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(54) **MODULAR CONSTRUCTION ASSEMBLY**

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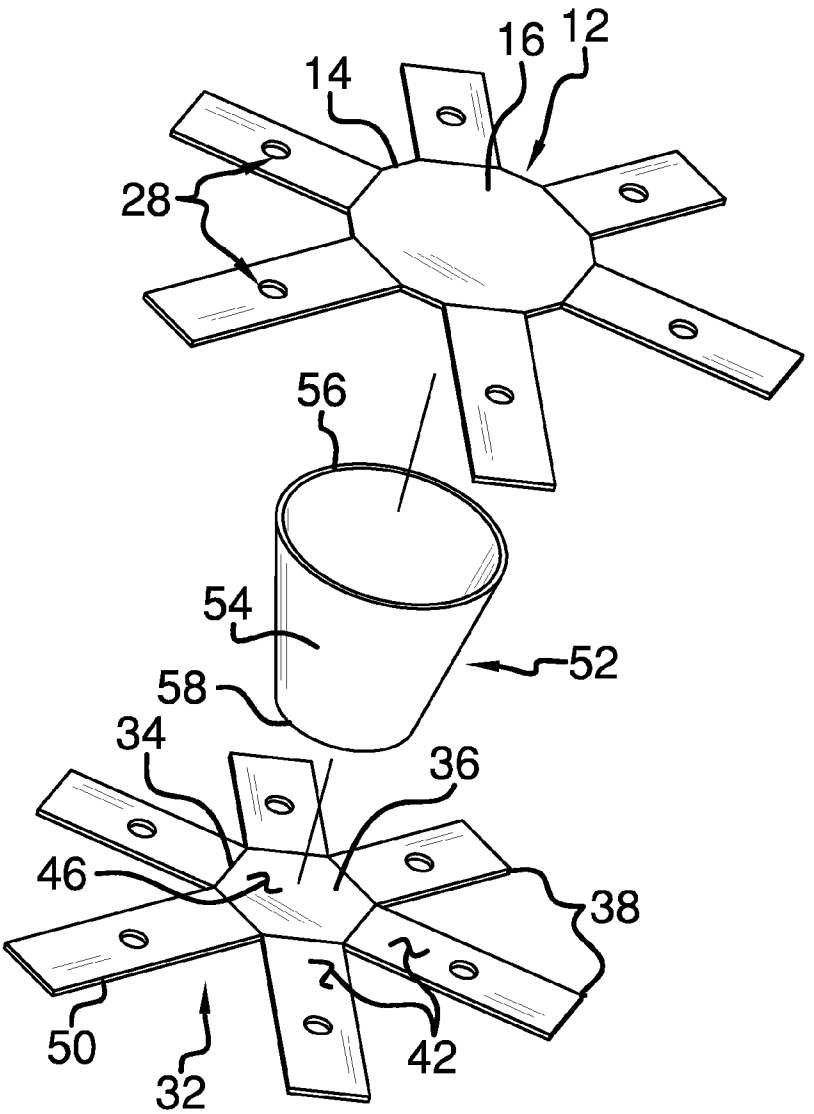
(57) **ABSTRACT**

A modular construction assembly for coupling a plurality of members together to form a geodesic dome includes at least one upper plate. A plurality of first tabs radiates outwardly from a center of the upper plate. At least one lower plate is provided. A plurality of second tabs radiates outwardly from a center of the lower plate. At least one spacer is positionable between the at least one upper and lower plates. The at least one upper and lower plates are separated. Each of the plurality of members is positionable between associated ones of the plurality of the first and second tabs on each of the at least one upper and lower plates. The plurality of members are arranged to form a geodesic dome.



