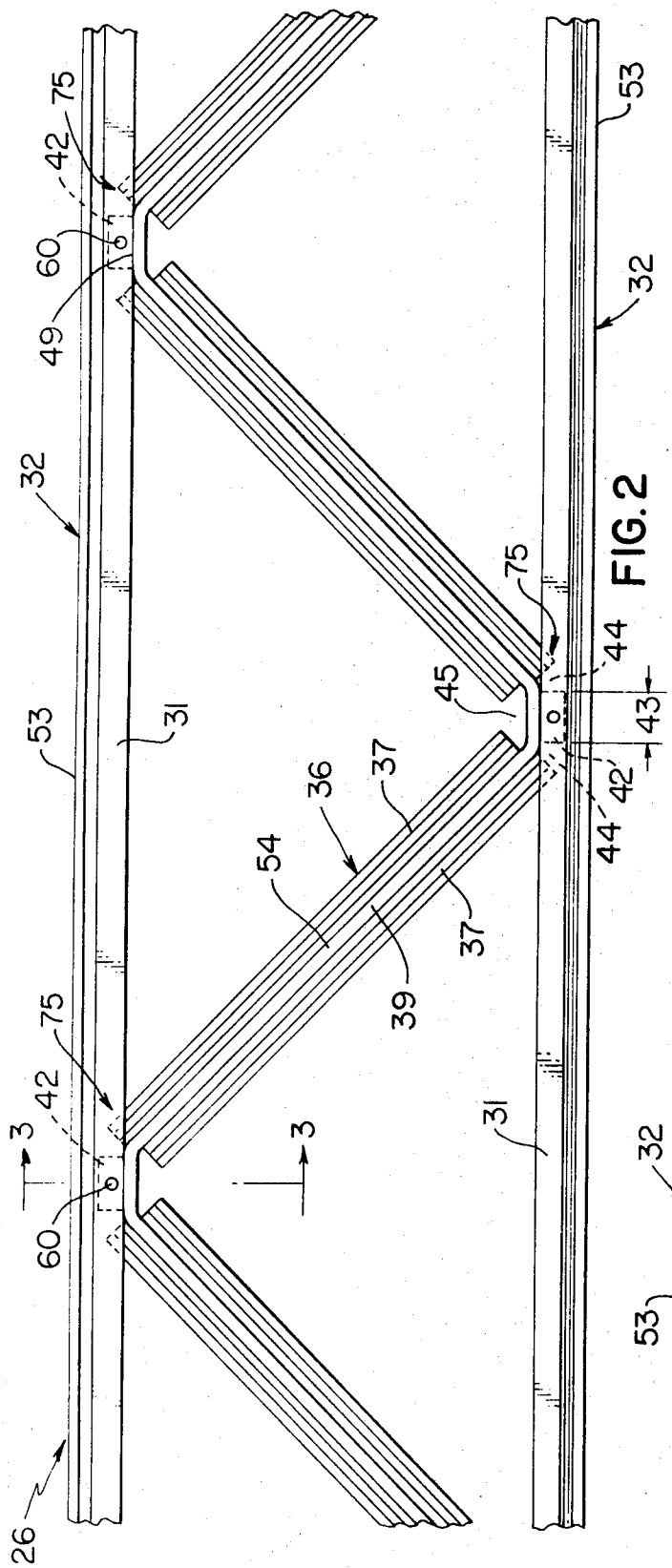


FIG. 2

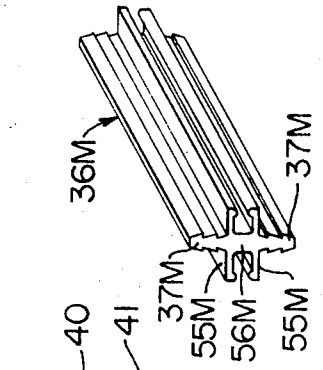


FIG. 6

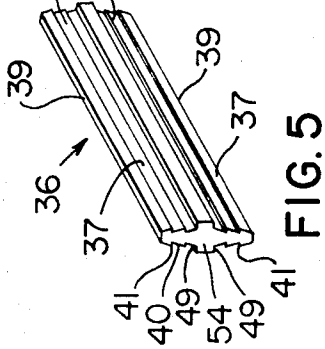


FIG. 5

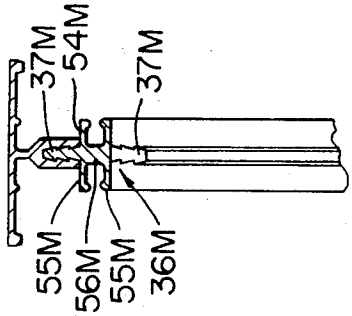


FIG. 4

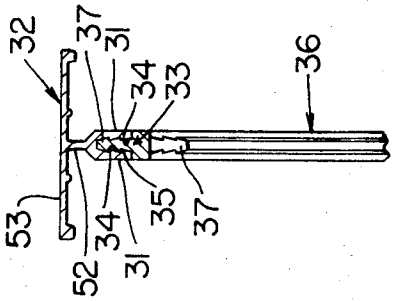


FIG. 3

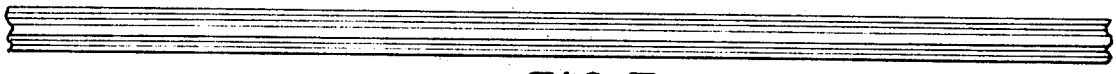


FIG. 7

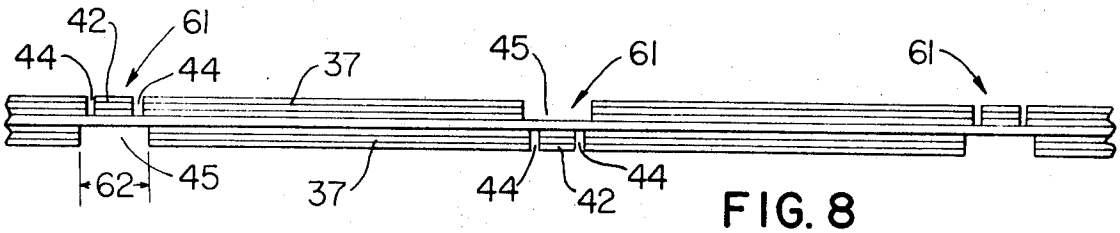


FIG. 8

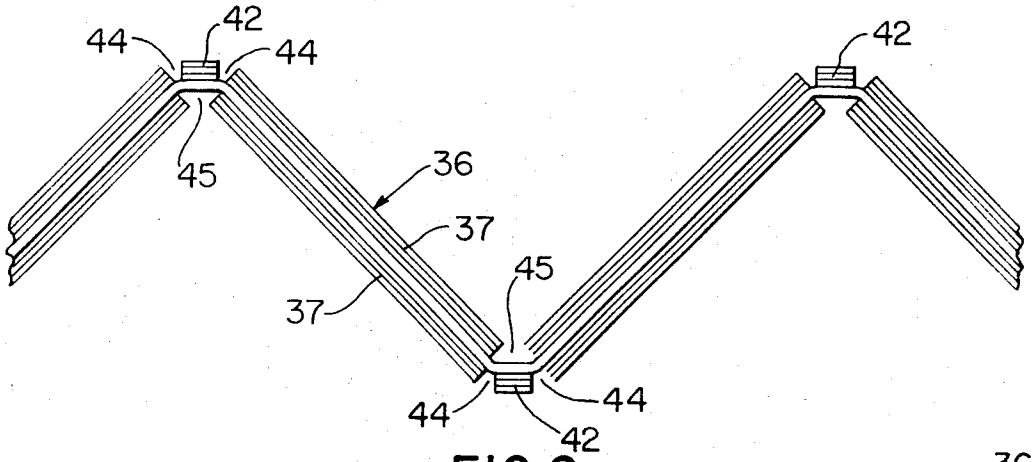


FIG. 9

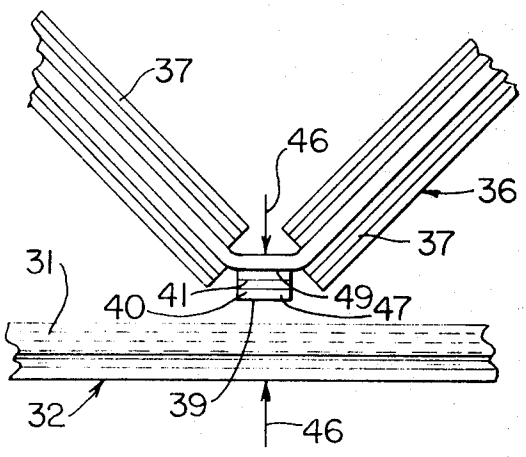


FIG. 10

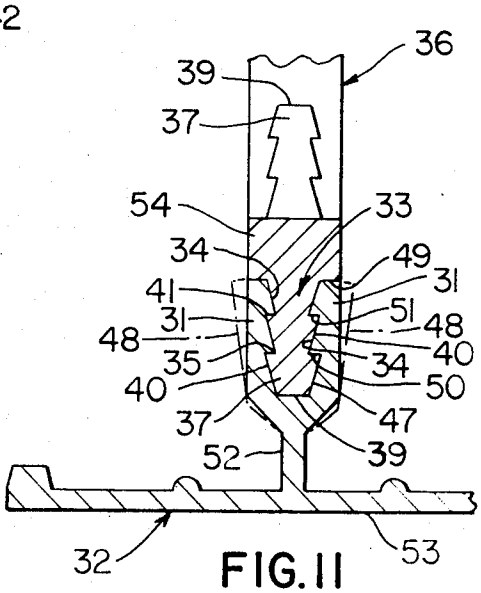


FIG. 11

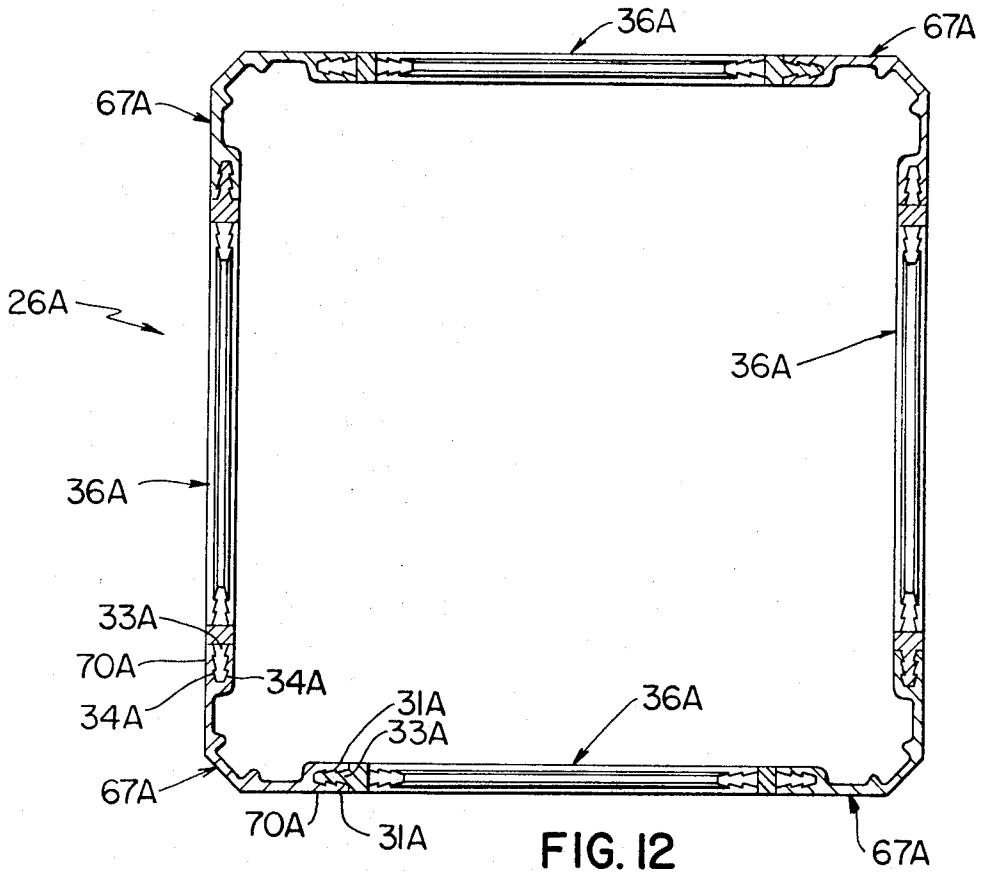

36A
67A
67A
26A
36A
36A
33A
70A
34A
34A
31A
33A
36A
67A
70A
31A
67A

FIG. 12

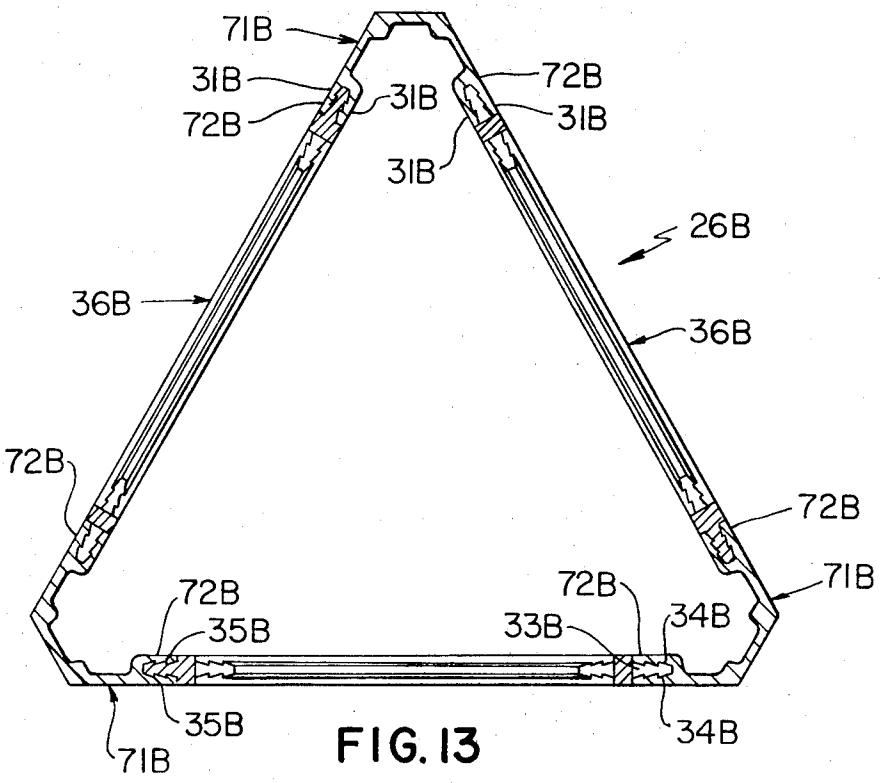

71B
31B
72B
31B
72B
31B
31B
26B
36B
36B
72B
72B
71B
72B
35B
72B
33B
34B
35B
34B
71B

FIG. 13

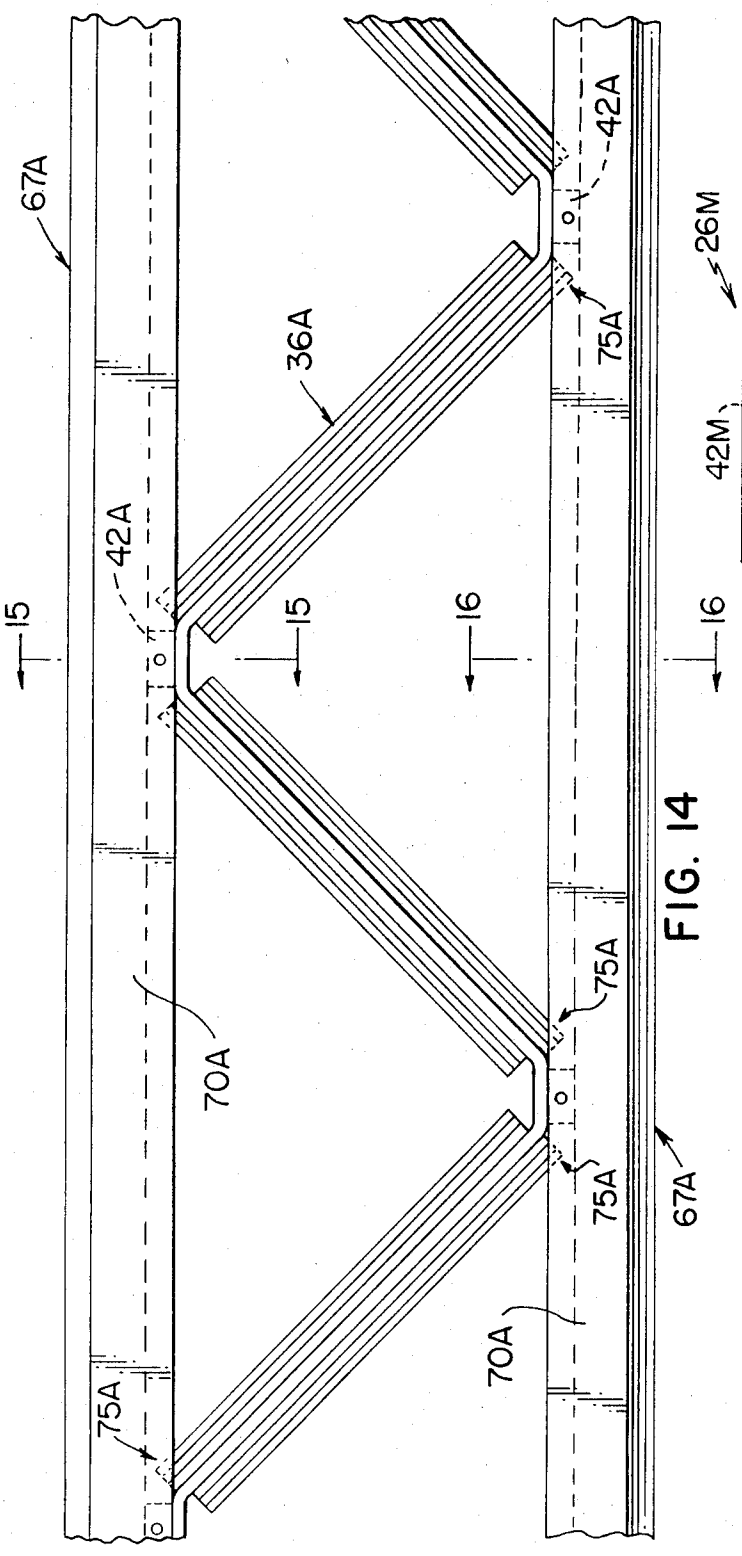


FIG. 14

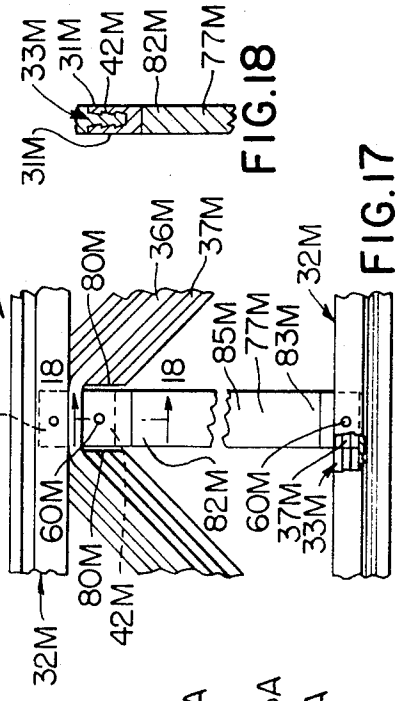


FIG.17

FIG.18

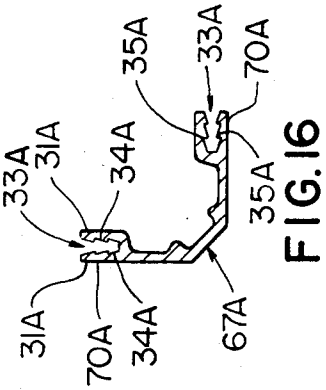


FIG.16

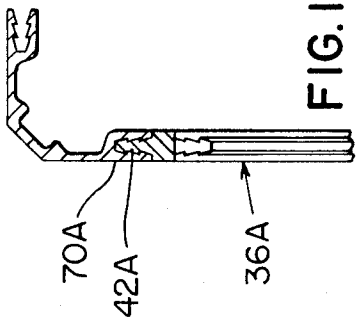


FIG.15

STRUCTURAL ASSEMBLY AND METHOD OF MAKING SAME

BACKGROUND OF THE INVENTION

