Nov. 15, 1966 G. J. STOWASSER 3,284,970

UNITARY BUILDING CONSTRUCTION

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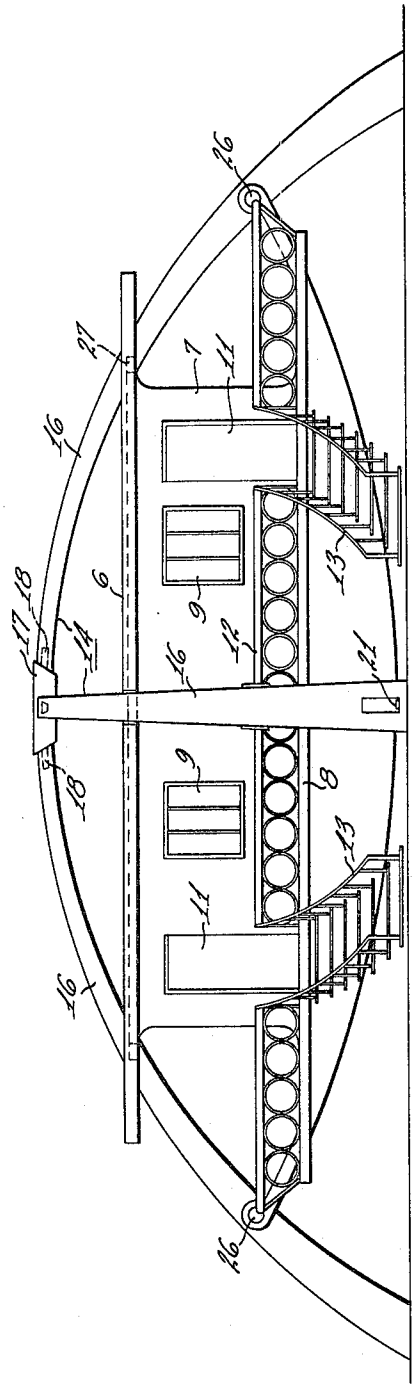