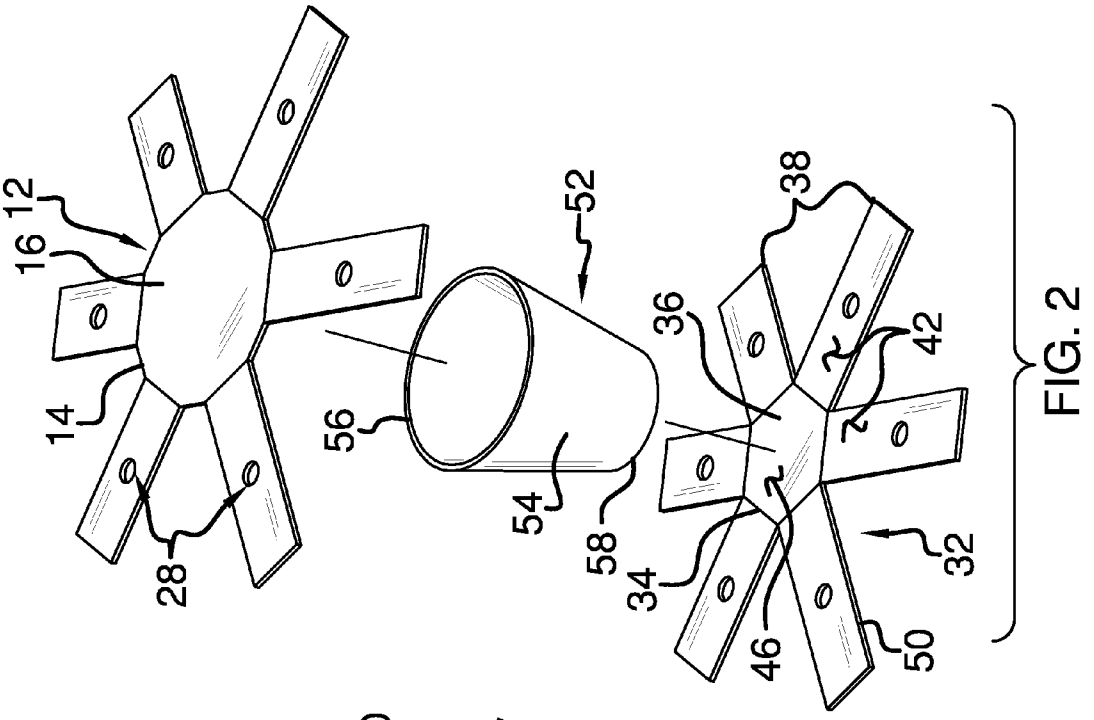

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FIG. 2

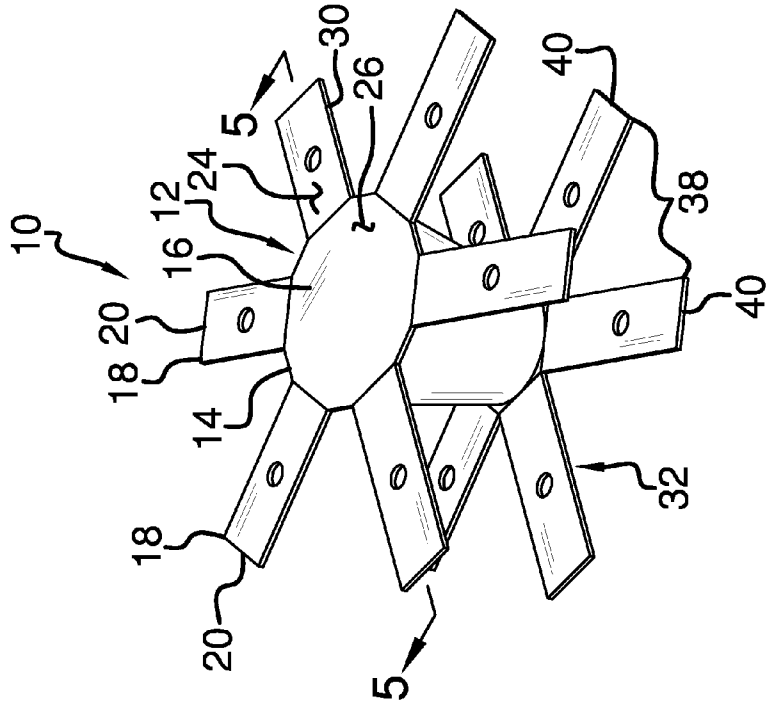
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FIG. 1

