A geodesic-type dome structure having the structural elements connected in a pattern of great circle arcs and lesser circle arcs in a three-way grid defining isosceles triangles and including hexagon and pentagon modules.

5 Claims, 7 Drawing Figures
This invention relates to building structures of the geodesic-type dome. It is desirable in building structures and frames to obtain maximum strength and space with a minimum of materials. An example of such is described in U.S. Patent No. 2,682,235 to R. Buckminster Fuller. Geodesic dome structures have been used extensively for various purposes, such as radomes, houses and shelters. Another example of a larger dome is the geodesic dome at the Montreal "Expo '67" exposition.

It is desirable to simplify the structures as much as possible so that individuals can build the same or so as to reduce cost of the materials involved. One of the objects of the invention is to provide an improved structural arrangement of the modules. Another of the objects of the invention is to provide a structural arrangement that will not require special modules at the lower or supporting edge.

Still another of the objects is to provide an improved joint arrangement.

In one aspect of the invention, the building framework of generally spherical form has main structural elements connected in a pattern of great circle arcs and lesser circle arcs of at least three frequency. The arcs intersect to form a three-way grid of isoceles triangles, and the modules include hexagons and pentagons. The joints can be secured by using gusset plates that are perpendicular to the radial from the center of the sphere formed by the framework.

These and other objects, advantages and features of the invention should become apparent from the following description and drawings which are merely exemplary.

In the drawings:

FIG. 1 is a top plan view of a structure utilizing the present invention;

FIG. 2 is an elevational view looking in the direction of line 2—2 of FIG. 1;

FIG. 3 shows the joined struts for a pentagon module;

FIG. 4 is similar to FIG. 3 except there is an additional pentagon adjacent the center;

FIG. 5 shows the joined struts of a hexagon module;

FIG. 6 is similar to FIG. 5 except that there is an additional hexagon adjacent the center; and

FIG. 7 is a schematic view showing an arrangement of the gusset plates relative to the struts and center of the dome.

Where appropriate, like parts will be given the same reference numerals in the various figures.

Referring to FIG. 1, a plurality of modules forms the surface of the structure. The elements or edges of the forms form a substantially spherical icosahedron form structure 10 or portion thereof. The pentagon-shaped modules 11 are at the vertices of the icosahedron-like structure. The hexagon-shaped modules 12 fill in the space between the pentagons.

The hexagon modules 12 are composed of a plurality of isoceles triangles 13, 14, 15, 16, 17 and 18.

As mentioned, the centerlines of some of the struts lie generally in a lesser circle plane such as 19, and others lie generally in a great circle plane 21.
UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,810,336 Dated May 14, 1974

Inventor(s) Shoji Sadao

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Patent Front Page, [73], "Fuller & Sadao, Incorporated" should be --Fuller and Sadao, Inc.--.

Signed and sealed this 24th day of September 1974.

(SEAL)
Attest:

McCoy M. Gibson Jr. C. Marshall Dann
Attesting Officer Commissioner of Patents