Many structural assemblies used presently to define beams, trusses, columnar supports, and the like are made utilizing a comparatively large number of components while others of these assemblies which use fewer parts often require elaborate assembly procedures whereby the cost of each of these assemblies is generally excessive. In addition, structural assemblies of the character mentioned are not of optimum structural integrity.

SUMMARY

This invention provides an improved structural assembly, and method of making same, which is of simple and economical construction yet has optimum structural integrity.

The assembly is comprised of at least one member having a pair of resilient arms separated by a groove and the groove is comprised of a pair of opposed serrated surfaces each defined by a cooperating plurality of parallel V-shaped grooves in the associated arm. Another member is provided having at least one roughly wedge-shaped portion comprised of a pair of cooperating inclined surfaces each having a plurality of parallel V-shaped projections extending therefrom defining serrations thereon. The projections correspond in configuration to the V-shaped grooves in the one member and at least a part of the wedge-shaped portion is held in interlocked snap-fitted relation by associated resilient arms of the one member with the interlocking being achieved solely by relative movement of said members in a direction perpendicular to the V-shaped grooves.

Other details, uses, and advantages of this invention will become apparent as the following description of the exemplary embodiments thereof presented in the accompanying drawings proceeds.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings show present preferred embodiments of this invention, in which

FIG. **1** is a perspective view illustrating an off-shore structure used in oil drilling operations and such structure utilizes various embodiments of the structural assembly of this invention;

FIG. **2** is an enlarged fragmentary view of a typical structural assembly employed to support the inner portion of a boom comprising the structure of FIG. **1** with the structural assembly being comprised of a pair of parallel interconnected members and an interconnecting member having a sinusoidal configuration;

FIG. **3** is a view taken essentially on the line **3—3** of FIG. **2**;

FIG. **4** is a view similar to FIG. **3**, illustrating a modification of an interconnecting member which may be used to interconnect the interconnected parallel members of FIG. **2**;

FIG. **5** is a fragmentary perspective view of a straight portion of the typical interconnecting member illustrated in FIG. **3**;

FIG. **6** is a view similar to FIG. **5** illustrating the interconnecting member in the modification of FIG. **4**;

FIGS. **7–11** illustrate method steps which may be employed to make the structural assembly illustrated in FIG. **2**;

FIG. **12** is a view taken essentially on the line **12—12** of FIG. **1**;

FIG. **13** is a view taken essentially on the line **13—13** of FIG. **1**;

FIG. **14** is a fragmentary view to a reduced scale taken on the line **14—14** of FIG. **12** and showing only one side of the box-like structure of FIG. **12**;

FIG. **15** is a view taken on the line **15—15** of FIG. **14**;

FIG. **16** is a view taken on the line **16—16** of FIG. **14**;

FIG. **17** is a fragmentary view similar to FIG. **2** illustrating a modified form of the structural assembly of this invention; and

FIG. **18** is a fragmentary cross-sectional view taken essentially on the line **18—18** of FIG. **17**.