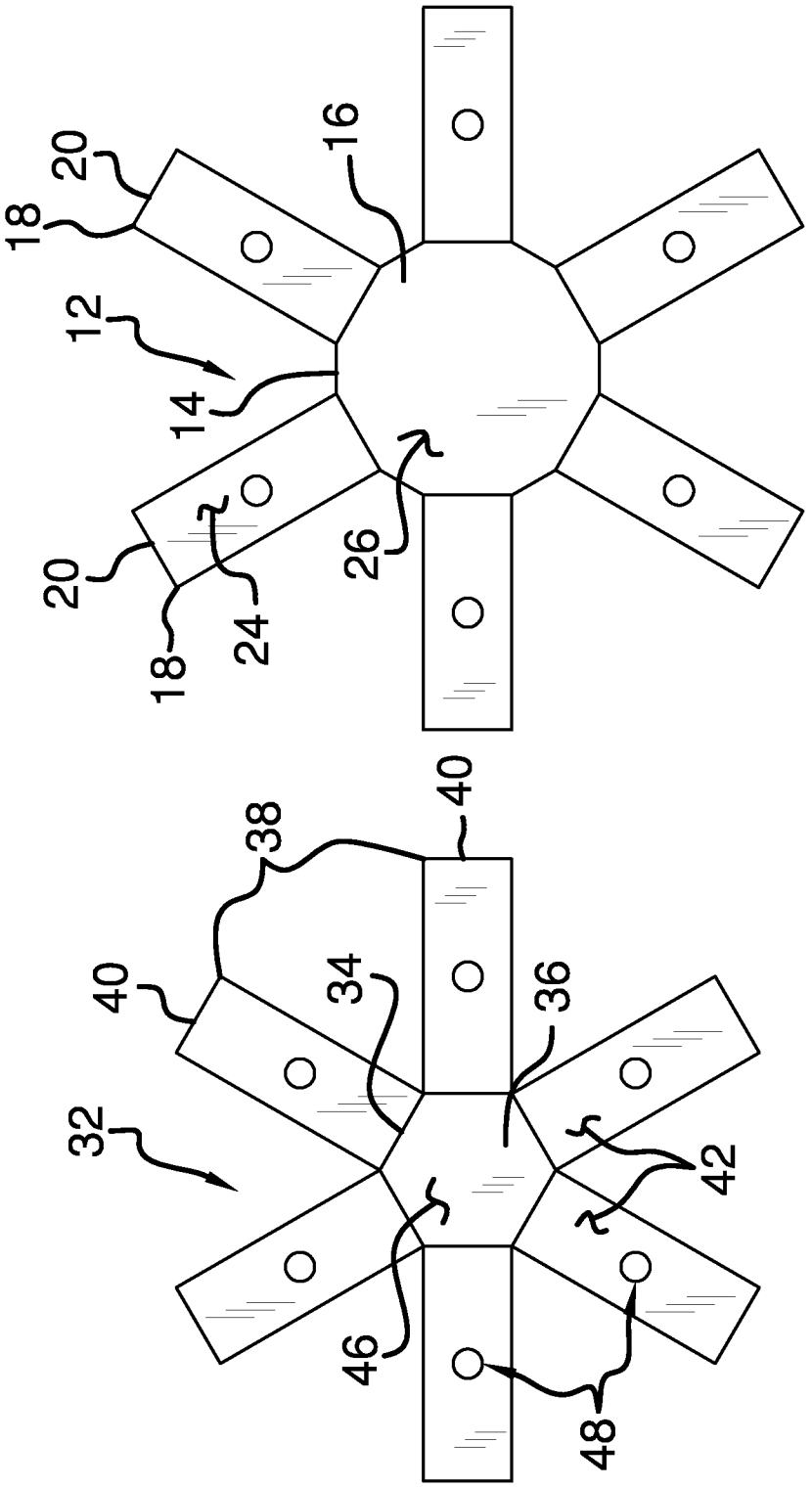

FIG. 3

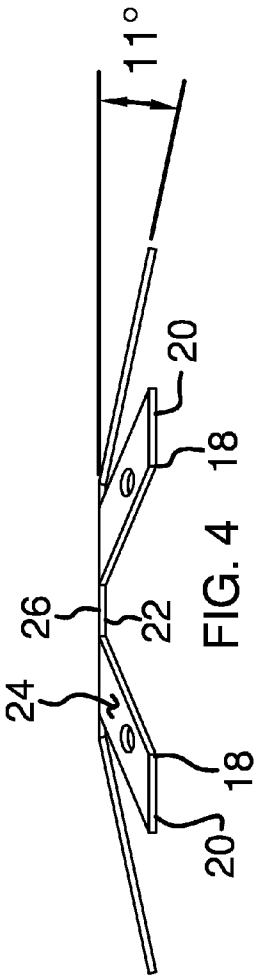
11°
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FIG. 4