Fig. 1

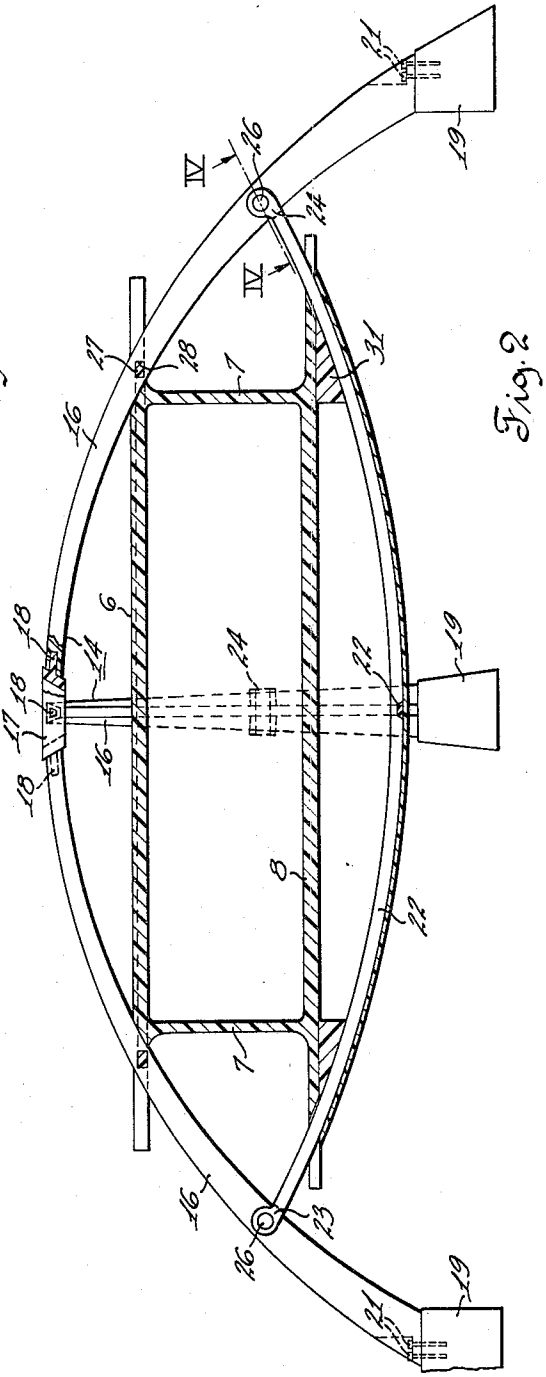


Fig. 2

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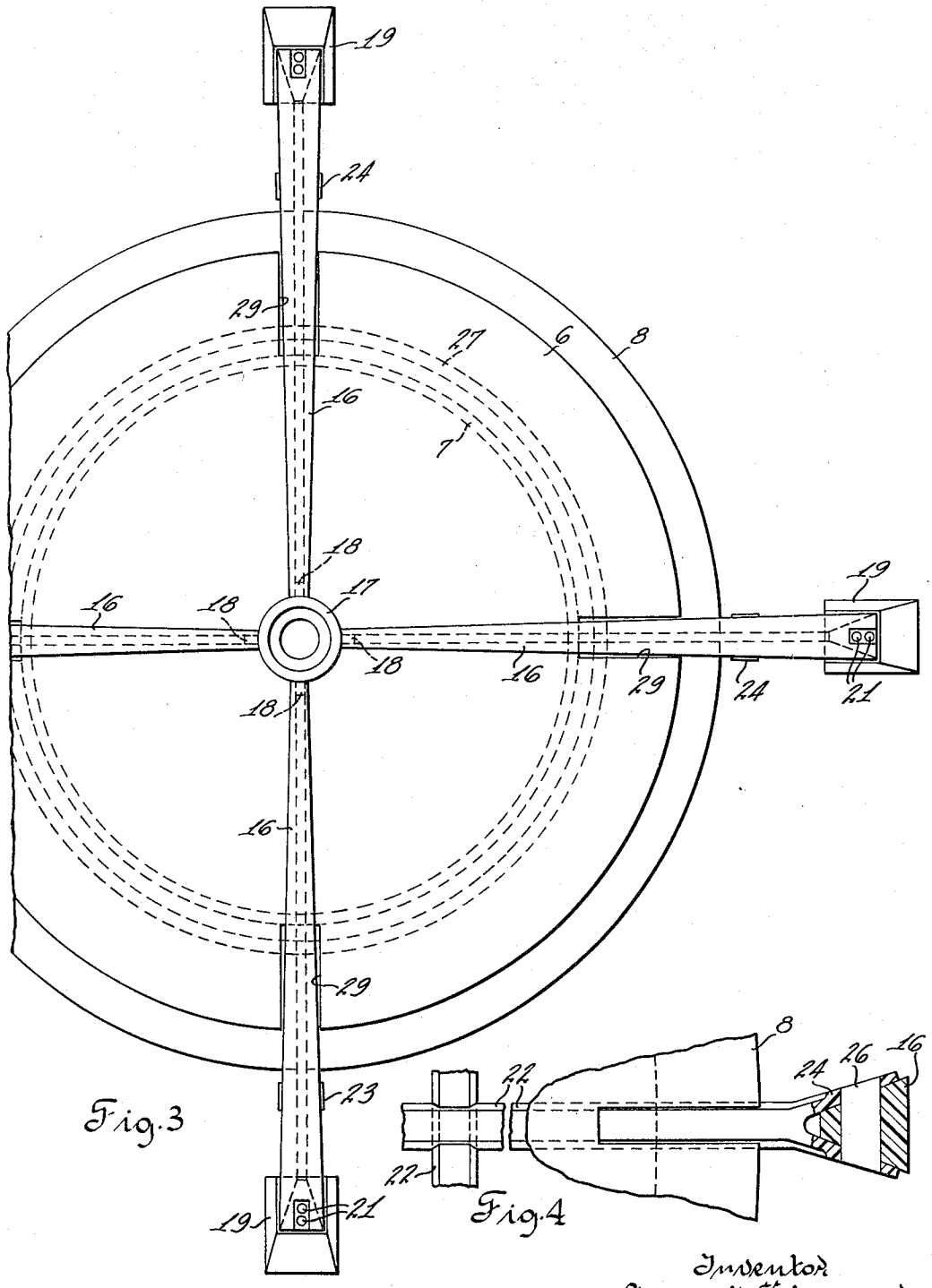