DESCRIPTION OF ILLUSTRATED EMBODIMENTS

Reference is now made to FIG. **1** of the drawings which illustrates an off-shore structure which is designated generally by the reference numeral **20** and such structure is of the type used in oil drilling operations. The structure **20** comprises a platform **21** which supports a vertical tower **22** above an enclosure **23** and an elongated telescoping boom which is designated generally by the reference numeral **24** and the boom supports a flare **25** at the terminal end thereof. The boom **24** is supported at its inner end portion by a pair of structural assemblies each made in accordance with this invention and each designated generally by the reference numeral **26** and the outer end of the boom is supported by a steel cable **27** which is attached to the structure comprising enclosure **23** as shown at **28.**

The platform **21** is supported by a vertical column in the form of structural assemblies **26A** which are suitably interconnected by substantially identical horizontal assemblies **26A**. In addition, the boom **24** is comprised of a plurality of telescoping sections **26B** of substantially identical construction and differing only in size so as to enable telescoping movements. The assemblies **26, 26A**, and **26B** represent three exemplary embodiments of the structural assembly of this invention and will now be described in consecutive order.

A seen in FIG. **2** of the drawings, each structural assembly **26** is comprised of a plurality of two interconnected substantially identical spaced parallel members **32.** Each member **32** has a pair of resilient arms **31,** also see FIGS. **3** and **11,** separated by a channel or groove **33.** The groove **33** is comprised of a pair of opposed inside serrated surfaces **34** each defined by a cooperating plurality of V-shaped grooves **35** in the associated arm **31.**

The assembly **26** has an interconnecting member **36** which has a pair of opposed roughly wedge-shaped portions each designated by the reference numeral **37.** Each portion **37** is comprised of a pair of cooperating inclined surfaces **40,** see FIG. **5,** interconnected at their outer end by a transverse surface **39** whereby each portion **37** of this example has an approximately trapezoidal cross-sectional outline. Each inclined surface **40** has a plurality of parallel V-shaped projections **41** extending therefrom defining serrations thereon and each V-shaped projection corresponds inconfiguration to an associated V-shaped groove **35** in an associated member **32.**

The member **36** has an undulating or substantially sinusoidal configuration and parts of member **36** and in particular parts of each portion **37** are held in snap-

fitted interlocked relation by associated resilient arms **31.** In particular, the roughly sinusoidal member **36** has a plurality of flattened apex portions or apexes **42** and each apex **42** is flattened along a substantial length as indicated at **43** whereby a comparatively large surface area comprising each apex **42** is held in clamping engagement by the resilient arms **31** of an associated member **32.**

Each apex **42** is defined by providing a plurality of three cutouts in an elongated strip of straight stock used to make member **36** and prior to forming such member into its sinusoidal configuration. The cutouts comprise a pair of cutouts **44** in the same wedge-shaped portion **37** used to define apex **42** and another cutout **45** on the opposite portion **37** and the cutouts **44** and **45** allow easy bending or forming of member **36.**

As mentioned earlier, each member **32** has a pair of resilient arms **31** separated by a groove **33** and each member **32** is interlocked to member **36** solely by relatively moving the two members to be fastened together in a direction perpendicular to the grooves **35** and as shown by the arrows **46** in FIG. **10.** The projections **41** comprising the inclined surfaces **40** have cam surfaces **47** which are particularly adapted to engage the inside serrated surfaces **33** of arms **31.** Upon relatively moving member **36** and each member **32** to be fastened thereagainst the arms are cammed outwardly as shown by dotted lines at **48** in FIG. **11** and once surfaces **49** of member **36** engage the terminal end edges of arms **31** the projections **41** are aligned within cooperating grooves **35** allowing the arms to snap into their normal undeflected positions due to the resilient character of such arms and to the solid line positions shown in FIGS. **3** and **11.**

Each groove **35** has a retaining surface **50** which is arranged parallel to the parallel arrangement of the grooves in the apex portions and roughly perpendicular to a plane bisecting wedge-shaped portion **37.** Similarly, each of the projections **41** has a retained surface **51** and once the apex portions **42** of member **36** have been snap-fitted in position the members **32** and **36** are interlocked and it is virtually impossible to pull the members apart in directions opposite arrows **46** without practically destroying the interlocked portions of such members due to the engagement of surfaces **50** and **51.**

The member **32** has a roughly T-shaped cross-sectional configuration, see FIG. **11,** defined by a leg **52** and an integral transverse bar member **53.** The channel or groove **33** is defined in the outer end portion of the leg **52** so as to define the resilient arms **31** whereby the leg **52** has a bifurcated outer end.