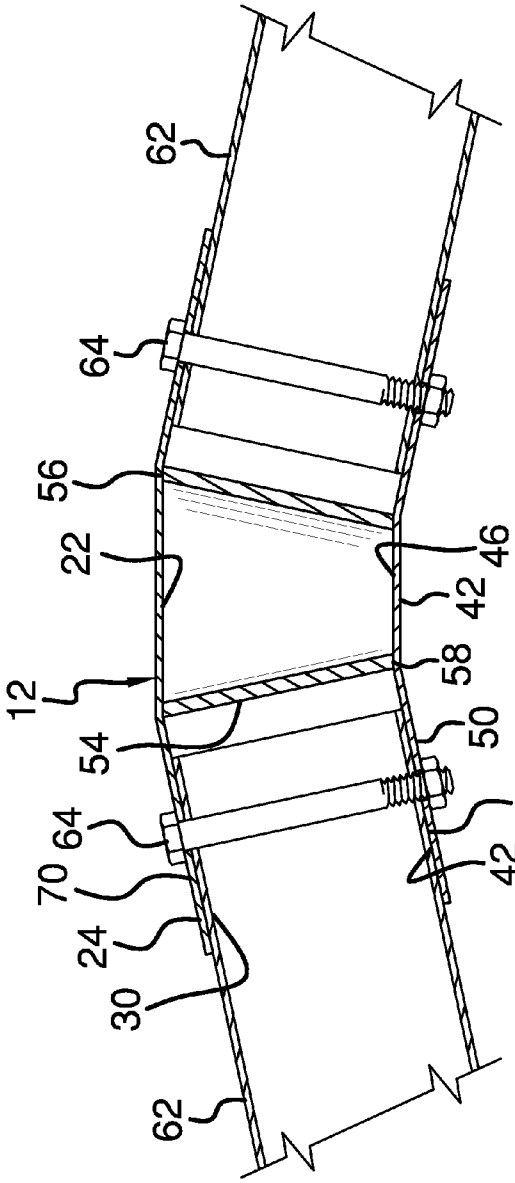
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FIG. 5