Fig. 3

Fig. 4

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UNITARY BUILDING CONSTRUCTION

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This invention pertains to buildings in general and more particularly to a building structure which is constructed in a unitary manner to permit transportation of the building structure as a unit.

This building structure pertains to that general category which is referred to as prefabricated buildings. That is, it is anticipated that the structure or building will be completely assembled at some remote location and then transported as a unit to the site of use. Buildings of the prefabricated type are becoming more and more popular and it is anticipated that as new and lighter building materials are developed, these prefabricated structures will command an ever increasing portion of the market.

Another factor which gives impetus to the increasing popularity of the prefabricated structure is the improved means of transporting large and heavy objects. It is not unusual to see large bridge sections or towers being transported to the use site by helicopters. It is anticipiated that as the prefabricated building becomes more acceptable, helicopters will be used to transport the finished building from the point of manufacture to the site at which it will be used.

One of the problems which must be overcome in designing a prefabricated structure which will be transported as a finished unit is a means of construction which will withstand the stresses imposed upon the building during the time it is being moved. It is, therefore, the general object of the subject invention to provide a prefabricated building which will withstand the stresses imposed during the physical transportation of the building unit.

An additional object of the subject invention is to provide a supporting structure for a building enclosure which structure is of sufficient strength to withstand the stresses involved in physical transportation and which protects or shields the enclosure from these stresses.

A more specific object of the subject invention is to provide a building support structure comprising overlying and underlying arches supporting the building enclosure therebetween.

These and other objects of the subject invention will become more fully apparent as the following description is read in light of the attached drawings, wherein:

FIG. 1 is a side elevation of one form of building constructed in accordance with the invention;

FIG. 2 is a vertical cross section of FIG. 1;

FIG. 3 is a plan view of FIG. 1; and

FIG. 4 is a section taken along the lines IV—IV of FIG. 2.

Referring to the drawings, and particularly FIGS. 1 and 3, the building enclosure shown herein for purposes of illustration may be constructed in the form of a circle. Although the type of material herein used in constructing the building is not material to the subject invention, it is contemplated that a lightweight material be employed. A circular roof portion **6** is rigidly connected to side walls **7** which in turn are connected to a circular floor portion **8**. The side walls **7** may be provided with windows **9** and doors **11** as may be desired for the particular building being constructed.

The floor portion **8** may extend radially outward to form a platform or porch encircling the building enclosure. A railing **12** may be provided about the outer edges of the porch both for reasons of safety and beauty. Depending on the height of the floor portion **8** above the ground level at the site where the building is to be installed, steps **13** may be provided.

A plurality of overlying arches herein shown as a pair of arches **14** may be constructed of four identical independent arcuate support members **16**. Any convenient means may be provided to join the upper adjacent ends of the arcuate support members **16**. To this end and for purposes of illustration, such means are herein shown as including a socket member **17**. The socket member **17** includes four elements **18** extending at right angles to one another. These elements **18** are disposed for insertion into sockets provided in the adjacent ends of the arcuate support members **16**.

Opposite ends of the support members **16** may be provided with flat mounting surfaces for attachment to support piers **19**. As herein shown for purposes of illustration, the support piers **19** are equally spaced to receive the support members. Any means may be provided to rigidly connect the support members **16** to the piers. For this purpose and as one means which might be employed, bolts **21** may be passed through holes provided in the members **16** and threaded into the support piers.