The member **36** has solid wedge-like portions **37** defined as integral extensions of a central solid portion **54** of substantially rectangular cross-sectional configuration whereby portions **54** and **37** are made as a single unit. However, the central portion **54** may have any suitable cross-sectional configuration and a fragmentary portion of an assembly using a modified member **36M** is illustrated in FIG. **4** of the drawings. The member **36M** may be used interchangeably with the member **36** and the only difference between the member **36M** and member **36** is that the member **36M** has a central portion **54M** which has a roughly H-shaped cross-sectional configuration comprised of a pair of parallel legs **55M** interconnected by a transverse member **56M.** The transverse member **56M** is arranged relative to legs **55M** so that a plane perpendicular to legs **55M** and bisecting member **56M** would also bisect the opposed portions **37M.**

In applications where optimum structural integrity is required it may be desired to fasten the members **32** and **36** together using additional mechanical fastening means. In this disclosure rivets **60** are provided for this purpose and each rivet **60** extends through associated aligned openings in apex portion **42** and arms **31** and is fixed in position in accordance with standard riveting techniques. The rivets **60** assure that members **32** and **36** will not move or slide relative to each other once they have been fixed together in the manner previously described.

Having described primarily the completed structural assembly **26,** the detailed description will now proceed with the method employed in forming such assembly and for this description particular reference is made to FIGS. **7–11** of the drawings. In particular, it will be seen that an elongated piece of straight stock from which the member **36** is made is shown in FIG. **7.**

A plurality of cutouts **44** and **45** are provided in the elongated straight stock member at equally spaced intervals and as shown at **61** in FIG. **8.** These cutouts enable the provision of the apex portions **42** and these apex portions are also designated by the reference numeral **42** in the straight member. As mentioned previously, the cutouts comprise a pair of retangular cutouts **44** in one portion **37,** which define opposite end edges of the apex portion **42,** and a comparatively large rectangular cutout in the opposite portion **37.** The cutout **45** is longer than the apex portion **42** and actually has a length indicated at **62,** which is greater than the combined length of oppositely arranged cutouts **44** and apex portion **42.**

Each cutout **44** and **45** extends the entire vertical height of its associated wedge-shaped portion **37** and these cutouts enable the member **36** to be easily bent in the sinusoidal form illustrated in FIG. **9** of the drawings. Further the length of each cutout is such that the apex portions **42** may be assembled within members **32** without obstruction by those portions of member **36** located adjacent the apex portions. The amplitude or overall height of the sinusoidal form of member **36** is determined by the distance that the members **32** are desired to be fastened apart in parallel relation and may be varied depending upon the application of the assembly **26.** It will also be appreciated that any suitable means or technique may be employed to bend the member **36** in its sinusoidal form.

The lower member **32** (as seen in FIG. **2**) of assembly **26** and sinusoidal member **36** are assembled with optimum simplicity in the manner illustrated in FIGS. **10** and **11.** In particular, lower member **32** and interconnecting member **36** are relatively moved or forced toward each other by applying assembly forces through suitable devices which are also represented schematically by the arrows **46** in FIG. **10** whereupon the cam surfaces **47** cam the resilient arms outwardly to the dotted line positions **48** shown in FIG. **11.** Once surfaces **49** of member **36** engage the outer edges of the lower member the cooperating arrangement of the projections **41** and grooves **35** is such that the arms snap into interlocked engagement against the associated apex portion **42.** The upper member **32** may then be fixed to member **36** in a similar manner or both upper and

lower members 32 may be simultaneously attached to member 36.

In this example, the arrows 46 indicate relative movement of both members 32 and 36 toward each other; however, only one of such members need be moved while the other is kept stationery. It will also be appreciated that this method of assembling members 32 and 36 to define structural assembly 26 may be carried out with optimum efficiency because it only requires the apex portions 42 of each member 36 be located along the member at the desired position whereupon the members are then merely urged together applying assembly forces substantially perpendicular to the grooves 35 in each member 32.

Other exemplary embodiments of structural assemblies of this invention are illustrated in FIGS. 12 and 13 of the drawings. The assemblies illustrated in FIGS. 12 and 13 are similar to the assembly 26; therefore, these assemblies will be designated generally by the reference numerals 26A and 26B respectively and representative parts of each assembly which are similar to corresponding parts of the assembly 26 will be designated by the same reference numeral as in the assembly 26 followed by an associated letter designation, either A or B, and not described again because the previous description of corresponding parts of assembly 26 is fully applicable thereto. Only those component parts of each assembly 26A and 26B which are different from corresponding parts of the assembly 26 will be designated by a new reference numeral also followed by an associated letter designation and described in detail. The assemblies 26A and 26B may be used in any suitable structure known in the art such as the structure of FIG. 1, for example.

The structural assembly 26A is in the form of a box beam of roughly rectangular outline as viewed from an end thereof, and instead of employing members such as members 32 having a T-shaped cross-sectional configuration utilizes four members 67A each having a right angle or approximately L-shaped cross-sectional configuration, also see FIG. 16. Each member 67A has a pair of leg portions or legs 70A and a groove 33A in each of its legs. The groove 33A is comprised of a pair of serrated surfaces 34A each defined by a plurality of cooperating V-shaped grooves 35A. It will also be appreciated that each leg 70A has resilient arms 31A in its outer end portion which allow an associated member 36A to be interlocked with member 67A.

As seen particularly in FIGS. 14 and 15, the apex portions 42A of each member 36A are fastened in position between the legs 70A of a pair of associated L-shaped members 67A and the fastening action is a snap-fitting action similar to the action described previously in connection with assembly 26.

The structural assembly 26B illustrated in FIG. 13 is also in the form of a box beam and instead of having a substantially rectangular peripheral outline, as viewed from an end thereof, has a substantially triangular outline. Accordingly, instead of having L-shaped corner members, the assembly 26B has approximately V-shaped corner members 71B with each member 71B having a pair of diverging leg portions or legs 72B.

Each leg 72B also has resilient arms 31B at the terminal end thereof separated by a groove 33B which has a pair of serrated surfaces 34B each defined by a plurality of cooperating V-shaped grooves 35B in the associated leg portion 72B. The members 71B are suitably fixed together using sinusoidal members 36B and in a similar manner as described in connection with structural assembly 26.