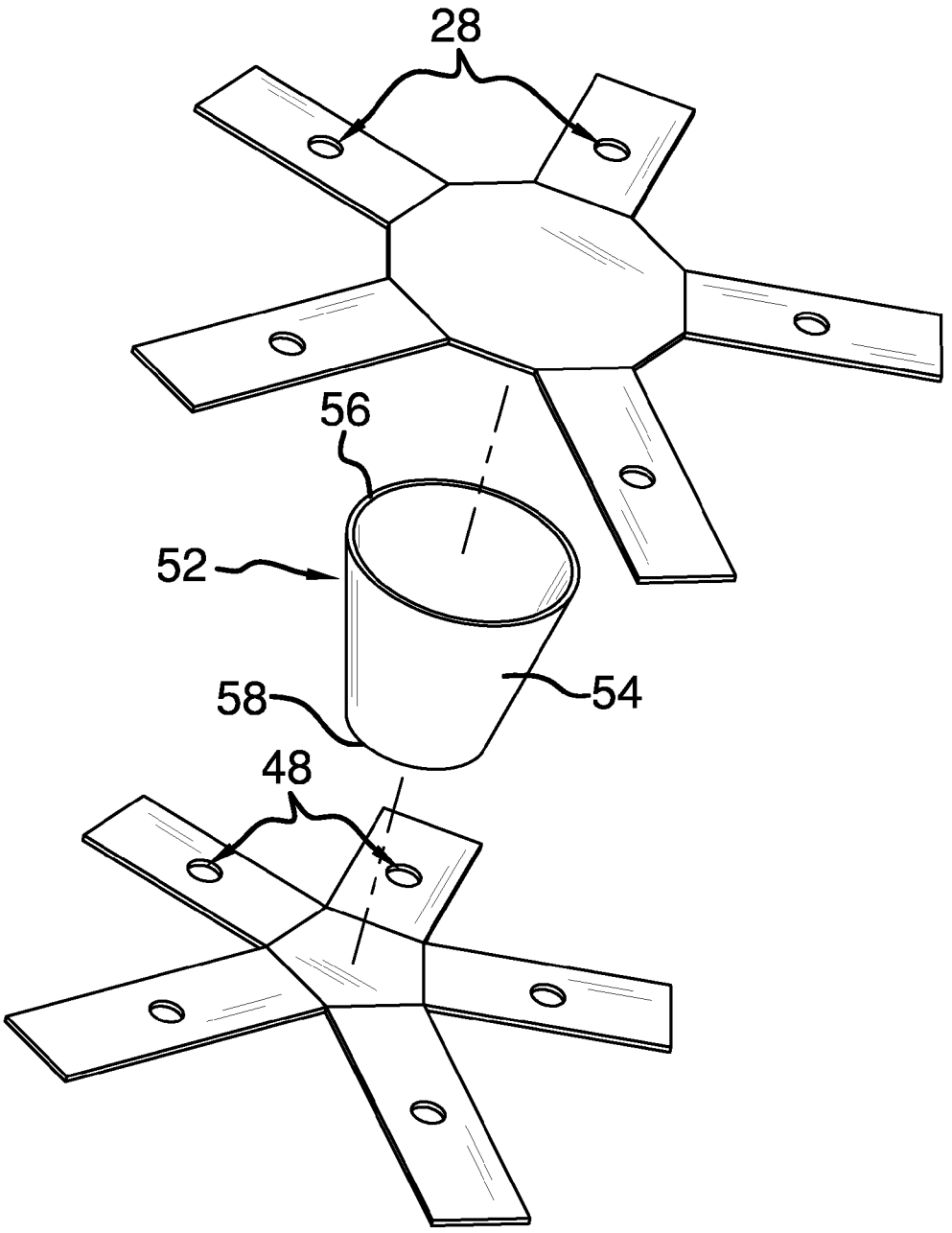

FIG. 6

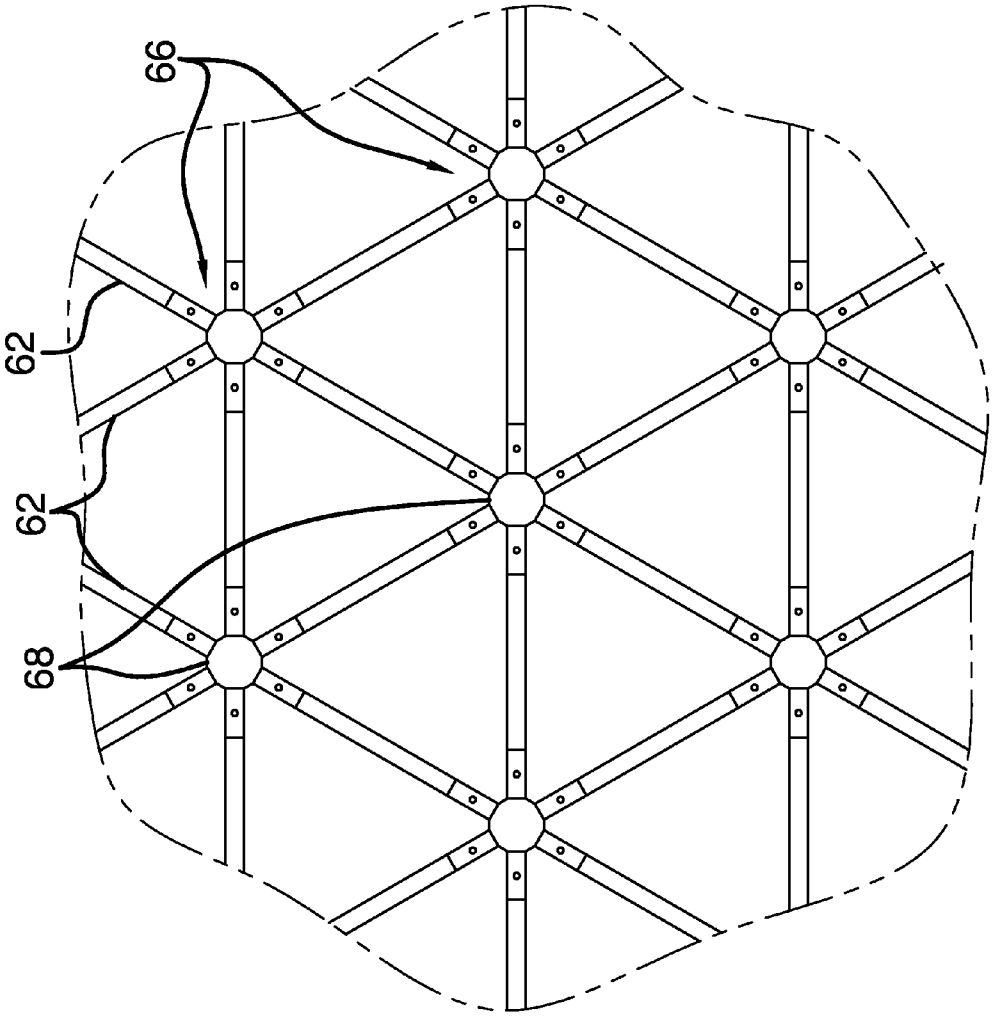

FIG. 7

MODULAR CONSTRUCTION ASSEMBLY

BACKGROUND OF THE DISCLOSURE

Field of the Disclosure

[0001] The disclosure relates to construction devices and more particularly pertains to a new construction device for coupling a plurality of members together to form a geodesic dome.

SUMMARY OF THE DISCLOSURE

[0002] An embodiment of the disclosure meets the needs presented above by generally comprising at least one upper plate. A plurality of first tabs radiates outwardly from a center of the upper plate. At least one lower plate is provided. A plurality of second tabs radiates outwardly from a center of the lower plate. At least one spacer is positionable between the at least one upper and lower plates. The at least one upper and lower plates are separated. Each of the plurality of members is positionable between associated ones of the plurality of the first and second tabs on each of the at least one upper and lower plates. The plurality of members are arranged to form a geodesic dome.