A plurality of underlying arches **22** herein shown as a pair are connected at their opposite ends to the arcuate support members **16**. The connection between the underlying arches **22** and the arcuate support members **16** may be effected in any conventional manner. As herein shown for purposes of illustration, opposite ends **23** and **24** of the underlying arches may be bifurcated as best shown in FIG. 4. The bifurcated ends are formed to receive the arcuate support members therebetween. Transverse openings are provided through the arcuate support members and the bifurcated ends of the underlying arches. When these openings are aligned, a pin **26** is then passed through the underlying arches **22** and the arcuate support member **16** to provide a rigid connection.

The building enclosure is supported by both the overlying arches **14** and by the underlying arches **22**. To this end a reinforcing member or ring **27** rigidly interconnects the arcuate support members **16**. This support ring may be connected to the arcuate support members in any conventional manner such as by welding. The roof portion **6** of the enclosure rests on the ring **27**. It is also contemplated that the ring **27** will be camouflaged or hidden from view by a slot **28** provided in the roof portion **6** of the building enclosure. The roof portion may extend radially outward beyond the ring and is therefore provided with four slots **29** to permit passage of the arcuate support members **16** therethrough.

Any conventional means may be provided to effect a connection between the underlying arches **22** and the floor portion **8** of the enclosure. One preferred type of connection would include an additional support member or ring **31**. The ring **31** provides a rigid connection between the end portions of the underlying arches. The floor portion **8** may be connected to the underlying arches **22** in any conventional manner such as by welding the ring **31** to both the floor and the arches. It is anticipated that the lower portion of the enclosure will be provided with a skinlike covering over the underlying arches beneath the floor portion to add to the appearance of the building. It should be understood that a skin covering could also be applied to the arcuate support members above the roof portion **6**. These spaces above the roof portion and beneath the floor portion could be utilized as storage spaces.

From the above it can be seen that an extremely rigid building construction has been provided. Furthermore, it is also apparent from the above description that an extremely effective and simple means has been provided for attaching the building to a footing. It is easy to see

that such a building construction would lend itself quite readily to transportation as by helicopter from a manufacturing facility to the erection site and could then easily be attached to support piers for immediate occupancy.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. In a unitary building structure the combination comprising: a plurality of overlying arches having opposite ends rigidly connected to support piers; a plurality of underlying arches having opposite ends connected to said upright arches; and an enclosure having spaced roof and floor portions connected by vertical side walls positioned within the space defined by said arches, said roof resting on said overlying arches and said floor resting on said underlying arches.

2. In a unitary building structure the combination comprising: a pair of overlying arches having opposite ends rigidly connected to equally spaced support piers, said arches being disposed in intersecting right angle relative relation; a pair of underyling arches having opposite ends connected to said overlying arches; and an enclosure having spaced roof and floor portions connected by vertical side walls positioned within the space defined by said arches, said roof resting on said overlying arches and said floor resting on said underlying arches.

3. In a unitary building structure the combination comprising: a plurality of arcuate support members having their lower remote ends rigidly connected to support piers; means rigidly connecting the upper adjacent ends of said support members together; a plurality of inverted arches having opposite ends connected to said arcuate support members; and an enclosure having spaced horizontally disposed roof and floor portions connected by vertical side walls positioned within the space defined by said arcuate support members and said inverted arches, said roof resting on said arcuate support members and said floor resting on said inverted arches.

4. In a unitary building structure the combination comprising: a plurality of arcuate support members having their lower remote ends rigidly connected to equally spaced support piers; means rigidly connecting the upper adjacent ends of said support members together; a plurality of inverted arches having opposite ends connected to said arcuate support members; an enclosure having spaced horizontally disposed roof and floor portions connected by vertical side walls, said enclosure positioned within the space defined by said arcuate support members and inverted arches; a first ring rigidly connected to said arcuate support members adjacent the upper ends thereof, said roof portion resting on said first ring; and a second ring rigidly connected to said underlying arches, said floor portion resting on said second ring.

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