The triangular structural assembly 26B is shown as comprising various sections of the telescoping boom 24 of the exemplary structure 20 illustrated in FIG. 1; however, it will be appreciated that the assemblies similar to the assembly 26B may be utilized in any suitable application.

In this disclosure of the invention, the members 36, 36A, and 36B, for example, are installed in position within their respective members 32, 32A, and 32B, so that triangular portions thereof adjacent each tongue or tab 42, 42A, and 42B are arranged within an associated channel or groove. See the typical triangular portions indicated by dotted lines at 75 in FIG. 2 and the typical triangular portions at 75A in FIG. 14, for example. However, it will be appreciated that these typical triangular portions 75 and 75A may be eliminated simply by providing cutouts in each interconnecting member 36, 36A, or 36B so that the triangular portions would not esist.

In some applications, it may be required to provide a structural assembly similar to the structural assemblies discussed previously and which has greater structural strength. Accordingly, it may be desirable to provide a modified structural assembly essentially as illustrated in FIG. 17 of the drawing. The structural assembly illustrated in FIG. 17 is similar to the structural assembly of FIG. 2 with the exception that it utilizes a plurality of interconnecting struts (only one of such struts is shown). Also, the triangular tab portions similar to the tab portions shown at 75 in FIG. 2 have also been eliminated.

Because the structural assembly of FIG. 17 is a modification of the structural assembly 26, it will be designated generally by the reference numeral 26M and parts of the assembly 26M which are similar to corresponding parts of the assembly 26 will be designated by the same reference numeral as in the assembly 26 followed by an associated letter designation M and not described again because the previous description of corresponding parts of assembly 26 is fully applicable thereto. Only those component parts of the assembly 26M which are substantially different from corresponding parts of the assembly 26 will be designated by a new reference numeral also followed by an associated letter designation M and described in detail.

The assembly 26M utilizes a plurality of struts 77M and a sinusoidal interconnecting member 36M which has been suitably modified to enable easy fastening of the struts 77M. In particular, it will be seen that the sinusoidal interconnecting member 36M has cutouts 80M in each of its wedge-shaped portions 37M defining a pair of tabs 42M associated with each apex portion of the member 36M. One of these tabs 42M which may be referred to as a first tab comprises the outwardly convex part of each apex portion and the other or second tab 42M of each pair comprises the inwardly concave part of each apex portion. Each of the first tabs 42M has its wedge-shaped portions held in interlocked snap-fitted relation by the resilient arms of an associated member 32M comprising the structural assembly 26M.

The strut 77M is arranged transverse an associated pair of members 32M and in this example with two parallel members 32M being utilized, the strut 77M is ar-

ranged perpendicular to the members **32M**. The strut **77M** has one end **82M** attached to an associated tab **42M** and has its opposite end **83M** fixed to an associated meber **32M**. For even greater structural integrity, it may be desirable in some applications of this invention to provide separate fastening members such as rivets **60M** to further fix each end portion **82M** and **83M** in position.

Each strut **77M** may be of any suitable construction and configuration; however, each strut preferably has a pair of resilient arms **31M** separated by a groove **33M** in its end portion **82M**, see FIG. **18**, and these arms and groove are similar in construction (though of considerably shorter length) to the arms **31** and groove **33** in each member **32**. The strut **77M** also has a roughly wedge-shaped portion **37M** comprising its opposite end **83M** which is similar to the wedge-shaped portions **37M** of the sinusoidal member **36M**.

The resilient arms **31M** of end portion **82M** are snap-fitted around an associated tab **42M** and a wedge-shaped portion **37M** in end portion **83M** is snap-fitted within an associated groove **33M** of an associated member **32M**. Thus, the structural assembly **26M** has great structural strength and may be used in applications where such strength is required.

Each strut **77** has a central portion **85M** with end portions **82M** and **83M** defining its opposite ends, and these end portions may be suitably fixed to the central portion using any suitable means, such as welding. In addition, the central portion may be of solid or tubular construction and have any suitable simple cross-sectional configuration.

The assembly **26M** is basically a modification of the assembly **26**; however, it will be appreciated that the structural assemblies **26M** and **26B** may be also suitably modified to provide struts, similar to the struts **77M**, between each associated pair of interconnected members and cooperating with an associated sinusoidal member in a similar manner as shown in FIG. **17**.

The various components comprising each assembly **26, 26A, 26B**, and **26M** may be made utilizing any suitable technique; however, such components are preferably made by extrusion process. In addition, these components may be made using any suitable material but are preferably made of metallic materials containing aluminum.

While present exemplary embodiments of this invention, and methods of practicing the same, have been illustrated and described, it will be recognized that this invention may be otherwise variously embodied and practiced within the scope of the following claims.

What is claimed is:

1. A structural assembly comprising, a plurality of interconnected members arranged in spaced parallel relation and each having at least one pair of resilient arms separated by a groove, said groove being comprised of a pair of opposed serrated surfaces each defined by a plurality of parallel V-shaped grooves in an associated arm, and at least one interconnecting member interconnecting said plurality of members and having a pair of opposed roughly wedge-shaped portions each comprised of a pair of cooperating inclined surfaces with each inclined surface having a plurality of parallel V-shaped projections extending therefrom defining serrations therein, said projections corresponding in configuration to the V-shaped grooves in an associated interconnected member, with the one interconnecting member having at least parts of each of its wedge-shaped portions held in interlocked snap-fitted relation by the resilient arms of an associated interconnected member with the interlocking being achieved solely by relative movement of the one interconnecting member and associated interconnected member toward each other in a direction perpendicular to the V-shaped grooves, said one interconnecting member having a sinusoidal configuration and said parts of each wedge-shaped portion comprising flattened apex portions having cutouts on each end thereof to enable said interconnecting member to be assembled in an unobstructed manner.

2. An assembly as set forth in claim **1** in which said plurality of interconnected members are defined as a pair of interconnected members.