[0003] There has thus been outlined, rather broadly, the more important features of the disclosure in order that the detailed description thereof that follows may be better understood, and in order that the present contribution to the art may be better appreciated.

[0004] There are additional features of the disclosure that will be described hereinafter and which will form the subject matter of the claims appended hereto.

[0005] The objects of the disclosure, along with the various features of novelty which characterize the disclosure, are pointed out with particularity in the claims annexed to and forming a part of this disclosure.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] The disclosure will be better understood and objects other than those set forth above will become apparent when consideration is given to the following detailed description thereof. Such description makes reference to the annexed drawings wherein:

[0007] FIG. **1** is a perspective view of a modular construction assembly according to an embodiment of the disclosure.

[0008] FIG. **2** is an exploded perspective view of an embodiment of the disclosure.

[0009] FIG. **3** is a top view of an embodiment of the disclosure.

[0010] FIG. **4** is a right side view of an embodiment of the disclosure.

[0011] FIG. **5** is a cross sectional view taken along line **5-5** of FIG. **1** of an embodiment of the disclosure.

[0012] FIG. **6** is a top perspective view of an alternative embodiment of the disclosure.

[0013] GIG. **7** is an in-use view of an embodiment of the disclosure.

DESCRIPTION OF THE PREFERRED EMBODIMENT

[0014] With reference now to the drawings, and in particular to FIGS. **1** through **7** thereof, a new construction device embodying the principles and concepts of an embodiment of the disclosure and generally designated by the reference numeral **10** will be described.

[0015] As best illustrated in FIGS. **1** through **7**, the modular construction assembly **10** generally comprises at least one upper plate **12**. An outer edge **14** of a center **16** of the at least one upper plate **12** has a plurality of sides. The center **16** of the at least one upper plate **12** has an irregular dodecagonal shape. Each of an alternating one of the plurality of sides of the outer edge **14** of the center **16** of the at least one upper plate **12** has a width that is less than each of a remaining one of the plurality of sides of outer edge **14** of the center **16** of the at least one upper plate **12**. Alternatively, the center **16** of the at least one upper plate **12** may have a regular decagonal shape.

[0016] A plurality of first tabs **18** extends laterally away from alternating ones of the plurality of sides of the outer edge **14** of the center **16** of the at least one upper plate **12**. Each of the plurality of first tabs **18** may have a length between **5** cm and **7** cm and a width between **2** cm and **4** cm. Each of the plurality of first tabs **18** angles downwardly from the outer edge **14** of the center **16** of the at least one upper plate **12**. A free end **20** of each of the plurality of first tabs **18** is positioned below a bottom surface **22** of the center **16** of the at least one upper plate **12**. A top surface **24** of each of the plurality of first tabs **18** forms an acute angle with respect to a crowning surface **26** of the center **16** of the at least one upper plate **12**. The acute angle may be an angle between 10° and 12°.

[0017] Each of the plurality of first tabs **18** has a first aperture **28** extending through the top surface **24** and a bottom surface **30** of each of the plurality of first tabs **18**. The first aperture **28** is centrally positioned on each of the plurality of first tabs **18**. Additionally, the first aperture **28** on each of the plurality of first tabs **18** may have a diameter ranging between 6 mm and 9 mm.

[0018] At least one lower plate **32** is provided. An outermost edge **34** of a center **36** of each of the at least one lower plate **32** has a plurality of sides. The center **36** of the at least one lower plate **32** has a regular hexagonal shape. Alternatively, the center **36** of the at least one lower plate **32** may have a regular pentagonal shape. A plurality of second tabs **38** extends laterally away from each of the plurality of sides of the outermost edge **34** of the center **36** of the at least one lower plate **32**. Each of the plurality of second tabs **38** may have a length between 5 cm and 7 cm and a width between 2 cm and 4 cm.

[0019] Each of the plurality of second tabs **38** angles downwardly from the outermost edge **34** of the center **36** of the at least one lower plate **32**. A free end **40** of each of the plurality of second tabs **38** is positioned below a bottommost surface **42** of the center **36** of the at least one lower plate **32**. A topmost surface **44** of each of the plurality of second tabs **38** forms an acute angle with respect to a crowning surface **46** of the center **36** of the at least one lower plate **32**. The acute angle may be an angle between 10° and 12°.

[0020] Each of the plurality of second tabs **38** has a second aperture **48** extending through the topmost surface **44** and a lowermost surface **50** of each of the plurality of second tabs **38**. The second aperture **48** is centrally positioned on each of the plurality of second tabs **38**. Additionally, the second aperture **48** on each of the plurality of second tabs **38** may have a diameter ranging between 6 mm and 9 mm.

[0021] At least one spacer **52** is provided. The at least one spacer **52** has an exterior wall **54** extending between a top end **56** and a bottom end **58** of the at least one spacer **52**. The top

56 and bottom 58 ends of the at least one spacer 52 are open. The exterior wall 54 of the at least one spacer 52 is curvilinear. Moreover, the exterior wall 54 of the at least one spacer 52 tapers inwardly between the top 56 and bottom 58 ends of the at least one spacer 52. The at least one spacer 52 has a frusto conical shape.

[0022] The at least one spacer 52 is positionable between each of the at least one upper 12 and lower 32 plates. The top end 56 of the at least one spacer 52 abuts the bottom surface 22 of the center 16 of the at least one upper plate 12. The bottom end 58 of the at least one spacer 52 abuts the crowing surface 46 of the center 36 of the at least one lower plate 32. The at least one upper 12 and lower 32 plates are vertically spaced apart. The at least one upper 12 and lower 32 plates are positionable so the plurality of first 18 and second 38 tabs on each of the at least one upper 12 and lower 32 plates are aligned. Additionally, the each of the first 28 and second 48 apertures are aligned with each other.

[0023] Each of a plurality of members 62 is positionable between associated ones of the plurality of the first 18 and second 38 tabs on each of the at least one upper 12 and lower 32 plates. The plurality of members 62 may each comprise a 1×2 or a 2×4 wooden beam. A plurality of fasteners 64 is extendable through each of the first 28 and second 48 apertures. The plurality of fasteners 64 extends through an associated one of each of the plurality of members 62. The plurality of fasteners 64 retains each of the plurality of members 62 to each of the at least one upper 12 and lower 32 plates. The plurality of fasteners 64 may comprised a nut and bolt of any conventional design.

[0024] The at least one upper 12 and lower 32 plates is one of a plurality of sets of the at least one upper and lower plates 66. Additionally, the at least one spacer 52 is one of a plurality of the at least one spacers 68. The plurality of members 62 is positionable so each of the plurality of members 62 extends between an associated pair of the plurality of sets of the at least one upper and lower plates 66. The plurality of members 64 are arranged to form a geodesic dome.

[0025] In use, the assembly 10 is used to construct the geodesic dome from standard, wooden framing members. The plurality of members 62 are positioned so the bottom surface 30 of each of the plurality of first tabs 18 abuts a top side 70 of an associated one of the plurality of members 62. Additionally, the plurality of members 62 are positioned so the topmost surface 44 of each of the plurality of second tabs 38 abuts a bottom side 72 of an associated one of the plurality of members 62. The plurality of members 62 are further positioned to extend between the plurality of sets of the at least one upper and lower plates 66. The plurality of sets of the at least one upper and lower plates 66 forms nodes of the geodesic dome. The plurality of members 62 are arranged so the plurality of sets of the at least one upper and lower plates 66 are all operationally coupled together.

[0026] With respect to the above description then, it is to be realized that the optimum dimensional relationships for the parts of an embodiment enabled by the disclosure, to include variations in size, materials, shape, form, function and manner of operation, assembly and use, are deemed readily apparent and obvious to one skilled in the art, and all equivalent relationships to those illustrated in the drawings and described in the specification are intended to be encompassed by an embodiment of the disclosure.

[0027] Therefore, the foregoing is considered as illustrative only of the principles of the disclosure. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the disclosure to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the disclosure. In this patent document, the word "comprising" is used in its non-limiting sense to mean that items following the word are included, but items not specifically mentioned are not excluded. A reference to an element by the indefinite article "a" does not exclude the possibility that more than one of the element is present, unless the context clearly requires that there be only one of the elements.

I claim:

1. A modular construction assembly for coupling a plurality of members together to form a geodesic dome, said assembly comprising:

at least one upper plate having a plurality of first tabs radiating outwardly from a center of said upper plate;

at least one lower plate having a plurality of second tabs radiating outwardly from a center of said lower plate; and

at least one spacer being positionable between said at least one upper and lower plates such that said at least one upper and lower plates are separated, each of the plurality of members being positionable between associated ones of said plurality of said first and second tabs on each of said at least one upper and lower plates such that the plurality of members are arranged to form the geodesic dome.

2. The assembly according to claim 1, further comprising an outer edge of said center of said at least one upper plate having a plurality of sides such that said center of said at least one upper plate has an irregular dodecagonal shape.

3. The assembly according to claim 1, wherein each of said plurality of first tabs extending laterally away from alternating ones of a plurality of sides of an outer edge of said center of said at least one upper plate.