3. An assembly as set forth in claim **2** in which each of said pair of interconnected members has a T-shaped cross-sectional configuration defined by a leg and a transverse bar member and said resilient arms define the outer portion of said leg.

4. An assembly as set forth in claim **1** in which said plurality of interconnected members comprise a plurality of three substantially identical interconnected members each having a substantially V-shaped cross-sectional configuration comprised of a pair of diverging legs, said one pair of resilient arms defining the outer end of one of said legs and further comprising another pair of resilient arms defining the outer end of the other of said legs in each interconnected member, and further comprising two additional interconnecting members each substantially identical to said one interconnecting member, each of said two additional interconnecting members having parts of each of its wedge-shaped portions held in interlocked snap-fitted relation by the resilient arms of an associated interconnected member with the interlocking for said two additional members being achieved in a similar manner as the interlocking for said one interconnecting member whereby said structural assembly has a substantially triangular outline when viewed from an end thereof.

5. An assembly as set forth in claim **1** in which said plurality of interconnected members comprise a plurality of four substantially identical interconnected members each having a substantially L-shaped cross-sectional configuration comprised of a pair of legs, said one pair of resilient arms defining the outer end of one of said legs and further comprising another pair of resilient arms defining the outer end of the other of said legs in each interconnected member and further comprising three additional interconnecting members each substantially identical to said one interconnecting member, each of said three additional interconnecting members having parts of each of its wedge-shaped portions held in interlocked snap-fitted relation by the resilient arms of an associated interconnected member with the interlocking for said three additional members being achieved in a similar manner as the interlocking for said one interconnecting member, whereby said structural assembly has a substantially rectangular outline when viewed from an end thereof.

6. A structural assembly comprising, a plurality of interconnected members each having at least one pair of resilient arms separated by a groove, said groove being comprised of a pair of opposed serrated surfaces each defined by a plurality of parallel V-shaped grooves in an associated arm, at least one sinusoidal interconnect-

ing member having a pair of identical opposed roughly wedge-shaped portions each comprised of a pair of cooperating inclined surfaces with each inclined surface having a plurality of parallel V-shaped projections extending therefrom defining serrations therein, said projections corresponding in configuration to the V-shaped grooves in an associated interconnected member, said sinusoidal interconnecting member having cutouts in its wedge-shaped portions defining a first and a second tab associated with each apex portion thereof with each first tab comprising the outwardly convex part of each apex portion and each second tab comprising the inwardly concave part of each apex portion, each first tab having its wedge-shaped portions held in interlocked snap-fitted relation by the resilient arms of an associated interconnected member with the interlocking being achieved solely by relative movement of the one interconnecting member and associated interconnected member toward each other in a direction perpendicular to the V-shaped grooves, and at lest one strut arranged roughly transverse an associated pair of interconnected members, said strut having one end portion attached to an associated second tab and having an opposite end portion fixed to an associated interconnected member.

7. An assembly as set forth in claim **6** in which said strut has a pair of resilient arms separated by a groove comprising said one end portion thereof which is substantially identical to the groove in each interconnected member and has a roughly wedge-shaped portion comprising said opposite end portion which is substantially identical to the wedge-shaped portions of said sinusoidal member, said resilient arms in said one end portion of said strut being snap-fitted around an associated second tab and said wedge-shaped portion in said opposite end portion of said strut being snap-fitted within an associated groove of an interconnected member associated therewith.

8. An assembly as set forth in claim **7** in which each strut has a central portion of simple cross-sectional configuration with said end portions being fixed to said central portion.

9. A method of making a structural assembly comprising the steps of, providing a plurality of first members each having at least one pair of resilient arms separated by a groove, said groove being comprised of a pair of opposed serrated surfaces each defined by a plurality of parallel V-shaped grooves in an associated arm, forming at least one interconnecting member to define a pair of opposed roughly wedge-shaped portions each comprised of a pair of cooperating inclined surfaces with each inclined surface having a plurality of parallel V-shaped projections extending therefrom defining serrations thereon, said projections corresponding in configuration to the V-shaped grooves in an associated interconnected member, and relatively moving said one interconnecting member and each of said first members in a direction perpendicular to the V-shaped grooves causing parts of each wedge-shaped portion of said interconnecting member to be snap-fitted and interlocked by the resilient arms of an associated first member to define said structural assembly, said forming step comprising providing cutouts in each of said wedge-shaped portions of said interconnecting member defining tabs at equally spaced intervals and bending said interconnecting member into a sinusoidal configuration so that each tab defines an apex portion, and said relatively moving step comprises relatively moving said one interconnecting member and each of said first members so that said parts which are snap fitted together comprise said apex portions.

10. A method as set forth in claim **9** in which said forming step comprises forming said interconnecting member with its pair of opposed wedge-shaped portions by extrusion.

11. A method as set forth in claim **9** and comprising the further steps of fastening each apex portion against its associated first member using additional fastening means.

12. A method as set forth in claim **9** in which said step of providing cutouts comprises providing a plurality of three cutouts associated with each tab with a pair of said cutouts being in the same wedge-shaped portion as the tab and defining the length thereof and the third cutout being in the opposite wedge-shaped portion, said third cutout having a length which is greater than the combined length of said two cutouts and said tab thereby enabling said bending step to be achieved in an easier manner.

13. An assembly as set forth in claim **1** in which each of said roughly wedge-shaped portions has a roughly trapezoidal cross-sectional configuration.

14. An assembly as set forth in claim **1** in which said members comprise extruded members made of a metallic material containing aluminum.

15. An assembly as set forth in claim **1** in which said interconnecting member comprises a central portion between said wedge-shaped portions, said central portion having a roughly H-shaped cross-sectional configuration defined by a pair of parallel legs and a transverse member with the transverse member being arranged roughly parallel to said wedge-shaped portions.

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