4. The assembly according to claim 1, wherein each of said plurality of first tabs angling downwardly from an outer edge of a center of said at least one upper plate such that a free end of each of said plurality of first tabs is positioned below a bottom surface of said center of said at least one upper plate.

5. The assembly according to claim 1, wherein each of said plurality of first tabs having a first aperture extending through a top surface and a bottom surface of each of said plurality of first tabs.

6. The assembly according to claim 1, wherein an outermost edge of said center of each of said at least one lower plate having a plurality of sides such that said center of said at least one lower plate has a regular hexagonal shape.

7. The assembly according to claim 1, wherein each of said plurality of second tabs extending laterally away from each of a plurality of sides of an outermost edge of said center of said at least one lower plate.

8. The assembly according to claim 1, further comprising each of said plurality of second tabs angling downwardly from an outermost edge of a center of said at least one lower plate such that a free end of each of said plurality of second tabs is positioned below a bottommost surface of said center of said at least one lower plate.

9. The assembly according to claim 1, wherein each of said plurality of second tabs having a second aperture extending through a topmost surface and a lowermost surface of each of said plurality of second tabs.

10. The assembly according to claim **1**, wherein said at least one spacer having an exterior wall extending between a top end and a bottom end of said at least one spacer, said top and bottom ends of said at least one spacer being open.

11. The assembly according to claim **1**, wherein an exterior wall of said at least one spacer being curvilinear, said exterior wall of said at least one spacer tapering inwardly between a top end and a bottom end of said at least one spacer such that said at least one spacer has a frusto conical shape.

12. The assembly according to claim **1**, wherein said at least one spacer being positionable between each of said at least one upper and lower plates such that a top end of said at least one spacer abuts a bottom surface of a center of said at least one upper plate and a bottom end of said at least one spacer abuts an uppermost surface of a center of said at least one lower plate.

13. The assembly according to claim **1**, wherein said at least one upper and lower plates being one of a plurality of sets of said at least one upper and lower plates, said at least one spacer being one of a plurality of said at least one spacers.

14. The assembly according to claim **13**, wherein the plurality of members being positionable such that each of the plurality of members extends between an associated pair of said plurality of sets of said at least one upper and lower plates.

15. A modular construction assembly for coupling a plurality of members together to form a geodesic dome, said assembly comprising:

at least one upper plate, an outer edge of a center of said at least one upper plate having a plurality of sides such that said center of said at least one upper plate has an irregular dodecagonal shape;

a plurality of first tabs extending laterally away from alternating ones of said plurality of sides of said outer edge of said center of said at least one upper plate, each of said plurality of first tabs angling downwardly from said outer edge of said center of said at least one upper plate such that a free end of each of said plurality of first tabs is positioned below a bottom surface of said center of said at least one upper plate;

each of said plurality of first tabs having a first aperture extending through a top surface and a bottom surface of each of said plurality of first tabs;

at least one lower plate, an outermost edge of a center of each of said at least one lower plate having a plurality of sides such that said center of said at least one lower plate has a regular hexagonal shape;

a plurality of second tabs extending laterally away from each of said plurality of sides of said outermost edge of said center of said at least one lower plate, each of said plurality of second tabs angling downwardly from said outermost edge of said center of said at least one lower plate such that a free end of each of said plurality of second tabs is positioned below a bottommost surface of said center of said at least one lower plate;

each of said plurality of second tabs having a second aperture extending through a topmost surface and a lowermost surface of each of said plurality of second tabs;

at least one spacer, said at least one spacer having an exterior wall extending between a top end and a bottom end of said at least one spacer, said top and bottom ends of said at least one spacer being open, said exterior wall of said at least one spacer being curvilinear, said exterior wall of said at least one spacer tapering inwardly between said top and bottom ends of said at least one spacer such that said at least one spacer has a frusto conical shape,

said at least one spacer being positionable between each of said at least one upper and lower plates such that said top end of said at least one spacer abuts said bottom surface of said center of said at least one upper plate and said bottom end of said at least one spacer abuts an uppermost surface of said center of said at least one lower plate such that said at least one upper and lower plates are separated;

said at least one upper and lower plates being one of a plurality of sets of said at least one upper and lower plates;

said at least one spacer being one of a plurality of said at least one spacers; and

each of the plurality of members being positionable between associated ones of said plurality of said first and second tabs on each of said at least one upper and lower plates, the plurality of members being positionable such that each of the plurality of members extends between an associated pair of said plurality of sets of said at least one upper and lower plates such that the plurality of members are arranged to form the geodesic dome.

* * * * *